

**MALE SEXUAL ORIENTATION:  
A CROSS-CULTURAL PERSPECTIVE**

**LANNA J. PETTERSON**  
**Bachelor of Arts (Hons.), University of Lethbridge, 2012**  
**Master of Science, University of Lethbridge, 2015**

A thesis submitted  
in partial fulfilment of the requirements for the degree of

**DOCTOR OF PHILOSOPHY**

in

**EVOLUTION AND BEHAVIOUR**

Department of Psychology  
University of Lethbridge  
LETHBRIDGE, ALBERTA, CANADA

© Lanna J. Petterson, 2020

MALE SEXUAL ORIENTATION:  
A CROSS-CULTURAL PERSPECTIVE

LANNA J. PETTERSON

Date of Defence: August 26<sup>th</sup>, 2020

Dr. P. Vasey Thesis Supervisor	Professor	Ph.D.
Dr. J. B. Leca Thesis Examination Committee Member	Associate Professor	Ph.D.
Dr. S. Pellis Thesis Examination Committee Member	Professor	Ph.D.
Dr. S. Bubel Thesis Examination Committee Member	Professor	Ph.D.
Dr. B. Kolb Internal External Examiner Department of Neuroscience Faculty of Arts and Science	Professor	Ph.D.
Dr. K. Hsu External Examiner Penn State Abington Abington, PA	Assistant Professor	Ph.D.
Dr. D. Logue Chair, Thesis Examination Committee	Associate Professor	Ph.D.

## **General Abstract**

Some men experience sexual interest in MtF (male-to-feminine) transgender individuals, known as gynandromorphophilia. This sexual interest has received little academic attention. My thesis includes (a) a review of the literature pertaining to gynandromorphophilia; (b) studies characterizing Samoan gynandromorphophilic men; (c) a study assessing whether Canadian heterosexual men experience some degree of gynandromorphophilia; (d) studies examining the relevance of culture to men's perception of, and sexual interest in, MtF transgender individuals; (e) a study exploring the relationship between individual factors and gynandromorphophilia; and (f) a discussion of whether gynandromorphophilia is a paraphilia. Broadly, this research suggests that gynandromorphophilic men are predominantly attracted to women, but they differ from exclusively heterosexual men in their elevated response to MtF transgender individuals. Heterosexual men may, however, have a general capacity to experience sexual interest in MtF transgender individuals. This interest may be expressed or inhibited by individual and cultural factors.

## Preface

This dissertation comprises six empirical chapters presented as scientific reports, a theoretical discussion, along with an introduction and conclusion. All of the research methods described in this thesis received approval from the University of Lethbridge Human Subject Research Committee, an institutional human ethics review board.

Chapter 2-4 have been published or submitted to peer-reviewed journals. Chapters 1-9 were written with co-authors. All co-authors gave their permission to include unformatted versions of the published manuscripts in my thesis. For all Chapters, the dissertation author (Lanna J. Petterson) drafted the initial manuscript and contributed to the concept, design, and revisions. For all empirical studies (Chapter 2-7), Petterson analyzed and interpreted the data and designed the study tests. Petterson also collected and edited the stimuli used in the studies in Chapters 3-7. For all Chapters, Paul L. Vasey contributed to the concept, design, and revisions. Additional information pertaining to each Chapter are as follows.

Chapter 1 authors were Lanna J. Petterson and Paul L. Vasey. Petterson conducted the initial review of the literature. Vasey assisted with the literature review. This chapter has not been submitted.

Chapter 2 authors were Lanna J. Petterson, Barnaby J. Dixson, Anthony C. Little, and Paul L. Vasey. Dixson and Little created the stimuli and provided editorial assistance. Petterson and Vasey contributed to data collection. Chapter 2 includes material from Petterson, L. J., Dixson, B. J., Little, A. C., & Vasey, P. L. (2020). Heterogeneity in the sexual orientations of men who have sex with fa'afafine in Samoa. *Archives of Sexual Behavior*, 49(2), 517-529. doi:10.1007/s10508-020-01646-6

Chapter 3 authors were Lanna J. Petterson and Paul L. Vasey. Petterson and Vasey contributed to data collection. This chapter has been submitted to a peer-reviewed journal.

Chapter 4 authors were Lanna J. Petterson and Paul L. Vasey. Petterson collected the data. This chapter will be resubmitted following revisions to a peer-reviewed journal.

Chapter 5 authors were Lanna J. Petterson, Francisco R. Gómez Jiménez, and Paul L. Vasey. Vasey and Gómez Jiménez contributed to data collection. This chapter has not been submitted to a peer-reviewed journal.

Chapter 6 authors were Lanna J. Petterson, Francisco R. Gómez Jiménez, and Paul L. Vasey. Petterson, Vasey, and Gómez Jiménez contributed to data collection. This chapter has not been submitted to a peer-reviewed journal.

Chapter 7 authors were Lanna J. Petterson and Paul L. Vasey. Petterson collected the data. This chapter has not been submitted to a peer-reviewed journal.

Chapter 8 authors were Lanna J. Petterson and Paul L. Vasey. Petterson conducted the initial review of the literature. Vasey assisted with the literature review. This chapter has not been submitted has not been submitted to a peer-reviewed journal.

## Acknowledgements

First and foremost, I would like to thank Paul Vasey. It has been a privilege to work with you and learn from you. You have been an incredible mentor, one of my biggest supporters, and a friend. You have taught me how to think critically and to work hard. You encouraged me and showed me patience when I needed it. I am forever grateful for the opportunities that you have given me. In the words of John Waters, “I respect everything I make fun of”; clearly, I respect you a lot.

I would like to thank my committee members, Shawn Bubel, Jean-Baptiste Leca, and Sergio Pellis. Your questions and feedback have challenged my thinking, and I believe that I have benefited from this. I feel fortunate to have had the opportunity to learn from each of you. Additionally, I would like to thank my external examiners, Dr. Bryan Kolb and Dr. Kevin Hsu, for taking the time to review my thesis and provide me with thoughtful comments and questions.

Barnaby Dixson and Anthony Little, thank you for your contribution to the work and all the feedback that you gave to me.

I would also like to thank the past and present faculty and staff of the University of Lethbridge who have supported me in various ways. I would especially like to thank David Logue, John Vokey, Fangfang Li, Jennifer Mather, Jennifer Williams, Drew Rendall, Gail Hepburn, and Martin Lalumière. You have all contributed to my learning and development. Susan Entz and Scott Allen, thank you for all the time that you spent carefully reviewing my proposals and providing me with feedback and suggestions. Many thanks to Leanne Wehlage. You routinely went out of your way to help me. I can only hope that you receive the care and patience that you gave to everyone in the department. Erin McSween, thank you for all of your assistance over the past year.

J. Michael Bailey, Kevin Hsu, Samantha Dawson, and Ken Zucker, thank you for your feedback and advice. J. Michael Bailey, Kevin Hsu, and Ray Blanchard, thank you for your important contributions to the field.

To the past and present Vasey lab members—you have all helped me grow in various ways. I especially would like to thank Doug VanderLaan, Scott Semenyna, Francisco Gómez Jiménez, Ryan Mallard, Lucas Court, and the students that have contributed to this research. Doug VanderLaan, you have been foundational to my development. I will always consider you to be a mentor, an academic role model, and a friend. Scott Semenyna and Francisco Gómez Jiménez, I have loved working and spending time with you two. I cannot wait to see where life takes you both. Scott Semenyna, I could not have asked for a better friend to have gone through this with. I have learned from you and leaned on you. Francisco Gómez Jiménez, I will never have a better office mate. I am glad to have you as a friend, and I am also so thankful for your contribution to this research.

Thanks to all my friends and family who have stood by me throughout my academic career. To my parents—thank-you for your tireless support, love, and encouragement. You have given me more than I could ever ask for. Melissa Read, Mattie Salmon, and Marina Barry, I truly value the encouragement and kindness you have given me over the past years. To my in-laws—your positivity is such an inspiration and I am so thankful for all the support and kindness you have given me throughout this time. To my (new) husband, Joe D’Angelo—I am so grateful to have you as a partner. You have supported me and believed in me when I have needed it most. You are definitely a distraction at times, but I feel that I am better for it. I love you and I feel so fortunate to be on this journey with you. Thanks for all the laughter along the way.

Finally, I would like to thank Trisha Tuiloma, Alatina Ioelu, Julio C. Jiménez Rodríguez who have been critical to the success of the lab and were indispensable to this research. I would also like to thank the participants, the University of Lethbridge, and the funding agencies, without whom this research would not be possible.



## Table of Contents

General Abstract .....	iii
Preface.....	iv
Acknowledgements.....	vi
List of Tables .....	xvii
List of Figures.....	xix
List of Abbreviations .....	xx
Chapter 1: Introduction .....	1
Gynandromorphophilia .....	4
Gynandromorphophilia in Men from Western Cultures.....	8
Sexual Orientation.....	8
Anal Sex with MtF Transgender Individuals.....	12
Qualities That Attract Men to MtF Transgender Individuals .....	14
Autogynephilia and Gynandromorphophilia .....	15
Non-Western Gynandromorphophilic Men .....	16
Sexual Orientation Identity and Kinsey Scores .....	18
Anal Sex Behavior with MtF Transgender Individuals .....	21
Qualities That Attract Men to MtF Transgender Individuals .....	22
Autogynephilia and Gynandromorphophilia .....	24
Discussion.....	25
Clinical Implications.....	27

Public Health Implications.....	27
Implications for Theoretical Models of Mate Selection and Sexual Orientation .....	29
The Present Research .....	29
Chapter 2 .....	30
Chapter 3 .....	30
Chapter 4 .....	30
Chapter 5 .....	31
Chapter 6 .....	31
Chapter 7 .....	31
Chapter 8 .....	32
References.....	33
Chapter 2: Heterogeneity in the Sexual Orientations of Men Who Have Sex with Fa’afafine in Samoa .....	44
Abstract .....	44
Introduction.....	45
Study 1 .....	49
Method .....	50
Results.....	55
Discussion .....	58
Study 2 .....	59
Method .....	60
Results.....	63

Discussion .....	64
General Discussion .....	66
Limitations and Future Directions .....	67
Ethics Statement.....	68
References.....	70
 Chapter 3: Samoan Men’s Sexual Attraction and Viewing Time Response to MtF	
Transgender and Cisgender Individuals.....	82
Abstract .....	82
Introduction.....	83
Methods.....	86
Participants.....	86
Measures .....	87
Results.....	94
Discussion .....	96
Limitations .....	100
Ethics Statement.....	101
References.....	102
 Chapter 4: Canadian Men’s Visual Attention to Cisgender Women, Cisgender Men, and Transgender Women.....	
Abstract .....	112
Introduction.....	113

Methods.....	115
Participants.....	115
Stimuli.....	116
Apparatus .....	117
Procedure .....	117
Measures and Data Treatment.....	118
Statistical Analysis.....	119
Results.....	120
Self-Reported Sexual Attraction.....	121
Time to First Fixation .....	121
Total Fixation Duration.....	122
Total Fixation Count.....	123
Relationship Between Scale Measures and Visual Attention to Human Stimuli ....	124
Discussion.....	124
Limitations .....	127
Ethics Statement.....	128
References.....	130
Chapter 5: Men’s Categorization of Men, Women and MtF Transgender Individuals in Three Cultures.....	138
Abstract.....	138
Introduction.....	139
Methods.....	144

Participants.....	144
Measures .....	145
Statistical Analysis.....	147
Results.....	149
Discussion.....	150
Limitations .....	153
Ethics Statement.....	154
References.....	155
Chapter 6: A Three Culture Comparison of Men’s Sexual Attraction and Viewing Time	
Responses to MtF Transgender and Cisgender Individuals.....	162
Abstract.....	162
Introduction.....	163
Methods.....	167
Participants.....	167
Measures .....	168
Stimuli.....	171
Statistical Analysis.....	172
Results.....	174
Comparison of Stimuli Images .....	175
Discussion.....	176
Limitations .....	180
Ethics Statement.....	182

References.....	183
Chapter 7: Do Individual Factors and Exposure Influence Men’s Sexual Attraction and	
Visual Attention MtF Individuals? .....	195
Abstract .....	195
Introduction.....	196
Prediction 1 .....	199
Prediction 2 .....	200
Prediction 3 .....	200
Methods.....	200
Participants.....	200
Stimuli.....	202
Apparatus .....	204
Procedure .....	204
Measures and Data Treatment.....	205
Statistical Analysis.....	208
Results.....	211
Aim 1.....	211
Aim 2.....	212
Aim 3.....	213
Discussion .....	214
Limitations .....	218
Ethics Statement.....	218

References.....	220
Chapter 8: On Gynandromorphophilia as a Paraphilia .....	233
Abstract .....	233
MtF Transgender Individuals.....	234
Gynandromorphophilic Men.....	235
Paraphilias.....	238
Phenotypically Normal: What Counts and What Does Not? .....	240
Population Frequency: Atypical but Appreciable.....	243
Normophilic Sources of Gynandromorphophilia.....	245
Extrinsic Distress .....	247
Other Considerations: The Co-occurrence of Autogynephilia .....	249
Is Gynandromorphophilia a Paraphilic Interest or Disorder? .....	250
Is Gynandromorphophilia a Spandrel? .....	251
Variability in Sexual Interest in MtF Transgender Individuals .....	254
Discussion and Future Directions .....	256
References.....	259
Chapter 9: Thesis Summary and General Discussion.....	269
Chapter 1 .....	269
Chapter 2 .....	269
Chapter 3 .....	270

Chapter 4.....	271
Chapter 5.....	271
Chapter 6.....	272
Chapter 7.....	273
Chapter 8.....	274
Future Directions.....	274
References.....	277



## List of Tables

Table 2.1: Description of partner histories of men who engage in sexual interactions with <i>fa'afafine</i> throughout participants' lifetime and within the prior year.....	74
Table 2.2: Mean, SD, and inferential statistics for sexual attraction ratings by group .....	75
Table 2.3: Number of participants who were included in each sexual feeling and sexual behavior group .....	77
Table 2.4: Sexual attraction rating and viewing time of each stimuli category as well as the gender-preference indices, magnitude of the difference in response to images of men and women, and participants' response to their lesser-preferred gender by sexual behavior group. ....	78
Table 3.1: Biographic information by group .....	106
Table 3.2: Number and percentage of participants who engaged in sexual activity and had sexual feelings for women, men, <i>fa'afafine</i> in the year prior to being interviewed and in their lifetime .....	107
Table 3.3: Descriptive statistics for sexual attraction ratings and viewing times by group .....	108
Table 3.4: Mixed-effect model analysis with stimuli category and group predicting viewing times .....	109
Table 4.1: Self-reported sexual orientation and response to the Modified Attraction to Feminine Male Scale.....	133
Table 4.2: Descriptive statistics for the standardized and raw self-reported sexual attraction, time to first fixation, total fixation duration, and total fixation count .....	134
Table 5.1: The number and proportion of images identified as each gender category by men who have sexual attraction to women .....	160
Table 6.1: Biographic information.....	187
Table 6.2: Modified Kinsey score attraction ratings and sexual histories .....	188
Table 6.3: Sexual attraction rating and viewing times by country.....	190
Table 6.4: Mixed-effect model analysis with stimuli category and group predicting viewing times .....	191

Table 7.1: Self-reported sexual orientation and response to the Modified Attraction to Feminine Male Scale.....	223
Table 7.2: Participants' pornography histories .....	224
Table 7.3: Descriptive statistics for self-reported sexual attraction, time to first fixation and total fixation duration .....	225

## List of Figures

Figure 2.1: Self-reported sexual attraction and viewing time gender-preference index scores by anal-sex position. ....	80
Figure 2.2: Sexual attraction ratings and viewing times by prior year sexual behavior .....	81
Figure 3.1: Mean (95% CI) standardized sexual attraction ratings of men, MtF transgender individuals, and women.....	110
Figure 3.2: Mean (95% CI) standardized viewing times of men, MtF transgender individuals, and women .....	111
Figure 4.1: Gynephilic men’s standardized attraction ratings, standardized time to first fixation, standardized total fixation duration, and standardized total fixation count by stimuli category.....	136
Figure 4.2: Androphilic men’s standardized attraction ratings, standardized time to first fixation, standardized total fixation duration, and standardized total fixation count by stimuli category.....	137
Figure 6.1: Sexual attraction rating by image category and country .....	192
Figure 6.2: Raw and baseline-controlled viewing times by image category and country .....	193
Figure 7.1: Self-reported sexual attraction by image category .....	227
Figure 7.2: Time to first fixation by image category .....	228
Figure 7.3: Total fixation duration by image category .....	229
Figure 7.4: Sexual attraction to MtF transgender individuals by sexual feelings group .....	230
Figure 7.5: Self-reported sexual attraction and total fixation duration by image category and session. ....	231

## List of Abbreviations

MtF	Male to feminine
FtM	Female to masculine
SA	Sexual attraction
VT	Viewing time
MSW	Men who were exclusively sexually interested in women
MSF	Men who were sexually interested in <i>fa'afafine</i>
TFF	Time to first fixation
TFD	Total fixation duration
TFC	Total fixation count
AOI	Area of interest
ANOVA	Analysis of variance
<i>DSM-5</i>	<i>Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition</i>

## Chapter 1: Introduction

Thus, while heterosexual males are commonly regarded as having rather simplistic heterosexual desires directed solely toward heterosexual females, some heterosexual males appear to be capable of much more complex patterns of arousal and orgasm. These may include, in addition to attraction to females (who remain the primary focus of arousal), male homosexuals, especially if effeminate, in culturally prescribed situations. (Whitam, 1992, p. 232)

Without reproduction, evolution cannot occur. Consequently, the mechanisms underlying mate selection are inherently linked to evolution. Evolutionary theory predicts that selection pressures should strongly favor sexual attraction to reproductively viable, opposite-sex partners (Symons, 1995). Therefore, a preference for reproductively viable females should characterize the vast majority of males, regardless of cultural context or individual experience. Accordingly, most males should be sexually responsive to reproductively viable females and not to males.

Consistent with this idea, the vast majority of men globally report that they are gynephilic (Rahman, Xu, Lippa, & Vasey, 2019). Furthermore, the majority of men show minimal sexual attraction or arousal to their non-preferred sex (e.g., Lippa, 2017; Rieger, Chivers, & Bailey, 2005). Most men are specifically attracted to women who have qualities that cue reproductive viability, such as youth and sexual maturity (Cunningham, 1986; Cunningham, Roberts, Barbee, Druen, & Wu, 1995), exaggerated female-typical facial features (Barber, 1995; Cunningham, 1986; Cunningham et al., 1995; Pflüger, Oberzaucher, Katina, Holzleitner, & Grammer, 2012; Thornhill & Gangestad, 1999), and low waist-to-hip ratios (Singh, Dixson, Jessop, Morgan, & Dixson, 2010; Suschinsky, Elias, & Krupp, 2007). Nevertheless, in numerous cultures men experience sexual interest in individuals with whom it would not be possible to reproduce. For example, a subset of

men expresses sexual interest in MtF (male-to-feminine) transgender<sup>1</sup> individuals who present, either continuously or periodically, in a feminine manner and who have penises (Blanchard & Collins, 1993; Money & Lamacz, 1984).

MtF transgender individuals do not express femininity in a uniform manner. Some MtF transgender individuals report being as feminine, if not more so, than androphilic women (e.g., Bartlett & Vasey, 2006; Gómez, Semenyna, Court, & Vasey, 2017; Gómez Jiménez & Vasey, 2020; Semenyna & Vasey, 2016; Vasey, VanderLaan, Gothreau, & Bartlett, 2011). Many MtF transgender individuals, however, express a combination of feminine and masculine characteristics (e.g., Hill, 1935; Murray, 1995; Schmidt, 2016; Wikan, 1977). For example, they may at times, dress and act in a traditionally female-typical manner and, at other times, in a traditionally male-typical manner (e.g., Hill, 1935; King et al., 2019; Mariella Bacigalupo, 2004; Mitsuhashi, 2006). They may also simultaneously incorporate aspects of both female- and male-typical appearance and garb (Wikan, 1977).

Some MtF transgender individuals feminize their bodies through the use of exogenous hormones, fillers (e.g., injectable silicone), and surgical procedures (Boellstorff, 2004; Howe, Zaraysky, & Lorentzen, 2008; James et al., 2016; Kulick, 1997; Milan, 2017; Prieur, 1994; Puckett, Cleary, Rossman, Mustanski, & Newcomb, 2018; Stief, 2017). These procedures can include breast, hip, and buttocks augmentation, facial plastic surgery, and genital reconstruction; however, many MtF transgender individuals forgo these procedures. Those who do elect to modify their bodies often do so without

---

<sup>1</sup> *Transgender* is an umbrella term that refers to individuals whose gender presentation and identity does not conform to that which they were assigned at birth.

surgical interventions (e.g., James et al., 2016; Kulick, 1997; Prieur, 1994; Stief, 2017). Although some MtF transgender individuals do undergo genital reconstructive surgeries, they appear to be in the minority<sup>2</sup> (e.g., James et al., 2016; Kailas, Lu, Rothman, & Safer, 2017; Kulick, 1997; Prieur, 1994; Puckett et al., 2018; Stief, 2017; ten Brummelhuis, 1999b). Few studies distinguish between MtF transgender individuals who have penises and those who have undergone genital reconstructive surgeries (exceptions include Blanchard & Collins, 1993; Hsu, Rosenthal, Miller, & Bailey, 2016; Rosenthal, Hsu, & Bailey, 2017).

The identities of MtF transgender individuals vary considerably. In many industrialized cultures, including those in the West, the majority of these individuals identify, and are identified by others, as trans women or as women. Some identify as an alternative gender, gender non-binary, both genders, or they may reject gender labels entirely (e.g., Richards et al., 2016). Some MtF transgender individuals may publicly identify as men but may privately identify as women or as something else. In many non-Western cultures, MtF transgender individuals often identify, and are identified by others, as a non-binary gender that is, neither man nor woman. Examples of such non-binary gender terms include the *bissu* of Sulawesi (Peletz, 2009), the *hijra* of India (Nanda, 1999), the *khanith* (or *xanith*) of Oman (Wikan, 1977), the *fa'afafine* of Samoa (Vasey & VanderLaan, 2014), and the *muxes* of Mexico (Mirandé, 2017), but many more exist.

In many Western cultures, individuals who are born male and who feminize their bodies, especially via genital reconstructive surgery, are considered to have transitioned

---

<sup>2</sup> For some MtF transgender individuals, the cost of genital reconstructive surgery may be prohibitive; others elect not to undergo these procedures because they do not feel that having a penis is inconsistent with a feminine gender identity.

to being women. The same is not necessarily true in many non-Western cultures. Instead, regardless of the hormonal or surgical feminizing procedures undertaken, these individuals are perceived as being members of a culturally-specific, non-binary gender (e.g., *waria*, *travesti*, *muxes*, *hijra*) (Boellstorff, 2004; Kulick, 1997; Milan, 2017; Nanda, 1999).

### **Gynandromorphophilia**

Sexual interest in MtF individuals can be directed towards those who have penises and those who have undergone genital reconstructive surgery to create a neo-vagina. To the best of my knowledge, no study has compared men's sexual interest in MtF transgender individuals with penises and their sexual interest in MtF transgender individuals with vaginoplasties. Most studies that have examined men's sexual interest in MtF transgender individuals imply that their primary sexual focus is on MtF transgender individuals with penises.

Explicit sexual interest in MtF transgender individuals with penises (hereafter, MtF transgender individuals) has been referred to in the psychological literature as *gynandromorphophilia* (Blanchard & Collins, 1993).<sup>3</sup> The term does not imply preferential sexual attraction to MtF transgender individuals. Gynandromorphophilia does not include instances in which someone is sexually attracted to a MtF transgender individual whom they believe to be a cisgender woman (Money & Lamacz, 1984).

Gynandromorphophilia specifically refers to sexual attraction to MtF transgender adults.<sup>4</sup>

---

<sup>3</sup> No similar term exists to describe sexual attraction to MtF transgender individuals with vaginas or that includes sexual attraction to MtF transgender with vaginas. Some gynandromorphophilic men do, however, have a preference for MtF transgender individuals with vaginas (Rosenthal et al., 2017).

<sup>4</sup> Those who are sexually attracted to MtF transgender peripubescents would be referred to as hebephilic gynandromorphophiles. There are no reports of such individuals in the



Gynandromorphophilic individuals are, by and large, adult males who present in a cisgender manner and identify as men.<sup>5</sup> Published accounts of cisgender women engaging in sexual activity with MtF transgender individuals exist, but they are rare (e.g., Degtyar et al., 2018; Hill, 1935; King et al., 2019; Mariella Bacigalupo, 2004). It is unclear whether sexual factors, social factors (e.g., culturally defined gender roles, economic factors), or both, motivate women to engage in these interactions. In what follows, I restrict the discussion to gynandromorphophilia in men, the group that most commonly expresses this sexual interest.

There appears to be no culture in which gynandromorphophilic men and MtF transgender individuals routinely adopt the same gender identities. As such, the majority of sexual and romantic relationships<sup>6</sup> between the two can be described as heterogendered. Heterogendered sexual and romantic interactions are those which involve partners who differ in terms of their genders, regardless of their birth sex.

In certain cultures, special terms are used to refer to gynandromorphophilic men, such as *cacheros* in Costa Rica (Schifter & Madrigal, 1997), *mayate* in the Itsmo Zapotec region of Oaxaca, Mexico (Mirandé, 2016), *panthi* in India (Stief, 2017), and *callboy* in the Philippines (Whitam, 1992), and *tranny chaser* in the USA (Tompkins, 2014).

Depending on the culture in question, terms like these may not be widely used or understood. Generally speaking, these terms are not adopted as primary identities by gynandromorphophilic men. Instead, these terms are most commonly used among MtF

---

psychological literature. A possible ethnographic example can be found in Kulick (1998, pp. 62–63).

<sup>5</sup> Hereafter, the term *man* refers to cisgender adult males. Unless otherwise specified, the term *women* refers to cisgender adult females.

<sup>6</sup> Here, the term *relationships* refers to a broad array of interactions ranging from those that occur over a prolonged period to those that involving a brief, one-time encounter.

transgender individuals when referring to men who are known or believed to have a sexual history with MtF transgender individuals.

While men's sexual behavior with MtF transgender individuals is not typically viewed favorably, reactions to it can vary depending on cultural context. In some cultures, these interactions are viewed as little more than slight peccadillos (Besnier, 1997; Lancaster, 1988; McLelland, 2000). In other cultures, sexual interactions between MtF transgender individuals and gynandromorphophilic men are considered to be serious social transgressions (King et al., 2019; Lim, 2015).

Cross-species research suggests that the male capacity for gynandromorphophilic sexual behavior is not unique to humans. For example, adult male kestrels have been observed to court young males with female-typical plumage (Hakkarainen, Korpimäki, Huhta, & Palokangas, 1993). Male red-sided garter snakes will court males who, during a transitional phase of development, have female-typical lipid profiles (Shine, Harlow, LeMaster, Moore, & Mason, 2000; Shine, O'Connor, & Mason, 2000). Large male tropical rove beetles court small males who perform female-typical courtship behaviors (Forsyth & Alcock, 1990). Additionally, in laboratory settings, wild-type male fruit flies have been shown to court fruit flies with a mosaic of male and female integumental tissue (Nissani, 1977). Thus, the cross-species evidence, suggests that gynandromorphophilic behavior may be both phylogenetically widespread and ancient.

There has been little empirical research—particularly quantitative research—that has focused on gynandromorphophilic men. Most of the studies of that have specifically focused on these men have been conducted in Western cultures, specifically the USA and Canada. Culture influences the manner in which human psychology and behavior manifest. However, Western cultures differ significantly and in meaningful ways from

many non-Western cultures (for a general discussion of this point see: Henrich, Heine, & Norenzayan, 2010). In order to develop a more complete characterization of men who are sexually interested in MtF transgender individuals globally, I reviewed relevant research from Western and non-Western cultures. Accurately characterizing gynandromorphophilia is an essential first step to determining why some men have the capacity to experience sexual attraction to MtF transgender individuals, whereas others seemingly do not.

Demarcations were drawn between Western and non-Western cultures because most of the research on the men who express sexual interest in MtF transgender individuals has been conducted in Western societies. Research on men who are sexually interested in MtF transgender individuals in non-Western societies has been more sporadic. This is not unique to this particular subject matter: despite representing a small portion of the global population, the overwhelming majority of psychological research draws on samples from Euro-American societies, especially the USA (Arnett, 2008; Thalmayer, Toscanelli, & Arnett, 2020). This is unfortunate because, Western, educated, industrialized, rich, and democratic (WEIRD) societies are not at all representative of most humans when it comes to psychology and behavior (Henrich et al., 2010). As a result, much of what we know about psychology and behavior cannot be generalized to most humans.

Distinctions between Western and non-Western cultures should, by no means, be considered the only meaningful distinctions that could be drawn. Further, this distinction should not be taken to mean that Western or non-Western cultures are homogeneous with respect to their constructions of sexuality and gender. However, when similar psychological characteristics and behaviors are found in a range of distinct settings, it is

more likely that they are widespread among humans, influenced by biological factors, and possibly associated with common cultural factors as well (e.g., the presence and prevalence of MtF transgender individuals) (e.g., Norenzayan & Heine, 2005; Wang, 2016).

### **Gynandromorphophilia in Men from Western Cultures**

The following section centers on issues pertaining to sexual orientation and behavior that were found across multiple studies conducted in Western cultures.

Discussions of drug/alcohol use, sex work, and condom use were outside the scope of the present review, as was research on the genre of pornography featuring MtF transgender individuals. Interested readers are directed to Escoffier (2011) for an academic review of the MtF transgender pornography genre.

#### ***Sexual Orientation***

**Sexual Orientation Identity and Kinsey Scores.** The majority of Western men who are sexually interested in MtF transgender individuals identify as heterosexual or bisexual, although heterosexual-identified gynandromorphophilic men seem to be a slight majority (Blanchard & Collins, 1993; Bockting, Miner, & Rosser, 2007; Coan, Schrage, & Packer, 2005; Gerico, 2015; Hsu et al., 2016; Operario, Burton, Underhill, & Sevelius, 2008; Reback & Larkins, 2006; Rosenthal et al., 2017; Weinberg & Williams, 2010).<sup>5</sup> A

---

<sup>5</sup> Blanchard and Collins (1993) examined the personal advertisements of men who were seeking to have sex with transgender women. Only a small number of individuals reported their sexual orientation in the ads. Additionally, the inclusion criteria for Bockting et al. (2007) required that participants identified as men and had sex with men. However, a notable portion of these men also had sex with transgender individuals (it was not specified whether the transgender individuals in question were transgender women, transgender men, or both). Owing to this recruitment criteria, the number of gay-identified men who had sex with transgender people was high. Nevertheless, men who had sex with transgender individuals were more likely to identify as straight or as bisexual and to have had sexual partners who were cisgender women. The inclusion

small number of gynandromorphophilic men identify as gay (Bockting et al., 2007; Coan et al., 2005; Operario et al., 2008; Rosenthal et al., 2017). Additionally, some gynandromorphophilic men identify with a sexual orientation other than heterosexual, bisexual, or gay (e.g., pansexual or bi-curious) or with no sexual orientation (Operario et al., 2008; Rosenthal et al., 2017).

Many gynandromorphophilic men indicate that “heterosexual” accurately describes their sexual attraction because they are solely sexually attracted to feminine individuals (e.g., Weinberg & Williams, 2010). Other heterosexual-identified men, however, question whether their sexual attraction to MtF transgender individuals is incongruent with heterosexuality (Operario et al., 2008; Rosenthal et al., 2017). Similarly, some gay-identified men question whether their sexual attraction to MtF transgender individuals is incongruent with their sexual orientation identity (Operario et al., 2008). To overcome these feelings of incongruency, some men who are attracted to MtF transgender individuals identify as bisexual, not because they are sexually attracted to both cisgender men and women but, rather, as a way of acknowledging that they are sexually attracted to feminine individuals who were male at birth and who have aspects of male-typical morphology (Coan et al., 2005; Operario et al., 2008).

Men who are sexually attracted to MtF transgender individuals report Kinsey scores (Kinsey, Pomeroy, & Martin, 1948) that are on the gynephilic end of the scale but are, on average, higher than those of men who are only attracted to cisgender women (Hsu et al., 2016; Rosenthal et al., 2017). Specifically, gynandromorphophilic men’s average Kinsey scores fall around 1, indicating that they are mostly, but not exclusively,

---

criteria for Reback and Larkins (2006) required that participants identified as heterosexual and had sex with transgender women on occasion.

gynephilic (e.g., Vrangalova & Savin-Williams, 2012). Thus, their sexual orientation identities and Kinsey scores both indicate that most men who are sexually interested in MtF transgender individuals tend to be sexually interested in cisgender women as well. It is not uncommon, however, for some gynandromorphophilic men to also have some degree of sexual interest in cisgender men (Bockting et al., 2007; Coan et al., 2005; Operario et al., 2008; Rosenthal et al., 2017).

**Sexual Arousal.** Gynandromorphophilic men commonly report that they are sexually aroused by the idea of engaging in sexual activity with MtF transgender individuals as well as cisgender women (Rosenthal et al., 2017). They also fantasize about both while masturbating (Rosenthal et al., 2017). Further, self-report and genital arousal measures indicate that gynandromorphophilic men are highly sexually aroused by sexual stimuli depicting MtF transgender individuals and cisgender women and minimally sexually aroused to sexual stimuli depicting cisgender men (Hsu et al., 2016). In contrast, gynephilic men who are not gynandromorphophilic are less sexually aroused by MtF transgender individuals than cisgender women.

**Sexual Partners.** Unsurprisingly, gynandromorphophilic men are more likely than other men to have sex with MtF transgender individuals (Rosenthal et al., 2017). Based on the existing evidence, however, it seems that a considerable portion—potentially even a slight majority—of gynandromorphophilic men report that they have not engaged in sexual activity with MtF transgender individuals (Hsu et al., 2016; Rosenthal et al., 2017). Only a small number of gynandromorphophilic men have sex exclusively with MtF transgender individuals (Operario et al., 2008).

The majority of gynandromorphophilic men have sex with cisgender women. A smaller but, nonetheless, substantial portion of gynandromorphophilic men have sex with

cisgender women and cisgender men (Blanchard & Collins, 1993; Bockting et al., 2007; Operario et al., 2008; Rosenthal et al., 2017). For example, in a relatively large sample of gynandromorphophilic men ( $N = 314$ ) over a third (i.e., 35%) had engaged in sexual activity with at least one cisgender man (Rosenthal et al., 2017). Most of these individuals had also engaged in sexual activity with cisgender women. It is less common for gynandromorphophilic men to have sex with cisgender men, but not cisgender women, although this does occur (e.g., Bockting et al., 2007).

**Self-Reported Sexual Preference.** When given a choice, many gynandromorphophilic men report a preference for cisgender women, but an appreciable number of gynandromorphophilic men report a preference for MtF transgender individuals or report that they do not have a strong preference for one over the other (Rosenthal et al., 2017; Weinberg & Williams, 2010). For example, when asked to imagine that they could only have one kind of partner, a slight majority (56%) of gynandromorphophilic men selected cisgender women but many (35%) selected MtF transgender individuals (Rosenthal et al., 2017). Gynandromorphophilic men who identify as heterosexual tend to report a preference for cisgender women over MtF transgender individuals, whereas those who identify as bisexual are less likely to report a strong preference for one or the other (Weinberg & Williams, 2010). A small proportion of gynandromorphophilic men report a sexual preference for cisgender men (Rosenthal et al., 2017).

**Sexual Orientation Summary.** On the basis of the existing evidence, it appears that few men (1) express exclusive sexual attraction and arousal to MtF transgender individuals, (2) engage in sexual activity exclusively with MtF transgender individuals, or (3) report a clear sexual preference for MtF transgender individuals. Consequently, it has

been argued that gynandromorphophilia cannot be considered a unique sexual orientation in the classical sense because, by and large, men are not sexually oriented toward MtF transgender individuals without also being oriented towards cisgender individuals—cisgender women in most instances (see Rosenthal et al., 2017 for further discussion). Instead, it seems more likely that some men who are, for the most part, oriented to cisgender women experience sexual interest in MtF transgender individuals. Nevertheless, gynandromorphophilic men are unique with respect to their notable sexual interest in MtF transgender individuals, which men who are only sexually interested in cisgender women do not share. Why this variation in response to MtF transgender individuals exists among men remains to be resolved.

Additionally, more research is needed to assess whether gynandromorphophilic men are heterogeneous or homogeneous in their sexual orientations. It is possible that gynandromorphophilic men are more heterogeneous in terms of the sexual orientations they express, as suggested by their self-reported sexual orientation identities and, to a lesser extent, their sexual behavior. Alternatively, it is possible that they share a common sexual orientation, but interpret their sexual interests in different ways, leading them to either (1) adopt different sexual orientation identities, which may, in turn, lead to different patterns of sexual behavior or (2) engage in different patterns of sexual behavior, which may, in turn, lead to the adoption of different sexual orientation identities. Future research will be necessary to address these possibilities.

### ***Anal Sex with MtF Transgender Individuals***

A considerable proportion of gynandromorphophilic men do not engage in anal sex with MtF transgender individuals, despite reporting sexual interest in such individuals (Coan et al., 2005; Rosenthal et al., 2017; Weinberg & Williams, 2010). Based on the



existing literature, it is difficult to state with any precision how common these men are relative to gynandromorphophilic men who do engage in anal sex with MtF transgender partners, but they do not appear to be uncommon. Some of these men may simply not have the opportunity form sexual relationships with MtF transgender individuals. Men who do not engage in anal sex with MtF transgender partners sometimes engage in alternative forms of sexual activity, such as oral sex (Weinberg & Williams, 2010).

Men who do engage in anal sex with MtF transgender partners commonly report that they exclusively or primarily adopt the insertive position during anal sex (Coan et al., 2005; Operario et al., 2008; Weinberg & Williams, 2010). This is not the case for all men, however, as some engage in receptive anal sex with these partners (Coan et al., 2005; Operario et al., 2008; Weinberg & Williams, 2010). It has been suggested that those who identify as bisexual are more likely to engage in receptive anal sex with MtF transgender partners than those who identify as heterosexual (Weinberg & Williams, 2010).

There is reason to suspect that some gynandromorphophilic men do not disclose their participation in receptive anal sex with MtF transgender partners. For instance, when interviewed by Coan et al. (2005), men who had sex with MtF transgender individuals reported that they were typically insertive, but transgender women recruited from the same community reported that their partners were often receptive during anal sex. Additionally, there is reason to suspect that many gynandromorphophilic men are aroused by the idea of engaging in receptive anal sex, but do not act on this interest. Namely, when surveys were completed anonymously online, more gynandromorphophilic men reported that they had fantasized about being sexually receptive (either during oral or anal sex) than had fantasized about being sexually insertive, and most of those who had fantasized about being sexually insertive had also fantasized about being sexually

receptive (Rosenthal et al., 2017). Thus, it seems that some gynandromorphophilic men in Western cultures either do not disclose that they engage in receptive anal sex with MtF transgender partners or do not act on their desire to do so. This may be particularly true if they perceive receptive sex to be at odds with their gender identity, gender role, or sexual orientation.

### ***Qualities That Attract Men to MtF Transgender Individuals***

Some men develop attraction to specific MtF transgender individuals (e.g., due to their personalities or the interpersonal connection between them) but are not attracted to MtF transgender individuals in general (Operario et al., 2008). Others have sex with MtF transgender individuals believing them to be cisgender women (e.g., Reback & Larkins, 2006). Others still knowingly have sex with MtF transgender individuals but do so because they are unable to have sex with a cisgender woman, they receive payment, or they are under the influence of drugs or alcohol (e.g., Reback & Larkins, 2006). Thus, some men experience appreciable sexual attraction to MtF transgender individuals, while others experience only incidental sexual attraction to MtF transgender individuals, and still others engage in sexual activity with MtF transgender individuals for reasons besides sexual attraction.

Among men who are more than incidentally sexually attracted to MtF transgender individuals, a few qualities are consistently reported as motivating this sexual interest. First, many gynandromorphophilic men are sexually attracted to expressions of femininity and sexuality displayed by MtF transgender individuals (Gerico, 2015; Mauk, Perry, & Munoz-Laboy, 2013; Operario et al., 2008; Reback & Larkins, 2006; Rosenthal et al., 2017; Weinberg & Williams, 2010). For instance, a portion of these men seek out relationships with MtF transgender individuals who are markedly feminine, or even pass

as cisgender women, and who accentuate their femininity more than the average cisgender woman (Operario et al., 2008; Reback & Larkins, 2006). These men frequently report that they avoid touching their MtF transgender partners' penises altogether to maintain the illusion that their partners are cisgender women (Reback & Larkins, 2006). In addition, gynandromorphophilic men often report they find MtF transgender individuals to be more sexually confident, assertive, and open-minded when compared to most cisgender women—attributes that they find appealing when expressed by markedly feminine individuals (Operario et al., 2008; Reback & Larkins, 2006).

Second, some gynandromorphophilic men are sexually attracted to the combination of female- and male-typical characteristics that are embodied by MtF transgender individuals (Gerico, 2015; Operario et al., 2008; Reback & Larkins, 2006; Rosenthal et al., 2017; Weinberg & Williams, 2010). For instance, some of these men are sexually attracted to the image of mixed-sex morphology, particularly the idea of a women with a penis (Reback & Larkins, 2006; Weinberg & Williams, 2010). In addition, some gynandromorphophilic men are sexually attracted to the idea of a woman who can ejaculate in a male-typical manner (Gerico, 2015; Operario et al., 2008). Men who say that they are attracted to MtF transgender individuals' penises are more likely to engage with their partners' genitals during sexual activity (Weinberg & Williams, 2010). The majority of gynandromorphophilic men report that they focus on MtF transgender individuals' female-typical and male-typical characteristics when sexually fantasizing about them.

### ***Autogynephilia and Gynandromorphophilia***

Autogynephilia refers to sexual arousal to the thought of being a woman (Blanchard, 1989). Autogynephilia occurs in individuals who were born male, and such

individuals may publicly identify as men or women.<sup>7</sup> One way in which individuals can temporarily express autogynephilia is by cross-dressing. Some gynandromorphophilic individuals report that they are interested in cross-dressing with MtF transgender partners (Blanchard & Collins, 1993; Mauk et al., 2013; Rosenthal et al., 2017) or that they find the thought of being a woman somewhat arousing (Hsu et al., 2016). Further, autogynephilic individuals and gynandromorphophilic men show similar patterns of subjective and genital arousal in response to stimuli of MtF transgender individuals, cisgender women, and cisgender men (Hsu, Rosenthal, Miller, & Bailey, 2017). Thus, for a subset of individuals, gynandromorphophilia and autogynephilic sexual arousal appear to co-occur. However, it is unclear how cross-culturally widespread the linkage is between autogynephilia and gynandromorphophilia.

### **Non-Western Gynandromorphophilic Men**

Research on gynandromorphophilic men living in non-Western cultures is sparse and much of it is anecdotal. A lot of what is known about these men is gleaned from ethnographic reports of MtF transgender individuals, although additional insights have been garnered from a range of disciplines, such as epidemiology (specifically, studies of MtF transgender individuals' HIV risk), sociology, and cultural psychology. The information that does exist has rarely been collected in a systematic manner and is most often comprised of brief, second-hand reports, often from the MtF transgender partners of these men. As such, our understanding of gynandromorphophilic men in non-Western settings is incomplete and unbalanced.

---

<sup>7</sup> Whether autogynephilia exists in individuals who were born female has been the subject of debate (see Moser, 2009).

More recently, however, studies have started to reverse this trend by specifically focusing on gynandromorphophilic men (e.g., Degtyar et al., 2018; Lim, 2015) and by collecting data from gynandromorphophilic men themselves (e.g., Bowring et al., 2017; Cardoso, 2005; Long et al., 2020; Petterson, Dixson, Little, & Vasey, 2015; Schifter & Madrigal, 1997; Stief, 2017). In the review that follows, greater weight is given to non-Western studies that have derived their information directly from gynandromorphophilic men whenever possible.

Sexual interactions involving men and MtF transgender individuals have been reported across numerous cultures and geographic regions. These include Brazil (Cardoso, 2005; Kulick, 1997; Whitam, 1995), China (Cai et al., 2016), Costa Rica (Schifter & Madrigal, 1997), Columbia (Bianchi et al., 2014), Côte d'Ivoire (Schein et al., 2019), Eswatini (Lyons et al., 2019), Fiji (Presterudstuen, 2014), Ancient Greece (Thornton, 1997), Guatemala (Tucker, Arandi, Bolanos, Paz-Bailey, & Barrington, 2014), contemporary India (Stief, 2017), India during the start of the common era (Sweet & Zwilling, 1993), Indonesia (Boellstorff, 2004), Japan (McLelland, 2000; Mitsuhashi, 2006), Konso (Ethiopia) (Hallpike, 2008), Malaysia, (Koon Teh, 1998; Lim, 2015), Mandaya (Philippines) (Yengoyan, 1993), Mexico (Howe et al., 2008), Mohave (USA) (Devereux, 1937), Navajo (USA) (Hill, 1935), Nicaragua (Lancaster, 1988), Nubu (Sudan) (Nadel, 1947), Oman (Wikan, 1977), Peru (Degtyar et al., 2018; Long et al., 2020), Philippines (Johnson, 1998; Whitam, 1992), Reche (Chile) (Mariella Bacigalupo, 2004), Russia (Borisov & Chester, 2018, December 17), Samoa (Petterson et al., 2015), Saudi Arabia (Rowson, 1991), South Africa (Donham, 1998), Spain (Haller, 1992), Sri Lanka (Nichols, 2010), Loas (Bowring et al., 2017), Thailand (Ocha & Earth, 2013; ten Brummelhuis, 1999b), Tonga (Besnier, 1997), Turkey (Engin, 2018), Uganda (King et

al., 2019), Winnebago (USA) (Oestreich Lurie, 1953), and Zapotec (Mexico) (Mirandé, 2016).

Because sexual interactions involving men and MtF transgender individuals occur in such a diverse range of societies, it is improbable that this behavior emerges due to shared social factors. Instead, it is likely that this sexual interest is a cross-cultural universal (Brown, 2000), but its expression is context-dependent, that is, contingent on the appropriate cultural environment (Chapais, 2014). In other words, a substantial number of men in every culture may have the potential to experience gynandromorphophilia, but this interest may only manifest in particular environments; for example, when MtF transgender individuals are present in the local environment owing to demographic factors (e.g., a sufficiently large population) or culture factors (e.g., being permissive of feminine behavior among individuals who were born male).

### ***Sexual Orientation Identity and Kinsey Scores***

**Self-Reported Sexual Orientation.** Although the situation is changing with globalization, in many non-Western cultures, identity is not formulated on the basis of sexual orientation. Consequently, sexual orientation identities such as “gay” or “bisexual” are neither recognized, nor employed. Nevertheless, when gynandromorphophilic men from non-Western cultures do adopt sexual orientation identities, the majority identify as heterosexual/straight or bisexual (Degtyar et al., 2018; Lim, 2015; Long et al., 2020; Mitsuhashi, 2006; Schifter & Madrigal, 1997).

The sexual orientation of Indian gynandromorphophilic men has been assessed using Kinsey scores, homoerotic motivation scores, and heteroerotic motivation scores. Results of this research indicate that these men are, on average, relatively bisexual (Stief,

2017). Additional research is needed to determine whether similar patterns of bisexuality characterize gynandromorphophilic men in other non-Western cultures.

**Viewing Time Studies.** Previous research demonstrates that viewing time measures are effective in revealing patterns of gynephilic, androphilic, and ambiphilic<sup>8</sup> response patterns in men (Ebsworth & Lalumiere, 2012; Imhoff et al., 2010; Israel & Strassberg, 2009; Lippa, 2012, 2013; Lippa, Patterson, & Marelich, 2010; Quinsey, Ketsetzis, Earls, & Karamanoukian, 1996; Rullo, Strassberg, & Israel, 2010; Rullo, Strassberg, & Miner, 2015). Participants tend to take longer responding to prompts such as, “How attractive do you find this individual?” when viewing preferred targets compared to non-preferred targets. Viewing times of stimuli depicting men and women have been used in conjunction with measures of self-reported sexual attraction to the assess sexual orientation of gynandromorphophilic men in India (Stief, 2017) and Samoa (Petterson et al., 2015; Petterson, Dixson, Little, & Vasey, 2016). When compared to men who have sex exclusively with women, gynandromorphophilic men in both of these cultures have viewing time patterns that are, on average, shifted in a relatively ambiphilic direction.

However, research indicates gynandromorphophilic men in Samoa are a heterogeneous group with respect to the degrees of ambiphilia they exhibit (Petterson et al., 2016). Namely, the degree of ambiphilia expressed by Samoan gynandromorphophilic men varies in relation to the roles they adopt during oral sex (Petterson et al., 2016). In Samoa, MtF transgender individuals are known locally as *fa'afafine*. Men who only receive fellatio from *fa'afafine* have viewing time patterns that could be characterized as

---

<sup>8</sup> *Ambiphilic* refers to sexual attraction to both cisgender women and cisgender men. Ambiphilic individuals may not exhibit equal attraction to both sexes, however.

mostly gynephilic, that is, they have longer viewing times of their lesser preferred gender (i.e., in most instances, men) than men who only have sex with cisgender women but show a marked preference for women over men. Men who are versatile in their oral sex behavior—those who receive fellatio from *fa'afafine* and perform fellatio on *fa'afafine*—have more ambiphilic viewing time patterns. Additional viewing time experiments in other non-Western cultures would provide valuable data and help flesh out our understanding of gynandromorphophilic men.

**Sexual Partners.** The sexual partner profiles of gynandromorphophilic men living in non-Western cultures can be divided into three principle groupings. First, many of these men engage in sexual interactions with MtF transgender individuals and with cisgender women as well (Boellstorff, 2004; Bowring et al., 2017; Degtyar et al., 2018; Hill, 1935; Lim, 2015; Long et al., 2020; Mirandé, 2016; Nadel, 1947; Petterson et al., 2015, 2016; Schifter & Madrigal, 1997; Stief, 2017; ten Brummelhuis, 1999b; Whitam, 1992). Second, some gynandromorphophilic men living in non-Western cultures engage in sexual interactions with MtF transgender individuals, cisgender women, and cisgender men (Long et al., 2020; Petterson et al., 2016; Stief, 2017). Third, and more rarely, a minority of gynandromorphophilic men engage in sexual interactions with MtF transgender individuals and cisgender men, but not cisgender women (Long et al., 2020; Petterson et al., 2016; Stief, 2017).

**Sexual Preferences.** In non-Western contexts, when given a choice, many gynandromorphophilic men seem to prefer sexual partners who are cisgender women, particularly for long-term relationships (Murray, 2000; Whitam, 1992). Some gynandromorphophilic men prefer MtF transgender individuals to cisgender women (Besnier, 1997; Schifter & Madrigal, 1997), but they appear to be a minority. These men



state that they prefer MtF transgender individuals to cisgender women because the former possess a variety of personal characteristics that are attractive. For example, they report that MtF transgender individuals are emotionally warmer, more passionate, and sexier than cisgender women (Schifter & Madrigal, 1997). Some men also report that the sensation of sex (either oral or anal) with MtF transgender individuals is more pleasurable than (vaginal) sex with cisgender women (Bowring et al., 2017; Schifter & Madrigal, 1997).

### ***Anal Sex Behavior with MtF Transgender Individuals***

There is a widespread and common belief that MtF transgender individuals are primarily or exclusively receptive during anal sex with men (Devereux, 1937; Donham, 1998; Lancaster, 1988; Long et al., 2020; Mariella Bacigalupo, 2004; Oetomo & Emond, 1993; Rowson, 1991; Stief, 2017; Wikan, 1977). In many cultures, a man's sexuality or gender status will not be challenged if he engages in insertive sex with MtF transgender individuals or even cisgender men. If, however, he shows interest in his partner's penis or engages in receptive anal sex, his sexuality and masculinity may be questioned (e.g., people may wonder if he is a "real man", which assumes gynephilia and insertive sexual behavior) (e.g., Haller, 1992; Kulick, 1997; Ocha & Earth, 2013).

Consistent with cultural beliefs, the majority of gynandromorphophilic men take the insertive position when they engage in anal sex with their MtF transgender partners (e.g., Besnier, 1997; Bianchi et al., 2014; Boellstorff, 2004; Cardoso, 2005; Degtyar et al., 2018; Hallpike, 2008; Johnson, 1998; Lim, 2015; Long et al., 2020; Ocha & Earth, 2013; Presterudstuen, 2014; Schifter & Madrigal, 1997; Stief, 2017; ten Brummelhuis, 1999b; Whitam, 1995). Some men do, however, take the receptive position when they engage in anal sex with MtF transgender individuals (Bianchi et al., 2014; Boellstorff, 2004;

Degtyar et al., 2018; Howe et al., 2008; Johnson, 1998; Lim, 2015; Long et al., 2020; Ocha & Earth, 2013; Stief, 2017; ten Brummelhuis, 1999b). Given the existing research, it is not clear what proportion of non-Western gynandromorphophilic men engage in receptive anal sex with their MtF transgender partners.

It is possible that some gynandromorphophilic men have the desire to engage in receptive anal sex with MtF transgender partners but do not do so because they are motivated to maintain the image that they have of themselves as masculine, or because their partners prefer that they maintain a masculine image (Donham, 1998; Kulick, 1997). For example, in Brazil, men who have sex with MtF transgender individuals—known locally as *travesti*—are expected to show no interest in their partners’ penis. If a man does express this interest, his *travesti* partner may no longer considered him to be a “real man” and may terminate the relationship (Kulick, 1997). Nevertheless, *travesti* sex workers claim that the majority of their clients are sexually receptive (Kulick, 1997). As such, when their behavior is not constrained by relationship roles, it appears that Brazilian gynandromorphophilic men are more likely to engage in receptive anal sex. Additionally, some gynandromorphophilic men from non-Western cultures may engage in receptive anal sex but may not admit to doing so.

### ***Qualities That Attract Men to MtF Transgender Individuals***

Many gynandromorphophilic men living in non-Western cultures are attracted to the femininity of MtF transgender individuals and appear to be relatively unconcerned about their birth sex (Kulick, 1997; Mitsuhashi, 2006; Schifter & Madrigal, 1997). For example, in Brazil, *travesti* sex workers who feminize their bodies through various procedures—but who have penises—tend to earn more than those who do not augment their bodies in a similar manner (Kulick, 1997). Although most non-Western,

gynandromorphophilic men find the femininity of their MtF transgender partners attractive, many are also attracted to their partners' penises (Kulick, 1997; ten Brummelhuis, 1999b). In certain non-Western cultures, men, particularly those who are young, will preferentially seek out sexual relationships with MtF transgender individuals because they perceive these relationships to be less complicated than ones with cisgender women (Presterudstuen, 2014).

Non-sexual factors may influence men's interest in pursuing sexual relationships with MtF individuals. For example, young men may seek out such relationships when they are not ready to invest in marriage (Murray, 2000). Relatedly, they may seek out sexual relationships with MtF transgender individuals if they live in a culture in which female virginity is highly valued and, as such, access to female sexual partners is restricted outside of marriage (Mirandé, 2016; Nichols, 2010). Further, some men seek out or enter relationships with MtF transgender individuals, in part, because they receive gifts including money and alcohol (e.g., Besnier, 1997; Bowring et al., 2017; Mirandé, 2016; Whitam, 1992).<sup>9</sup> Although these non-sex factors may play an important role in promoting these sexual interactions, this does not exclude the likelihood that the men involved also experience some degree of sexual attraction to their MtF transgender partners (Bowring et al., 2017).

In sum, many of the qualities that attract gynandromorphophilic men to MtF transgender sexual partners appear to be fairly similar in both Western and non-Western

---

<sup>9</sup> It is worth noting that, across cultures, some MtF transgender individuals engage in sex work, and their clients are generally men (e.g., Cai et al., 2016; Degtyar et al., 2018; Drückler, van Rooijen, & de Vries, 2020; Howe et al., 2008; Kulick, 1997, 1998). As such, transactions of resources and sex are bilaterally exchanged between MtF transgender individuals and cisgender men.

contexts. Nevertheless, few studies have directly interviewed gynandromorphophilic men in non-Western cultures and, because of this, it is not clear whether other factors contribute to men's sexual attraction to MtF transgender individuals. Additionally, future research should examine the interpersonal factors that drive men's gynandromorphophilic attraction in both Western and non-Western cultures.

### ***Autogynephilia and Gynandromorphophilia***

The co-occurrence of gynandromorphophilia and autogynephilic has been reported in Western cultures (Hsu et al., 2017). Similar reports from non-Western cultures are exceptionally rare but do exist. In Japan, several bars existed during the 1990s which catered to MtF transgender individuals, specifically those who temporarily wore women's clothing, and to the men who were interested in socializing with these individuals (Mitsuhashi, 2006).<sup>10</sup> Some, but not all, of the MtF transgender individuals were said to present in a female-typical manner because they were sexually attracted to their feminine appearance or in female clothing (Mitsuhashi, 2006).<sup>11</sup> Sexual interactions between the MtF transgender individuals were known to have occurred (Mitsuhashi, 2006). Some of these interactions, were motivated by gynandromorphophilia.<sup>12</sup> It is not clear how many of these Japanese MtF transgender individuals were both autogynephilic and gynandromorphophilic, but it is likely that some were. In addition, a portion of the men

---

<sup>10</sup> Similar bars presently exist, but the nature of these bars may have changed since the 1990s, when Mitsuhashi's (2006) fieldwork was completed.

<sup>11</sup> Other MtF transgender individuals were androphiles who dressed as women to attract gynephilic cisgender men. Some experienced gender dysphoria and dressed as women, either continuously or when they opportunity presented itself, to ease their discomfort with the gender they were assigned at birth.

<sup>12</sup> Sexual interactions between MtF transgender individuals were also said to occur when gynephilic MtF transgender individuals were unable to have sex with their preferred partners, cisgender women. Others were, supposedly, not sexually motivated but were intended to teach new cross-dressers how to have sex with cisgender men.

who patronized these bars were specifically attracted to MtF transgender individuals and were also said to be interested in cross-dressing but, for various reasons, were not able to express this interest (Mitsuhashi, 2006).<sup>13</sup> Taken together, these qualitative data suggest a link between gynandromorphophilia and autogynephilia in Japan.

Additionally, I know of one example of a possible expression of autogynephilia by a MtF transgender individual from a non-industrialized, non-Western culture, Fiji. This involved an unusual episode during a drag performance by a group of Fijian MtF transgender individuals (*qauri*).

From the outset, the performer appeared to be following the conventions of the contests with a full drag appearance and exaggerated feminine mannerisms. During the dance routine, however, he lifted his skirt to unveil tight underpants in which his semi-erect penis was clearly visible to the audience, before he went behind some of the co-performers and simulated sodomizing them, emphasizing a male, active sexual role that was considered out of place in an event showcasing *qauri* as hyper feminine (Presterudstuen, 2014, p. 171).<sup>14</sup>

The incident "...proved to be a transgression of norms that, at least temporarily, startled the audience completely and elicited negative comments suggesting that the performer was 'missing the point' of the event." (Presterudstuen, 2014, p. 171). To the best of my knowledge, this Fijian example is the only example that is suggestive of cross-dressing with gynandromorphophilic arousal from a non-industrialized cultural context.

## **Discussion**

---

<sup>13</sup> Other men who patronized these bars were specifically sexually interested in MtF transgender individuals but were not interested in cross-dressing. Still others were sexually interested in MtF transgender individuals' femininity and placed less importance on their birth sex. Others still were accepting of MtF transgender individuals but were not sexually interested in them.

<sup>14</sup> The original author used masculine pronouns when referring to the *quari* performer. However, the performer in question was feminine presenting, at least at the time of the event.

Cross-cultural research on men's sexual interest in MtF transgender individuals is sparse. On the basis of the existing evidence, however, it is possible to glean that an appreciable number of men experience some degree of sexual attraction to MtF transgender individuals. Regardless of culture, the majority of gynandromorphophilic men are gynephilic and smaller but non-negligible portion are ambiphilic. Few men are exclusively sexually interested in MtF transgender individuals.

Further, it seems likely that, across cultures, some men, particularly those who are gynephilic or ambiphilic, have the capacity to be sexually attracted to feminine individuals who are born male and who have penises, as well as, other male-typical physical characteristics. Consistent with this idea, Imhoff, Banse, and Schmidt (2017) proposed that sexual response is shaped through a multi-stage process. First, sexual orientation limits the possibilities of what an individual may find attractive. Second, sexual conditioning elaborates on sexual interests and motivations within the constraints of his sexual orientation. Research is needed to test these ideas.

Within Western and non-Western contexts, gynandromorphophilic men vary in terms of their self-reported anal sex activity. The majority of gynandromorphophilic men report that they primarily adopt the insertive role during anal sex with their MtF transgender partners. However, a substantial minority report that they engage in receptive anal sex with MtF transgender individuals. It is likely that many more men engage in receptive sex, but do not disclose that they do so. Others may fantasize about engaging in receptive anal sex with MtF transgender partners without acting on these fantasies

There appears to be variability in what motivates gynandromorphophilic men's sexual attraction to MtF transgender individuals. A portion of these men develop sexual attraction to particular MtF transgender individuals due to their unique attributes or an

interpersonal connection. Gynandromorphophilic men are also frequently attracted to MtF transgender individuals' feminine qualities and may feel ambivalent about their sex at birth. Others are sexually attracted to the combination of female- and male-typical physical characteristics expressed by MtF transgender individuals. Variability in this regard among gynandromorphophilic men has been reported in multiple cultural settings. In addition to sexual interest, non-sexual factors (e.g., financial gain) may play a role in motivating men's interest in pursuing sexual interactions with MtF transgender individuals. Finally, a small portion of men who are attracted to MtF transgender individuals experience some degree of autogynephilic interest, but this appears to be more common in industrialized cultures. Lawrence (2010, 2013) has suggested that autogynephilia may be more commonly expressed in the West because it is undergirded by individualism which encourages individuals to be their "true" selves.

### **Clinical Implications**

Research on gynandromorphophilia has clinical value for therapists working with individuals who are struggling with stigma associated with this attraction (Tompkins, 2014). A greater understanding of this sexual interest may help men (and their partners) make sense of their attraction to individuals who have genitalia typical of their non-preferred sex (see Hsu et al., 2016 and citations therein). Further, negative attitudes toward relationships between cisgender men and MtF transgender individuals reinforce the marginalization and social isolation felt by Western transgender individuals and their partners (for discussion, see Blair & Hoskin, 2018). A greater understanding of gynandromorphophilia in men may help destigmatize these relationships.

### **Public Health Implications**

The prevalence of HIV is greater among MtF transgender individuals than cisgender individuals (Baral et al., 2013). Critically, because the majority of men who have sex with MtF transgender individuals are gynephilic, they do not receive the sexual health information or interventions targeted at LGBT communities. For example, in India, gynandromorphophilic men (*panthi*) will seek out MtF transgender individuals for sexual encounters, but they do not typically socialize with their partners or other members of MtF transgender communities (Asthana & Oostvogels, 2001). *Panthi*'s partners are often reluctant to suggest that they use condoms because they are concerned that *panthi* will associate these sexual interactions with HIV risk (Asthana & Oostvogels, 2001). A greater understanding of the sexual behavior and sexual networks of gynandromorphophilic men would be useful in developing targeted prevention and intervention strategies.

Further, heterosexual-identified men who engage in anal sex with MtF transgender partners may not disclose this behavior to health care professionals, particularly if they engage in receptive anal sex. Receptive anal sex is associated with increased HIV risk (Schneider et al., 2012; Templeton et al., 2009; Wegesin & Meyer-Bahlburg, 2000; Wei & Raymond, 2011; Weinberg & Williams, 2010). As such, men's general sexual health education should include information pertaining to insertive and receptive anal sex, including STI transmission risk and prevention strategies. For example, it would be valuable for these men to be aware that, in addition to engaging in sex with a condom, strategies can be employed to reduce the risk of virus transmission when one member of a dyad is HIV-seronegative and the other is seropositive or unaware of their status, such as strategically positioning the partner who is HIV-seronegative in the insertive position (Vallabhaneni et al., 2012; Van de Ven et al., 2002).



## **Implications for Theoretical Models of Mate Selection and Sexual Orientation**

As previously noted, based on evolutionary theory, it would be predicted that most males would be sexually responsive to reproductively viable females and minimally responsive to males (Symons, 1995). Despite these predictions, non-reproductive sex is widespread, especially among humans. Our models of mate selection and sexual orientation can be strengthened by studying why men are capable of sexual interests that are not predicted by evolutionary theory, such as sexual interest in MtF transgender individuals and cisgender men. A large body of research has sought to address why some men are, either exclusively or non-exclusively, sexually oriented to cisgender men (e.g., Bailey et al., 2016; Bogaert & Skorska, 2020; LeVay, 2011). In contrast, relatively little research has focused on men's sexual interest in MtF transgender individuals. A greater understanding of men's sexual interest in MtF transgender individuals would enable us to form more inclusive and complete models of mate selection and sexual orientation—such as whether men are sexually oriented to a person's sex, gender, or some intersection of the two.

## **The Present Research**

Research on men's sexual interest in MtF transgender individuals is in its nascent stages. Few non-Western studies have focused on gynandromorphophilic men. The studies included in my thesis contribute to our understanding of men's sexual interest in MtF transgender individuals in Western and non-Western settings. My research was conducted in three distinct cultures: Canada, Samoa, and the Zapotec Istmo of southern Mexico. Additionally, my thesis employed multiple measures of sexual interest, including self-reported sexual attraction, viewing time, and visual attention assessed using an eye-tracker. A benefit of utilizing several measures and a cross-cultural paradigm is that it is

possible to determine whether or not the findings converge on a similar pattern. When findings from independent sources converge on a similar pattern, it is unlikely that the observed pattern is an artifact of the measure or participant response bias.

## ***Chapter 2***

Chapter 2 built upon existing research by examining whether men who are sexually interested in MtF transgender individuals are heterogeneous with respect to their underlying sexual orientations. In Study 1, I assessed the relationship between Samoan men's anal-sex positioning with *fa'afafine* and their sexual orientation to cisgender women and cisgender men. In Study 2, I assessed the relationship between Samoan men's sexual histories with *fa'afafine*, cisgender women, and cisgender men and their sexual orientation to cisgender women and cisgender men. To do so, I employed sexual attraction ratings and viewing time of images depicting faces of Samoan men and women.

## ***Chapter 3***

In Chapter 3, I examined whether, Samoan men who have sex with *fa'afafine* show greater sexual interest in MtF transgender individuals than men who only have sex with women. To do so, I employed sexual attraction ratings and viewing times of MtF transgender individuals, cisgender women, cisgender men, and non-sexual stimuli.

## ***Chapter 4***

In Chapter 4, I examined whether men who are sexually attracted to cisgender women may experience some lower levels of sexual interest in MtF transgender individuals because they are feminine, particularly those who have augmented their bodies in a female-typical manner. I compared Canadian gynephilic men's self-reported sexual attraction and visual attention to images of nude MtF transgender individuals with surgically augmented breasts, nude MtF transgender individuals without surgically

augmented breasts, nude cisgender men, nude cisgender women, and non-sexual control images. Canadian gay men were used as a comparison group. An eye-tracker was used to measure biases in visual attention.

### ***Chapter 5***

In Chapter 5, I examined whether men's categorization of different sex/gender classes of individuals (i.e., MtF transgender individuals, cisgender men, and cisgender women) varied depending on cultural (i.e., two vs. three gender recognized) and individual (i.e., exclusive sexual interest in cisgender women vs. sexual interest in cisgender women and MtF transgender individuals) factors. Men from Samoa, Canada, and the Istmo Zapotec were asked to categorize images of MtF transgender individuals, cisgender men, and cisgender women.

### ***Chapter 6***

In Chapter 6, I examined whether men's sexual interest in MtF transgender individuals varies across cultures or whether it is constant, but variable in its expression. Canadian, Samoan, and Istmo Zapotec men's sexual attraction ratings and viewing times of images depicting MtF transgender individuals were compared. Men's responses to MtF transgender individuals were assessed relative to their response to cisgender women and cisgender men.

### ***Chapter 7***

In Chapter 7, I aimed, first, to replicate the findings from Chapter 3. Second, I assessed whether men who were sexually attracted to MtF transgender women allocated greater controlled attention to MtF transgender individuals than men who were exclusively sexually attracted to cisgender women. Third, I investigated whether exposure to MtF transgender individuals or other individual factors, including sociosexuality (i.e.,

one's motivation to pursue sort-term mating), homonegativity, interest in visual sexual stimuli, and socially desirable response bias, were associated with self-reported sexual attraction and visual attention to MtF transgender individuals. Eye-tracking measures were employed to assess biases in men's visual attention to images of nude MtF transgender individuals with and without breasts relative to cisgender women, cisgender men, and non-sexual stimuli.

### ***Chapter 8***

In Chapter 8, I evaluated whether it was appropriate to consider gynandromorphophilia to be a paraphilia as defined in the *Diagnostic and Statistical Manual of Mental Disorders-5* (American Psychiatric Association, 2013). This final chapter is theoretical in nature, as opposed to empirical. However, the discussion in this chapter was informed by the preceding chapters and the existing literature.

## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th edition)*. Washington, DC: Author.
- Arnett, J. J. (2008). The neglected 95%: Why American psychology needs to become less American. *American Psychologist* 63, 602–614.
- Asthana, S., & Oostvogels, R. (2001). The social construction of male ‘homosexuality’ in India: Implications for HIV transmission and prevention. *Social Science & Medicine* 52(5), 707–721. doi:10.1016/S0277-9536(00)00167-2
- Bailey, J. M., Vasey, P. L., Diamond, L. M., Breedlove, S. M., Vilain, E., & Epprecht, M. (2016). Sexual orientation, controversy, and science. *Psychological Science in the Public Interest*, 17(2), 45–101. doi:10.1177/1529100616637616
- Baral, S. D., Poteat, T., Strömdahl, S., Wirtz, A. L., Guadamuz, T. E., & Beyrer, C. (2013). Worldwide burden of HIV in transgender women: a systematic review and meta-analysis. *The Lancet Infectious Diseases*, 13(3), 214–222. doi:10.1016/S1473-3099(12)70315-8
- Barber, N. (1995). The evolutionary psychology of physical attractiveness: Sexual selection and human morphology. *Ethology and Sociobiology*, 16(5), 395–424. doi:10.1016/0162-3095(95)00068-2
- Bartlett, N. H., & Vasey, P. L. (2006). A retrospective study of childhood gender-atypical behavior in Samoan fa’afafine. *Archives of Sexual Behavior*, 35(6), 659–666. doi:10.1007/s10508-006-9055-1
- Besnier, N. (1997). Sluts and superwomen: The politics of gender liminality in urban Tonga. *Ethnos*, 62(1-2), 5–31. doi:10.1080/00141844.1997.9981542
- Bianchi, F. T., Reisen, C. A., Zea, M. C., Vidal-Ortiz, S., Gonzales, F. A., Betancourt, F., . . . Poppen, P. J. (2014). Sex work among men who have sex with men and transgender women in Bogota. *Archives of Sexual Behavior*, 43(8), 1637–1650. doi:10.1007/s10508-014-0260-z
- Blair, K. L., & Hoskin, R. A. (2018). Transgender exclusion from the world of dating: Patterns of acceptance and rejection of hypothetical trans dating partners as a function of sexual and gender identity. *Journal of Social and Personal Relationships*, 36(7), 2074–2095. doi:10.1177/0265407518779139
- Blanchard, R. (1989). The classification and labeling of nonhomosexual gender dysphorias. *Archives of Sexual Behavior*, 18(4), 315–334. doi:10.1007/BF01541951

- Blanchard, R., & Collins, P. I. (1993). Men with sexual interest in transvestites, transsexuals, and she-males. *Journal of Nervous and Mental Disease, 181*(9), 570–575. doi:10.1097/00005053-199309000-00008
- Bockting, W., Miner, M., & Rosser, B. R. (2007). Latino men's sexual behavior with transgender persons. *Archives of Sexual Behavior, 36*(6), 778–786. doi:10.1007/s10508-006-9133-4
- Boellstorff, T. (2004). Playing back the nation: Waria, Indonesian transvestites. *Cultural Anthropology, 19*(2), 159–195. doi:10.1525/can.2004.19.2.159
- Bogaert, A. F., & Skorska, M. N. (2020). A short review of biological research on the development of sexual orientation. *Hormones and Behavior, 119*, 104659. doi:10.1016/j.yhbeh.2019.104659
- Borisov, E., & Chester, N. (2018, December 17). My life as a transgender woman in Russia: 'I won't be bullied into hiding'. *Huck*. Retrieved from <https://www.huckmag.com/perspectives/opinion-perspectives/life-as-a-transgender-woman-in-russia/>
- Bowring, A. L., Pasomsouk, N., Hughes, C., van Gemert, C., Higgs, P., Sychareun, V., . . . Power, R. (2017). "We might get some free beers": Experience and motivation for transactional sex among behaviorally bisexual men in Vientiane, Laos. *Archives of Sexual Behavior, 46*(4), 1047–1059. doi:10.1007/s10508-016-0705-7
- Brown, D. E. (2000). *Human universals and their implications*. Berlin, Germany: Walter de Gruyter.
- Cai, Y., Wang, Z., Lau, J. T., Li, J., Ma, T., & Liu, Y. (2016). Prevalence and associated factors of condomless receptive anal intercourse with male clients among transgender women sex workers in Shenyang, China. *Journal of the International AIDS Society, 19*, 20800. doi:10.7448/IAS.19.3.20800
- Cardoso, F. L. (2005). Cultural universals and differences in male homosexuality: The case of a Brazilian fishing village. *Archives of Sexual Behavior, 34*(1), 103–109. doi:10.1007/s10508-005-1004-x
- Chapais, B. (2014). Complex kinship patterns as evolutionary constructions, and the origins of sociocultural universals. *Current Anthropology, 55*(6), 751–783. doi:10.1086/678972
- Coan, D. L., Schrage, W., & Packer, T. (2005). The role of male sexual partners in HIV infection among male-to-female transgendered individuals. *International Journal of Transgenderism, 8*(2-3), 21–30. doi:10.1300/J485v08n02\_03
- Cunningham, M. R. (1986). Measuring the physical in physical attractiveness: Quasi-experiments on the sociobiology of female facial beauty. *Journal of Personality and Social Psychology, 50*(5), 925–935.

- Cunningham, M. R., Roberts, A. R., Barbee, A. P., Druen, P. B., & Wu, C.-H. (1995). "Their ideas of beauty are, on the whole, the same as ours": Consistency and variability in the cross-cultural perception of female physical attractiveness. *Journal of Personality and Social Psychology*, *68*(2), 261–279.
- Degtyar, A., George, P. E., Mallma, P., Díaz, D. A., Cárcamo, C., García, P. J., . . . Bayer, A. M. (2018). Sexual risk, behavior, and HIV testing and status among male and transgender women sex workers and their clients in Lima, Peru. *International Journal of Sexual Health*, *30*(1), 81–91. doi:10.1080/19317611.2018.1429514
- Devereux, G. (1937). Institutionalized homosexuality of the Mohave Indians. *Human Biology*, *9*, 498–527.
- Donham, D. L. (1998). Freeing South Africa: The “modernization” of male-male sexuality in Soweto. *Cultural Anthropology*, *13*, 3–21.
- Drückler, S., van Rooijen, M. S., & de Vries, H. J. C. (2020). Substance use and sexual risk behavior among male and transgender women sex workers at the prostitution outreach center in Amsterdam, the Netherlands. *Sexually Transmitted Diseases*, *47*(2), 114–121. doi:10.1097/OLQ.0000000000001096
- Ebsworth, M., & Lalumiere, M. L. (2012). Viewing time as a measure of bisexual sexual interest. *Archives of Sexual Behavior*, *41*(1), 161–172. doi:10.1007/s10508-012-9923-9
- Engin, C. (2018). Sex work in Turkey: Experiences of transwomen. *Transgender Sex Work and Society*, 196–213.
- Forsyth, A., & Alcock, J. (1990). Female mimicry and resource defense polygyny by males of a tropical rove beetle, *Leistotrophus versicolor* (Coleoptera: Staphylinidae). *Behavioral Ecology and Sociobiology*, *26*(5), 325–330. doi:10.1007/BF00171097
- Gerico, H. (2015). *Looking for that “special” lady: Exploring hegemonic masculinity in online dating profiles of trans-attracted men*. (Master of Arts Masters). Central European University, Budapest, Hungary.
- Gómez, F. R., Semenyna, S. W., Court, L., & Vasey, P. L. (2017). Recalled separation anxiety in childhood in Istmo Zapotec men, women, and muxes. *Archives of Sexual Behavior*, *46*(1), 109–117. doi:10.1007/s10508-016-0917-x
- Gómez Jiménez, F. R., & Vasey, P. L. (2020). A retrospective study of childhood sex-typed behavior in Istmo Zapotec men, women, and muxes. *Archives of Sexual Behavior*, *49*(2), 467–477. doi:10.1007/s10508-019-01544-6
- Hakkarainen, H., Korpimäki, E., Huhta, E., & Palokangas, P. (1993). Delayed maturation in plumage colour: Evidence for the female-mimicry hypothesis in the kestrel. *Behavioral Ecology and Sociobiology*, *33*(4), 247–251. doi:10.1007/BF02027121

- Haller, D. (1992). Homosexuality in Seville. *Solgan, 14*, 27–35.  
doi:10.1525/sol.1992.14.3.27
- Hallpike, C. R. (2008). *Konso Of Ethiopia: A study of the values of An East Cushitic people*. Central Milton Keynes, England: AuthorHouse.
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences, 33*(2-3), 61–83.  
doi:10.1017/S0140525X0999152X
- Hill, W. W. (1935). The status of the hermaphrodite and transvestite in Navaho culture. *American Anthropologist, 37*(2), 273–279
- Howe, C., Zaraysky, S., & Lorentzen, L. (2008). Transgender sex workers and sexual transmigration between Guadalajara and San Francisco. *Latin American Perspectives, 35*(1), 31–50. doi:10.1177/0094582X07310956
- Hsu, K. J., Rosenthal, A. M., Miller, D. I., & Bailey, J. M. (2016). Who are gynandromorphophilic men? Characterizing men with sexual interest in transgender women. *Psychological Medicine, 46*(4), 819–827.  
doi:10.1017/S0033291715002317
- Hsu, K. J., Rosenthal, A. M., Miller, D. I., & Bailey, J. M. (2017). Sexual arousal patterns of autogynephilic male cross-dressers. *Archives of Sexual Behavior, 46*(1), 247–253. doi:10.1007/s10508-016-0826-z
- Imhoff, R., Banse, R., & Schmidt, A. F. (2017). Toward a theoretical understanding of sexual orientation and sexual motivation. *Archives of Sexual Behavior, 46*(1), 29–33. doi:10.1007/s10508-016-0881-5
- Imhoff, R., Schmidt, A. F., Nordsiek, U., Luzar, C., Young, A. W., & Banse, R. (2010). Viewing time effects revisited: Prolonged response latencies for sexually attractive targets under restricted task conditions. *Archives of Sexual Behavior, 39*(6), 1275–1288. doi:10.1007/s10508-009-9595-2
- Israel, E., & Strassberg, D. S. (2009). Viewing time as an objective measure of sexual interest in heterosexual men and women. *Archives of Sexual Behavior, 38*(4), 551–558. doi:10.1007/s10508-007-9246-4
- James, S., Herman, J., Rankin, S., Keisling, M., Mottet, L., & Anafi, M. (2016). *The report of the 2015 U.S. Transgender Survey*. Retrieved from <https://transequality.org/sites/default/files/docs/usts/USTS-Full-Report-Dec17.pdf>
- Johnson, M. (1998). Global desirings and translocal loves: Transgendering and same-sex sexualities in the Southern Philippines. *American Ethnologist, 25*(4), 695–711.  
doi:10.1525/ae.1998.25.4.695



- Kailas, M., Lu, H. M. S., Rothman, E. F., & Safer, J. D. (2017). Prevalence and types of gender-affirming surgery among a sample of transgender endocrinology patients prior to state expansion of insurance coverage. *Endocrine Practice, 23*(7), 780–786. doi:10.4158/EP161727.OR
- King, R., Nanteza, J., Sebyala, Z., Bbaale, J., Sande, E., Poteat, T., . . . Hladik, W. (2019). HIV and transgender women in Kampala, Uganda – double jeopardy. *Culture, Health & Sexuality, 21*(6), 727–740. doi:10.1080/13691058.2018.1506155
- Kinsey, A. C., Pomeroy, W. R., & Martin, C. E. (1948). *Sexual behavior in the human male*. Philadelphia, PA: W. B. Saunders Co.
- Koon Teh, Y. (1998). Understanding the problems of *mak nyahs* (male transsexuals) in Malaysia. *South East Asia Research, 6*(2), 165–180. doi:10.1177/0967828X9800600204
- Kulick, D. (1997). The gender of Brazilian transgendered prostitutes. *American Anthropologist, 99*(3), 574–585. doi:10.1525/aa.1997.99.3.574
- Kulick, D. (1998). *Travesti: Sex, gender, and culture among Brazilian transgendered prostitutes*. Chicago, IL: The University of Chicago Press.
- Lancaster, R. N. (1988). Subject honor and object shame: The construction of male homosexuality and stigma in Nicaragua. *Ethnology, 27*(2), 111–125. doi:10.2307/3773623
- Lawrence, A. A. (2010). Societal individualism predicts prevalence of nonhomosexual orientation in male-to-female transsexualism. *Archives of Sexual Behavior, 39*(2), 573-583. doi:10.1007/s10508-008-9420-3
- Lawrence, A. A. (2013). More evidence that societal individualism predicts prevalence of nonhomosexual orientation in male-to-female transsexualism. *Archives of sexual behavior, 42*(5), 693-695. doi:10.1007/s10508-013-0083-3
- LeVay, S. (2011). *Gay, straight, and the reason why: The science of sexual orientation*. New York, NY, US: Oxford University Press.
- Lim, D. C. L. (2015). Visualizing the invisible: Social constructions of straight identified men who have sex with transsexuals and feminized gay men on/off Malaysian film. *Studies in Gender and Sexuality, 16*(3), 183–203. doi:10.1080/15240657.2015.1073047
- Lippa, R. A. (2012). Effects of sex and sexual orientation on self-reported attraction and viewing times to images of men and women: Testing for category specificity. *Archives of Sexual Behavior, 41*(1), 149–160. doi:10.1007/s10508-011-9898-y

- Lippa, R. A. (2013). Men and women with bisexual identities show bisexual patterns of sexual attraction to male and female "swimsuit models". *Archives of Sexual Behavior, 42*(2), 187–196. doi:10.1007/s10508-012-9981-z
- Lippa, R. A. (2017). Category specificity of self-reported sexual attraction and viewing times to male and female models in a large U.S. sample: Sex, sexual orientation, and demographic effects. *Archives of Sexual Behavior, 46*(1), 167–178. doi:10.1007/s10508-016-0844-x
- Lippa, R. A., Patterson, T. M., & Marelich, W. D. (2010). Looking at and longing for male and female “swimsuit models”. *Social Psychological and Personality Science, 1*(3), 238–245. doi:10.1177/1948550609359814
- Long, J. E., Ulrich, A., White, E., Dasgupta, S., Cabello, R., Sanchez, H., . . . Duerr, A. (2020). Characterizing men who have sex with transgender women in Lima, Peru: Sexual behavior and partnership profiles. *AIDS and Behavior, 24*(3), 914–924. doi:10.1007/s10461-019-02590-w
- Lyons, C., Stahlman, S., Holland, C., Ketende, S., Van Lith, L., Kochelani, D., . . . Maziya, S. (2019). Stigma and outness about sexual behaviors among cisgender men who have sex with men and transgender women in Eswatini: A latent class analysis. *BMC Infectious Diseases, 19*(1), 211. doi:10.1186/s12879-019-3711-2
- Mariella Bacigalupo, A. (2004). The struggle for Mapuche shamans' masculinity: Colonial politics of gender, sexuality, and power in Southern Chile. *Ethnohistory, 51*(3), 489–533. doi:10.1215/00141801-51-3-489
- Mauk, D., Perry, A., & Munoz-Laboy, M. (2013). Exploring the desires and sexual culture of men who have sex with male-to-female transgender women. *Archives of Sexual Behavior, 42*(5), 793–803. doi:10.1007/s10508-013-0079-z
- McLelland, M. J. (2000). Male homosexuality and popular culture in modern Japan. *Intersections, 1*(3), 1–14.
- Milan, K. (2017). In this Mexican city trans people are celebrated, so why do they feel so left out? *Narratively*. Retrieved from <https://narratively.com/in-this-mexican-city-trans-people-are-celebrated-so-why-do-they-feel-so-left-out/>
- Mirandé, A. (2016). Hombres mujeres: An indigenous third gender. *Men and Masculinities, 19*(4), 384–409. doi:10.1177/1097184X15602746
- Mirandé, A. (2017). *Behind the mask: Gender hybridity in a Zapotec community*. Tucson, AZ: The University of Arizona Press.
- Mitsubishi, J. (2006). The transgender world in contemporary Japan: The male to female cross-dressers' community in Shinjuku. *Inter-Asia cultural studies, 7*(2), 202–227. doi:10.1080/14649370600673847

- Money, J., & Lamacz, M. (1984). Gynemimesis and gynemimetophilia: Individual and cross-cultural manifestations of a gender-coping strategy hitherto unnamed. *Comprehensive Psychiatry*, 25(4), 392–403.
- Moser, C. (2009). Autogynephilia in women. *Journal of Homosexuality*, 56(5), 539–547. doi:10.1080/00918360903005212
- Murray, S. O. (1995). *Latin American male homosexualities*. Albuquerque, NM: University of New Mexico Press.
- Murray, S. O. (2000). *Homosexualities*. Chicago, IL: The University of Chicago Press.
- Nadel, S. F. (1947). *The Nuba: An anthropological study of the hill tribes in Kordofan*. London, England: Oxford University Press.
- Nanda, S. (1999). *Neither man nor woman: Hijras of India (2nd ed.)*. Belmont, CA: Wadsworth Publishing Company.
- Nichols, A. (2010). Dance ponnaya, dance! Police abuses against transgender sex workers in Sri Lanka. *Feminist Criminology*, 5(2), 195–222. doi:10.1177/1557085110366226
- Nissani, M. (1977). Gynandromorph analysis of some aspects of sexual behaviour of *Drosophila melanogaster*. *Animal Behaviour*, 25, 555–566. doi:10.1016/0003-3472(77)90106-3
- Norenzayan, A., & Heine, S. J. (2005). Psychological universals: What are they and how can we know? *Psychological Bulletin*, 131(5), 763–784. doi:10.1037/0033-2909.131.5.763
- Ocha, W., & Earth, B. (2013). Identity diversification among transgender sex workers in Thailand's sex tourism industry. *Sexualities*, 16(1-2), 195–216. doi:10.1177/1363460712471117
- Oestreich Lurie, N. (1953). Winnebago berdache. *American Anthropologist*, 55, 708–712.
- Oetomo, D., & Emond, B. (1993). *Homosexuality in Indonesia*. Paper presented at the An International Conference on AIDS, Berlin.
- Operario, D., Burton, J., Underhill, K., & Sevelius, J. (2008). Men who have sex with transgender women: Challenges to category-based HIV prevention. *AIDS and Behavior*, 12(1), 18–26. doi:10.1007/s10461-007-9303-y
- Peletz, M. G. (2009). *Gender pluralism: Southeast Asia since early modern times*. New York, NY: Taylor & Francis.

- Petterson, L. J., Dixson, B. J., Little, A. C., & Vasey, P. L. (2015). Viewing time measures of sexual orientation in Samoan cisgender men who engage in sexual interactions with fa'afafine. *PloS one*, *10*(2). doi:10.1371/journal.pone.0116529
- Petterson, L. J., Dixson, B. J., Little, A. C., & Vasey, P. L. (2016). Reconsidering male bisexuality: Sexual activity role and sexual attraction in Samoan men who engage in sexual interactions with fa'afafine. *Psychology of Sexual Orientation and Gender Diversity*, *3*(1), 11–26. doi:10.1037/sgd0000160
- Pflüger, L. S., Oberzaucher, E., Katina, S., Holzleitner, I. J., & Grammer, K. (2012). Cues to fertility: Perceived attractiveness and facial shape predict reproductive success. *Evolution and Human Behavior*, *33*(6), 708–714. doi:10.1016/j.evolhumbehav.2012.05.005
- Presterudstuen, G. H. (2014). Men trapped in women's clothing: Homosexuality, cross-dressing, and masculinity in Fiji. In N. Besnier & K. Alexeyeff (Eds.), *Transgender, gay and other Pacific Islanders* (pp. 162–183). Honolulu, HI: University of Hawai'i Press.
- Prieur, A. (1994). 'I am my own special creation': Mexican homosexual transvestites' construction of femininity. *Young*, *2*(3), 3–17.
- Puckett, J. A., Cleary, P., Rossman, K., Mustanski, B., & Newcomb, M. E. (2018). Barriers to gender-affirming care for transgender and gender nonconforming individuals. *Sexuality Research and Social Policy*, *15*(1), 48–59. doi:10.1007/s13178-017-0295-8
- Quinsey, V. L., Ketsetzis, M., Earls, C., & Karamanoukian, A. (1996). Viewing time as a measure of sexual interest. *Ethnology and Sociobiology*, *17*, 341–354.
- Rahman, Q., Xu, Y., Lippa, R. A., & Vasey, P. L. (2019). Prevalence of sexual orientation across 28 nations and its association with gender equality, economic development, and individualism. *Archives of Sexual Behavior*, 1–12. doi:10.1007/s10508-019-01590-0
- Reback, C. J., & Larkins, S. (2006). *Once in a blue moon: Toward a better understanding of heterosexually identified men who have sex with men and/or preoperative transgender women*. Los Angeles, CA: City of Los Angeles, AIDS Coordinator.
- Richards, C., Bouman, W. P., Seal, L., Barker, M. J., Nieder, T. O., & T'Sjoen, G. (2016). Non-binary or genderqueer genders. *International Review of Psychiatry*, *28*(1), 95–102. doi:10.3109/09540261.2015.1106446
- Rieger, G., Chivers, M. L., & Bailey, J. M. (2005). Sexual arousal patterns of bisexual men. *Psychological Science*, *16*(8), 579–584. doi:10.1111/j.1467-9280.2005.01578.x

- Rosenthal, A. M., Hsu, K. J., & Bailey, J. M. (2017). Who are gynandromorphophilic men? An internet survey of men with sexual interest in transgender women. *Archives of Sexual Behavior*, *46*(1), 255–264. doi:10.1007/s10508-016-0872-6
- Rowson, E. K. (1991). The effeminate of early Medina. *Journal of the American Oriental Society*, 671–693. doi:10.2307/603399
- Rullo, J. E., Strassberg, D. S., & Israel, E. (2010). Category-specificity in sexual interest in gay men and lesbians. *Archives of Sexual Behavior*, *39*(4), 874–879. doi:10.1007/s10508-009-9497-3
- Rullo, J. E., Strassberg, D. S., & Miner, M. H. (2015). Gender-specificity in sexual interest in bisexual men and women. *Archives of Sexual Behavior*, *44*(5), 1449–1457. doi:10.1007/s10508-014-0415-y
- Schein, A. I., Lyons, C., Ezouatchi, R., Liestman, B., Drame, F., Diouf, D., . . . Baral, S. (2019). Sexual behavior stigma and depression among transgender women and cisgender men who have sex with men in Côte d'Ivoire. *Annals of Epidemiology*, *33*, 79–83. e71. doi:10.1016/j.annepidem.2019.03.002
- Schifter, J., & Madrigal, J. (1997). The transvestite's lover: Identity and behavior. In V. L. Bullough & J. Elias (Eds.), *Gender blending*. New York, NY: Prometheus Books
- Schmidt, J. (2016). Being 'like a woman': Fa'afafine and Samoan masculinity. *The Asia Pacific Journal of Anthropology*, *17*(3-4), 287–304. doi:10.1080/14442213.2016.1182208
- Schneider, J. A., Michaels, S., Gandham, S. R., McFadden, R., Liao, C., Yeldandi, V. V., & Oruganti, G. (2012). A protective effect of circumcision among receptive male sex partners of Indian men who have sex with men. *AIDS and Behavior*, *16*(2), 350–359. doi:10.1007/s10461-011-9982-2
- Semenyna, S. W., & Vasey, P. L. (2016). The relationship between adult occupational preferences and childhood gender nonconformity among Samoan women, men, and fa'afafine. *Human Nature*, *27*(3), 283–295. doi:10.1007/s12110-016-9258-7
- Shine, R., Harlow, P., LeMaster, M. P., Moore, I. T., & Mason, R. T. (2000). The transvestite serpent: why do male garter snakes court (some) other males? *Animal Behaviour*, *59*(2), 349–359. doi:10.1006/anbe.1999.1321
- Shine, R., O'Connor, D., & Mason, R. T. (2000). Sexual conflict in the snake den. *Behavioral Ecology and Sociobiology*, *48*(5), 392–401. doi:10.1007/s002650000255
- Singh, D., Dixson, B. J., Jessop, T. S., Morgan, B., & Dixson, A. F. (2010). Cross-cultural consensus for waist-hip ratio and women's attractiveness. *Evolution and Human Behavior*, *31*(3), 176–181. doi:10.1016/j.evolhumbehav.2009.09.001

- Stief, M. (2017). The sexual orientation and gender presentation of hijra, kothi, and panthi in Mumbai, India. *Archives of Sexual Behavior*, 46(1), 73–85. doi:10.1007/s10508-016-0886-0
- Suschinsky, K. D., Elias, L. J., & Krupp, D. B. (2007). Looking for Ms. Right: Allocating attention to facilitate mate choice decisions. *Evolutionary Psychology*, 5(2), 147470490700500214. doi:10.1177/147470490700500214
- Sweet, M. J., & Zwillig, L. (1993). The first medicalization: The taxonomy and etiology of queerness in classical Indian medicine. *Journal of the History of Sexuality*, 3(4), 590–607.
- Symons, D. (1995). Beauty is in the adaptations of the beholder: The evolutionary psychology of human female sexual attractiveness. In P. R. Abramson & S. D. Pinkerton (Eds.), *Sexual nature, sexual culture* (pp. 80-118). Chicago, IL: The University of Chicago Press.
- Templeton, D. J., Jin, F., Mao, L., Prestage, G. P., Donovan, B., Imrie, J., . . . Grulich, A. E. (2009). Circumcision and risk of HIV infection in Australian homosexual men. *AIDS*, 23(17), 23472351. doi:10.1097/QAD.0b013e32833202b8
- ten Brummelhuis, H. (1999). Transformations of transgender the case of the Thai. *Journal of Gay & Lesbian Social Services*, 9(2-3), 121–139. doi:10.1300/J041v09n02\_06
- Thalmayer, A. G., Toscanelli, C., & Arnett, J. J. (2020). The neglected 95% revisited: Is American psychology becoming less American? *American Psychologist*. doi:10.1037/0003-066X.63.7.602
- Thornhill, R., & Gangestad, S. W. (1999). Facial attractiveness. *Trends in Cognitive Sciences*, 3(12), 452–460. doi:10.1016/S1364-6613(99)01403-5
- Thornton, B. S. (1997). *Eros: The myth of ancient Greek sexuality*. New York, NY: Routledge.
- Tompkins, A. B. (2014). "There's no chasing involved": Cis/trans relationships, "tranny chasers," and the future of a sex-positive trans politics. *Journal of Homosexuality*, 61(5), 766–780. doi:10.1080/00918369.2014.870448
- Tucker, C., Arandi, C. G., Bolanos, J. H., Paz-Bailey, G., & Barrington, C. (2014). Understanding social and sexual networks of sexual minority men and transgender women in Guatemala city to improve HIV prevention efforts. *Journal of Health Care for the Poor Underserved*, 25(4), 1698–1717. doi:10.1353/hpu.2014.0163
- Vallabhaneni, S., Li, X., Vittinghoff, E., Donnell, D., Pilcher, C. D., & Buchbinder, S. P. (2012). Seroadaptive practices: Association with HIV acquisition among HIV-negative men who have sex with men. *PloS one*, 7(10), e45718. doi:10.1371/journal.pone.0045718

- Van de Ven, P., Kippax, S., Crawford, J., Rawstorne, P., Prestage, G., Grulich, A., & Murphy, D. (2002). In a minority of gay men, sexual risk practice indicates strategic positioning for perceived risk reduction rather than unbridled sex. *AIDS Care, 14*(4), 471–480. doi:10.1080/09540120220133008
- Vasey, P. L., & VanderLaan, D. P. (2014). Evolving research on the evolution of male androphilia. *The Canadian Journal of Human Sexuality, 23*(3), 137–147. doi:10.3138/cjhs.23.3-CO1
- Vasey, P. L., VanderLaan, D. P., Gothreau, L. M., & Bartlett, N. H. (2011). Traits of separation anxiety in childhood: A retrospective study of Samoan men, women, and fa'afafine. *Archives of Sexual Behavior, 40*(3), 511–517. doi:10.1007/s10508-009-9589-0
- Vrangalova, Z., & Savin-Williams, R. C. (2012). Mostly heterosexual and mostly gay/lesbian: Evidence for new sexual orientation identities. *Archives of Sexual Behavior, 41*(1), 85–101. doi:10.1007/s10508-012-9921-y
- Wang, Q. (2016). Why should we all be cultural psychologists? Lessons from the study of social cognition. *Perspectives on Psychological Science, 11*(5), 583–596. doi:10.1177/1745691616645552
- Wegesin, D. J., & Meyer-Bahlburg, H. F. L. (2000). Top/bottom self-label, anal sex practices, HIV risk and gender role identity in gay men in New York City. *Journal of Psychology & Human Sexuality, 12*(3), 43–62. doi:10.1300/J056v12n03\_03
- Wei, C., & Raymond, H. F. (2011). Preference for and maintenance of anal sex roles among men who have sex with men: Sociodemographic and behavioral correlates. *Archives of Sexual Behavior, 40*(4), 829–834. doi:10.1007/s10508-010-9623-2
- Weinberg, M. S., & Williams, C. J. (2010). Men sexually interested in transwomen (MSTW): Gendered embodiment and the construction of sexual desire. *Journal of Sex Research, 47*(4), 374–383. doi:10.1080/00224490903050568
- Whitam, F. L. (1992). Bayot and callboy in the Philippines. In S. O. Murray (Ed.), *Oceanic homosexualities*. New York, NY: Garland.
- Whitam, F. L. (1995). Os entendidos: Gay life in São Paulo in the 1970s. In S. O. Murray (Ed.), *Latin American male homosexualities* (pp. 231–240). Albuquerque, NM: University of Mexico Press.
- Wikan, U. (1977). Man becomes woman: Transsexualism in Oman as a key to gender roles. *Man, 12*, 304–319.
- Yengoyan, A. A. (1993). Transvestism and the ideology of gender: Southeast Asia and beyond. In V. Patraka & L. Tilly (Eds.), *Feminist re-Visions: What has been and might be*. Michigan, IL: University of Michigan.

## Chapter 2: Heterogeneity in the Sexual Orientations of Men Who Have Sex with *Fa'afafine* in Samoa

### Abstract

In Samoa, feminine natal males who possess male-typical genitalia are known locally as *fa'afafine*. Some Samoan men express sexual interest in *fa'afafine* whereas others do not. To assess the sexual orientation of men who are sexually interested in *fa'afafine*, I collected sexual attraction ratings and viewing times of Samoan men's and women's faces. Study 1 ( $N = 130$ ) focused on men who were insertive or versatile during anal sex with *fa'afafine* partners. These men were compared to each other, as well as to males (i.e., men and *fa'afafine*) who were exclusively sexually interested in either women or men. Study 2 ( $N = 180$ ) compared men who had sex with *fa'afafine* and women; men who had sex with *fa'afafine*, women, and men; and men who had sex with *fa'afafine* and men. These men were compared to each other, as well as to males who were exclusively sexually interested in either women or men. These studies suggest that men who have sex with *fa'afafine* are a heterogeneous group. A small portion of the men who are sexually interested in *fa'afafine* show a relatively bisexual pattern of sexual attraction ratings and viewing times, namely men who have sex with *fa'afafine*, men, and women. In contrast, a larger number of men who were sexually interested in *fa'afafine* responded in a manner similar to men who were exclusively sexually interested in either women or men. The present research suggests that additional insights into male sexual orientation can be garnered by focusing on how sexuality is expressed in non-Western cultural contexts.

*Keywords:* sexual orientation; bisexuality; viewing time; anal sex; gynandromorphophilia; *fa'afafine*



## Introduction

Across a diverse range of cultures, some men have sex with feminine individuals who were born male and who have male-typical genitalia and, in many instances, other male-typical morphological features. This interest has been found across a broad range of geographical regions, including, but not limited to Bolivia (Wright, 2000), Brazil (Kulick, 1997; Whitam, 1995), Columbia (Bianchi et al., 2014), Guatemala (Tucker et al., 2014), India (Stief, 2017), Indonesia (Boellstorff, 2004), Malaysia (Lim, 2015), Mexico (Howe et al., 2008), Nicaragua (Lancaster, 1988), Oman (Wikan, 1977), Philippines (Johnson, 1998; Whitam, 1992), South Africa (Donham, 1998), Spain (Haller, 1992), USA (Coan et al., 2005; Mauk et al., 2013; Operario et al., 2008). Hereafter, natal males whose gender presentation is feminine will be referred to as MtF transgender individuals (this can include, for example, individuals who identify as women or transgender women as well as individuals who identify as neither men nor as women but rather as some alternative gender). The majority of MtF transgender individuals are notably feminine, but it is not uncommon for these individuals to possess qualities that are male-typical (e.g., male genitalia).

Men who are sexually interested in MtF transgender individuals exhibit notable variability in their sexual positioning. For instance, in many cultures, MtF transgender individuals are understood, at least in principle, to be receptive during anal intercourse (e.g., Cardoso, 2005; Greenberg, 1988; Haller, 1992; Kulick, 1997; Lancaster, 1988; Sweet & Zwilling, 1993; Wikan, 1977). In practice, however, some men who have sex with MtF transgender individuals are, at times, penetrated by their partners (e.g., Bianchi et al., 2014; Boellstorff, 2004; Oetomo & Emond, 1993; Operario et al., 2008; Prieur, 1994; Stief, 2017).

Men who are sexually interested in MtF transgender individuals also exhibit notable variability in their partner selection. For example, many men who are sexually interested in MtF transgender individuals also express sexual interest in cisgender women and some express sexual interest in both cisgender women and cisgender men (e.g., Rosenthal et al., 2017; Stief, 2017). A small portion of men who are sexually interested in MtF transgender individuals also express sexual interest in cisgender men, but not cisgender women (e.g., Hall et al., 2017; Stief, 2017).

Some evidence suggests that sexual interest in MtF transgender individuals is associated with ambiphilia (i.e., sexual interest in both women and men). For instance, when measures of self-reported sexual attraction and viewing time were employed, Samoan (Pettersen et al., 2015) and Indian (Stief, 2017) men who were sexually interested in MtF transgender individuals showed patterns of response to images of cisgender men and cisgender women that were consistent with ambiphilia.

However, in light of the heterogeneity in sexual roles and partner selection among this group, the possibility exists that men who are sexually interested in MtF transgender individuals exhibit a variety of sexual orientations. Consistent with this possibility, sexual attraction ratings and viewing times of women and men vary based on men's oral sex roles with *fa'afafine* (Pettersen et al., 2016): whereas Samoan men who both receive and perform oral sex with *fa'afafine* (MtF transgender individuals in Samoa) are relatively ambiphilic, Samoan men who only receive fellatio from *fa'afafine* are comparatively gynephilic (i.e., sexually attracted to women). Thus, different sexual behavior patterns may reflect different underlying sexual orientations. Taken together, these results are consistent with the suggestion that males who are sexually interested in MtF transgender

individual are relatively ambiphilic compared to other males, but the degree to which they are ambiphilic varies and is associated with how sexual behavior is expressed.

The current research was conducted in Samoa and consisted of two studies examining whether men who were sexually interested in *fa'afafine* were heterogeneous in terms of their sexual orientation. Examining the sexual preferences of men who have sex with MtF transgender individuals may provide insights into potential variation in men's sexual orientation across cultures. In Study 1, I assessed whether men's viewing times and sexual attraction ratings of men and women differed as a function of positioning during anal sex with *fa'afafine*. In Study 2, I assessed whether men's viewing times and sexual attraction ratings of men and women differed as a function of their sexual histories (i.e., history of sexual activity with and sexual feelings for men, women, and *fa'afafine*). Men who were sexually interested in *fa'afafine* were predicted to show a relatively ambiphilic pattern of sexual attraction ratings and viewing times, but the degree of ambiphilia was predicted to vary based on their anal-sex positioning and sexual history.

Two patterns of response have been identified as ambiphilic (e.g., Bailey, 2009; Bailey et al., 2016). First, ambiphilic individuals are less discrepant in their sexual attraction to men and women relative to monosexual individuals (i.e., individuals who are sexually attracted to only one sex), including those who are primarily gynephilic or androphilic (i.e., sexually attracted to men). Thus, individuals are said to have an ambiphilic response pattern if the difference in their sexual attraction ratings and viewing times of men and women are smaller than to those of monosexual men. Second, ambiphilic individuals have elevated attraction to their lesser-preferred gender relative to monosexual individuals. Thus, individuals are said to have an ambiphilic response if they report greater attraction to their lesser-preferred gender and view their lesser-preferred

gender longer than monosexual individuals. If individuals are ambiphilic, both patterns should be observed.<sup>15</sup>

To assess whether men who had sex with *fa'afafine* were less discrepant in their response to men and women relative to monosexual natal males, I constructed two indices for each measure (i.e., sexual attraction ratings and viewing times): (1) gender-preference indices and (2) difference-magnitude indices. The gender-preference indices represent the difference in participants' responses to men and women: low scores indicate gynephilia, high scores indicate androphilia, and scores closer to 0 indicate a lack of exclusive preference for women or men, or ambiphilia. However, when these scores are averaged, a group that is comprised of a mix of gynephilic and androphilic individuals would be indistinguishable from a group that is comprised of ambiphilic individuals. Hence, I also calculated difference-magnitude indices, which represent the absolute size of the difference in participants' response to men and women: high scores indicate a discrepant response to the two genders and low scored indicate a similar response to the two genders. Additionally, I constructed indices of participants' responses to their lesser-preferred gender for each measure: low scores indicate negligible response to their lesser-preferred gender and high scores indicate more substantial interest in their lesser-preferred gender. Using these indices, I assessed whether men who had sex with *fa'afafine* showed ambiphilic patterns of sexual attraction ratings and viewing times relative to monosexual males.

---

<sup>15</sup> If participants respond to men and women in a similar manner, this could indicate that they are highly attracted to both genders, but it could also indicate that they are minimally attracted to both genders. The latter is inconsistent with ambiphilia. However, if they respond to men and women in a relatively similar manner and also report greater attraction to their lesser-preferred gender and view their lesser-preferred gender longer than monosexual individuals, the second possibility can be ruled out.

Hypothesis 1: Regardless of their anal sex positioning and sexual histories, men who are sexually interested in *fa'afafine* are relatively ambiphilic.

Men who have sex with *fa'afafine* were predicted to show relatively ambiphilic patterns of sexual attraction ratings and viewing times including: (1) gender-preference index scores that were intermediate between those of gynephilic and androphilic males; (2) difference-magnitude indices scores that were lower than those of gynephilic and androphilic males; and (3) responses to their lesser-preferred gender that were greater than those of gynephilic and androphilic males.

Hypothesis 2: Men who are sexually interested in *fa'afafine* are heterogeneous in terms of their ambiphilia.

Men who have sex with *fa'afafine* were predicted to vary in their (1) gender preference index scores; (2) difference-magnitude index scores; and (3) responses to their lesser-preferred gender based on anal-sex positioning and sexual histories.

### **Study 1**

In Study 1, I assessed the relationship between men's viewing times and sexual attraction ratings of images of men and women and anal-sex positioning with *fa'afafine*. To do so I compared (1) participants who were exclusively insertive during anal sex with *fa'afafine*, (2) participants who were both insertive and receptive during anal sex with *fa'afafine*, (3) participants who had sex only with women (gynephilic men), and (4) participants who had sex only with men (androphilic males). Groups 1-3 were comprised of men and Group 4 was comprised of men and *fa'afafine*. I predicted that men who had sex with *fa'afafine*, regardless of the position they adopted during anal sex, would show relatively ambiphilic patterns of sexual attraction ratings and viewing times compared to monosexual natal males. However, this was predicted to vary based on anal-sex

positioning. Men who were both insertive and receptive during anal intercourse with *fa'afafine* partners were predicted to show less discrepant responses to images of men and women as well as greater sexual attraction to, and longer viewing times of, their lesser preferred gender compared to men who were exclusively sexually insertive during anal sex with *fa'afafine* partners.

## **Method**

### ***Participants***

The anal-sex positioning analysis included (1) 30 men who had sex with *fa'afafine* in the prior year and who were exclusively insertive during anal sex with *fa'afafine* (hereafter, insertive men), (2) 24 men who had sex with *fa'afafine* in the prior year and who were both insertive and receptive during anal sex with *fa'afafine* (hereafter, versatile men), (3) 31 men who had sex only with women and had done so in the prior year (hereafter, gynephilic men), and (4) 45 natal males (i.e., natal males who identified as *fa'afafine*,  $n = 30$ ; males who identified as men,  $n = 15$ ) who had sex only with men and had done so in the prior year (hereafter, androphilic males). Men who engaged in sexual interactions with *fa'afafine* varied in terms of their sexual partner histories. Table 2.1 shows participants' prior year and lifetime sexual histories

All participants were recruited from Upolu, the most highly populated island of Samoa between 2012 and 2015. A network sampling procedure was used, which involved contacting initial participants who displayed qualities of interest (i.e., status as [1] a *fa'afafine*, [2] a man) then obtaining referrals for additional participants. Participants were excluded if they experienced difficulties completing the task or if they were not paying attention during the image rating task (12 participants were excluded). One androphilic male was excluded because he had experienced sexual feelings for *fa'afafine*,

but he had not had sex with *fa'afafine*. Portions of the data used here have been used in prior analyses (Petterson et al., 2015, 2016; Petterson, Dixson, Little, & Vasey, 2018).<sup>16</sup>

Age differed between groups, Welch statistic,  $F(3, 66.32) = 7.72, p < .001$ .

Versatile men ( $M$  age = 23.46 years,  $SD = 4.46$ ) were younger than gynephilic men ( $M$  age = 29.71 years,  $SD = 8.88$ ),  $p = .004$ , and androphilic males ( $M$  age = 28.02 years,  $SD = 6.85$ ),  $p = .038$ . Insertive men ( $M$  age = 23.33 years,  $SD = 4.90$ ) were younger than gynephilic men,  $p = .002$ , and androphilic males,  $p = .018$ . No other significant group differences in age were found ( $p$ -values = .699 and .100). Age did not significantly correlate with participants' sexual attraction or viewing times ( $p = .115$ -.893).

### **Measures**

The study consisted of an image-rating task, during which participants' viewing times were recorded, and a brief biographic questionnaire. The image rating task was conducted using Empirisoft's MediaLab reaction-time software (Eternity and Empirisoft Corporation, 1997).

Prior to the study portion of the image rating task, participants completed a trial to familiarize themselves with the task. During the trial, participants were presented with a series of 9 images, which included 3 images of clothed Samoan men and 3 images of clothed Samoan women, and 3 control images (described below). Participants were given

---

<sup>16</sup> Petterson et al. (2015) compared men who had sex with *fa'afafine*, as a group, to *fa'afafine* and men who have sex with only women. Petterson et al. (2016) compared men who had performed and received oral sex with *fa'afafine* partners and those who had only received oral sex from *fa'afafine*; these men were further compared to *fa'afafine* and men who had sex with only women. Additional participants were recruited following the aforementioned studies. Petterson et al. (2018) compared cisgender androphilic men and *fa'afafine*.

up to three attempts to familiarize themselves with the task. The study was stopped if participants did not understand the task after the third attempt.

For the study itself, participants were shown a series of 31 images that included 10 composite images of Samoan men's faces, 10 composite images of Samoan women's faces, and 11 control stimuli (i.e., cartoon faces composed of a circle with two dots for eyes and a straight line for a mouth each of which varied slightly). To ensure that the images of men and women were not viewed as androgynous or mistaken for the opposite sex, the composite images of men's and women's faces were manipulated to render them more masculine or more feminine, respectively (in line with Benson & Perrett, 1993; Dixson, Little, Dixson, & Brooks, 2017; Little & Hancock, 2002; Tiddeman, Burt, & Perrett, 2001). For more information on stimulus construction, see Petterson et al. (2015).

The image series was entered in a randomized order, but every participant was shown the same image series. Response to the first image after the trial, a control image, was excluded from analysis to remove any confounds associated with transitioning from the trial to the actual study. Three additional images were removed from analysis: one image of a woman due to its relatively low ratings; one image of a man due to its relatively high ratings; and one randomly chosen control image to ensure that the stimuli categories contained equal numbers of images.

Participants were told that the purpose of the study was to understand males' sexual attraction to men and women. They were informed that they would be required to provide sexual attraction ratings for images of men and women and were instructed to take as long as they needed to appraise each photo before rating it. As each image was displayed, participants were asked to report how they would feel about having sex with each person. Participants responded using a 7-point Likert-type scale ranging from 1 =



“very unpleasant” to 7 = “very pleasant.” Responses to this question will hereafter be referred to as the sexual attraction ratings. Low ratings indicate sexual aversion whereas high ratings indicate sexual attraction.

Unbeknownst to the participants, their viewing times were simultaneously recorded. The period between image presentation and participant response, which is typically referred to as a “viewing time,” may reflect the time required to respond to the task of rating attraction (Imhoff et al., 2010; Imhoff, Schmidt, Weiß, Young, & Banse, 2012). Thus, the term “response time” may be a more accurate reflection of the measure. However, to remain consistent across studies, the term “viewing time” is used here.

Participants were asked whether they had sexual feelings for, and had engaged in sexual interactions with, men, women, and *fa'afafine* (1) at any point in their lives and (2) within the year prior to being interviewed. Participants who had engaged in sexual interactions with *fa'afafine* were asked if they engaged in insertive and/or receptive anal sex with their *fa'afafine* partners. All participants were thanked and given 20 Western Samoan Tala for their time.

### ***Statistical Analysis***

The viewing times were winsorized to reduce the influence of outliers. To do so, the raw values that corresponded to *z*-score values of 3.29 or higher were replaced with the participants' next highest viewing time plus one second. Thirty-four values (0.01%) were replaced using this method. To control for individual differences in responsiveness, within-participant standardized scores (*z*-scores) were calculated for the winsorized viewing times. For the attraction ratings, raw values were used.

Mean sexual attraction ratings and viewing times were calculated for the images of men, images of women, and control images. To control for baseline response,

participants' mean response to the control images was subtracted from (1) their mean response to images of men and (2) their mean response to images of women. This was done for both measures.

Gender-preference indices were calculated by subtracting participants' baseline-controlled mean response to images of women from their baseline-controlled mean response to the images of men (response to men - response to women) for both measures (hereafter, the sexual attraction and viewing time gender-preference indices). Difference-magnitude indices were calculated by taking the absolute difference in participants' baseline-controlled response to images of men and women ( $|\text{response to men} - \text{response to women}|$ ) for both measures (hereafter, the sexual attraction and viewing time difference-magnitude indices). The response to one's lesser-preferred gender index was constructed by taking the lower of the two baseline-controlled target image means (hereafter, sexual attraction and viewing time to one's lesser-preferred gender).

Statistical analysis was conducted using RStudio, version 1.1.383 (R Development Core Team, 2015). To assess the relationship between sexual attraction ratings and viewing times, a linear regression was conducted with sexual attraction gender-preference index scores predicting viewing time gender-preference index scores.

Due to highly skewed distributions, analyses of sexual attraction ratings were conducted using non-parametric tests and median values were reported as the measure of central tendency. Between-group comparisons were conducted using Kruskal-Wallis tests (with the alpha level set at  $\alpha = .05$ ). Post hoc comparisons were conducted using Wilcoxon tests.

Between-group comparisons of viewing times were conducted using one-way analyses of variance (ANOVAs) (with the alpha level set at  $\alpha = .05$ ). Post hoc comparisons were conducted using Tukey's honest significant difference (HSD).

## **Results**

Sexual attraction ratings and viewing time responses are shown in Table 2.2. Sexual attraction gender-preference index scores and viewing time gender-preference index scores are shown in Figure 2.1 by group. Sexual attraction gender-preference index scores were moderately associated with viewing time gender-preference index scores,  $R^2 = .46$ ,  $F(1, 128) = 112.2$ ,  $p < .001$ ;  $b = .15$ , 95% CI (.13, .18),  $SE = .01$ ,  $p < .001$ .

### ***Gender-Preference Indices***

There was a main effect of group on sexual attraction gender-preference index scores,  $H(3) = 80.18$ ,  $p < .001$ . Androphilic males were the only group with a preference for men (gender preference index scores  $> 0$ ), and they had higher gender preference index scores than all other groups, all  $p$  values  $< .001$ . Versatile men were less marked in their preference for women, as indicated by higher sexual attraction gender-preference index scores, than insertive men,  $p = .001$ , and gynephilic men,  $p < .001$ . Insertive men and gynephilic men responded similarly,  $p = .24$ . As such, insertive men were similar to gynephilic men in this regard, whereas versatile men were intermediate between the monosexual groups.

There was a main effect of group on viewing time gender-preference index scores,  $F(3, 126) = 51.98$ ,  $p < .001$ ,  $\eta^2 = .55$ . Androphilic males were the only group with prolonged viewing times of men (gender preference index scores  $> 0$ ), and they had higher viewing time gender-preference index scores than all other groups, all  $p$  values  $<$

.001, Hedge's  $g = .98 - 2.92$ . Versatile men had less prolonged viewing times for images of women, as indicated by their higher viewing time gender-preference index scores, than insertive men,  $p = .001$ , Hedge's  $g = .96$ , 95% CI (.40, 1.53), and gynephilic men,  $p < .001$ , Hedge's  $g = 1.74$ , 95% CI (1.12, 2.37). Insertive men and gynephilic men had relatively similar viewing time gender-preference index scores, although the effect size was moderate,  $p = .098$ , Hedge's  $g = .65$ , 95% CI (.14, 1.17). As such, insertive men were similar to gynephilic men in this regard whereas versatile men were intermediate between the monosexual groups.

### ***Magnitude of the Difference in Response to Images of Men and Women***

There was a main effect of group on sexual attraction difference-magnitude index scores,  $H(3) = 26.82$ ,  $p < .001$ . Androphilic males showed the most marked difference in their ratings of men and women, as indicated by their larger difference-magnitude index scores, than all other groups, all  $p$  values  $< .005$ . No other significant group differences were observed,  $p = .629-.987$ . As such, these findings were inconsistent with the predicted pattern.

There was a main effect of group on sexual viewing time difference-magnitude index scores,  $F(3, 126) = 9.30$ ,  $p < .001$ ,  $\eta^2 = .18$ . Versatile men were less discrepant in their viewing times of men and women, as indicated by their smaller difference-magnitude index scores, than gynephilic men,  $p < .001$ , Hedge's  $g = 1.3$ , 95% CI (.71, 1.88). Versatile men and insertive men did not differ significantly in this respect,  $p = .053$ , but the effect size was moderate, Hedge's  $g = .73$ , 95% CI (.18, 1.29). In contrast to what would be expected, androphilic males ( $M = .71$ ,  $SD = .48$ ) were less discrepant in their viewing times of men and women, as indicated by their smaller magnitude index

scores, than gynephilic men,  $p < .001$ , Hedge's  $g = 1.00$ , 95% CI (.52, 1.49). No other notable group differences were observed,  $p = .146-.793$ , Hedge's  $g = .23-.55$ .<sup>17</sup> As such, versatile men were less discrepant in their viewing times of men and women relative to gynephilic men, a pattern that suggests ambiphilia. In contrast to predictions, however, versatile men did not differ from androphilic males, insertive men did not differ from either monosexual group, and androphilic and gynephilic men did differ from one another.

### ***Response to Participant's Lesser-Preferred Gender***

There was a main effect of group on participants' sexual attraction ratings of their lesser-preferred gender,  $H(3) = 15.37$ ,  $p = .002$ . Versatile men provided slightly more positive appraisals of their lesser-preferred gender than all other groups, all  $p$ -values  $< .05$ . No other significant group differences were observed,  $p = .307-.644$ . As such, versatile men were less sexually averse, although not attracted, to their lesser-preferred gender than all other groups, a pattern that would suggest ambiphilia. Insertive men, on the other hand, did not differ from the monosexual groups in this respect.

There was a main effect of group on viewing times of their lesser-preferred gender,  $F(3, 126) = 3.43$ ,  $p = .019$ ,  $\eta^2 = .08$ . Versatile men viewed their lesser-preferred gender longer than gynephilic men,  $p = .009$ , Hedge's  $g = .89$ , 95% CI (.33, 1.45). No other significant group differences were observed,  $p = .234 - >.999$ , Hedge's  $g = <.01-.47$ . As such, versatile men viewed their lesser-preferred gender longer than gynephilic men, consistent with an ambiphilic pattern. In contrast to predictions, however, versatile men

---

<sup>17</sup> Although the Hedge's  $g$  for the comparison of the magnitude of the difference in viewing times was moderate, the confidence intervals were wide and the lower bracket was near 0.

did not differ from androphilic males and insertive men did not differ from either monosexual group.

## **Discussion**

Insertive men demonstrated a pattern of response that was similar, although not identical, to that of gynephilic men. Consequently, these findings indicated that insertive anal sex with *fa'afafine* was not associated with ambiphilia. If a difference does exist and is small, then the group sizes may be ineffective for detecting such an effect. It is noteworthy, however, that some Western heterosexual men who have sex with transgender women try to maintain the illusion that they are cisgender women (Reback, Kaplan, Bettcher, & Larkins, 2016; Weinberg & Williams, 2010). It is possible that many of the men who have sex with *fa'afafine* do so exclusively in the insertive position because they are attempting to maintain the illusion that their partners are cisgender women by avoiding contact with their genitalia.

Study 1 provided some support for the idea that versatile men are relatively ambiphilic. Versatile men showed less of a tendency to view one gender longer than the other relative to gynephilic men, as indicated by their relatively larger viewing time difference-magnitude index scores. Additionally, versatile men were less averse to their lesser-preferred gender (i.e., they reported that their lesser-preferred gender was less sexually unappealing) than androphilic males and gynephilic men, and they viewed their lesser-preferred gender longer than gynephilic men. Versatile men also reported less aversion to their lesser-preferred gender than insertive men and had smaller viewing time difference-magnitude index scores than insertive men (although not significant the effect size was moderate).

Despite these results, several findings were inconsistent with the idea that versatile men are ambiphilic. First, versatile men were similar to androphilic males with respect to their viewing time difference-magnitude index scores (see the Limitations and Future Directions section for why this might be the case). Second, although on average they rated both men and women as attractive, they rated their lesser-preferred gender only minimally higher than the control stimuli. This pattern suggests that versatile men may be a heterogeneous group comprised of (1) men who are primarily attracted to women and (2) men who are primarily attracted to men. When lumped together, their combined means would give the impression of ambiphilia. Visual inspection of the partner histories lends support to this conclusion (Table 2.1). Moreover, the distribution of sexual attraction gender-preference index scores for versatile men shown in Figure 2.1 (Group 3) suggests bimodality, although the viewing time gender-preference index scores did not show the same pattern.

It is worth considering that anal-sex position groups were based on anal-sex behavior and not anal-sex preferences. It is possible that some men hold anal-sex positioning preferences that do not align with their behavior. Future studies of anal-sex positioning in non-Western contexts could benefit from including measures of both anal-sex position preference and anal-sex position enactment.

## Study 2

In Study 2, I assessed the relationship between Samoan male's sexual histories (i.e., history of sexual activity with men, women, and *fa'afafine*) and their viewing times and sexual attraction ratings of men's and women's faces. To do so I compared (1) gynephilic men; (2) men who had sex with *fa'afafine* and women; (3) men who had sex with *fa'afafine*, women, and men; (4) men who had sex with *fa'afafine* and men; (5)

androphilic males. I predicted that (1) men who had sex with *fa'afafine* and men, (2) men who had sex with *fa'afafine* and women, and (3) men who had sex with *fa'afafine*, men, and women would show a greater degree of ambiphilia than monosexual males. However, I predicted that men who had sex with *fa'afafine*, women, and men would show relatively similar response to men and women compared to men who have had sex with (1) *fa'afafine* and women or (2) *fa'afafine* and men. The latter two groups were predicted to be relatively gynephilic and androphilic respectively.

## **Method**

The measures, stimuli, and data treatment employed in Study 2 were consistent with those employed in Study 1. However, the two studies differed in their participant groupings and statistical analysis procedures, as outlined below.

### ***Participants***

Data were collected for prior year sexual behavior, prior year sexual feelings, lifetime sexual behavior, and lifetime sexual feelings. Participant numbers by group for prior-year and lifetime sexual feelings and sexual behavior analyses are shown in Table 2.3. Results were similar for all sexual history scale analyses. As such, only the results for past year sexual behavior are presented. To be included in this analysis, participants were required to have had sex with (1) only men, (2) only women, or (3) *fa'afafine* and at least one other gender (7 participants were excluded).

### ***Statistical Analyses***

To assess the relationship between sexual attraction ratings and viewing times, a linear regression was conducted with sexual attraction gender-preference index scores predicting viewing time gender-preference index scores.



We examined the relationship between participants' past year sexual behavior history and their sexual attraction ratings and viewing times of images of men and women. To do so, a scale of participants' prior year sexual history was created. The sexual history scale was: 1 = men who have sex only with women (gynephilic men); 2 = men who have sex with *fa'afafine* and women; 3 = men who have sex with *fa'afafine*, women, and men; 4 = men who have sex with *fa'afafine* and men; 5 = males (i.e., *fa'afafine* and men) who have sex with only men (androphilic males). For the non-parametric analyses of the sexual attraction difference-magnitude index and sexual attraction ratings of participants lesser-preferred gender, it was not possible to use the 5-point sexual history scales. Instead, a 3-point sexual history scale were created. The 3-point sexual history scale was: 1 = sexual activity with only one gender (i.e., either men or women); 2 = sexual activity with two genders (i.e., *fa'afafine* and either men or women); 3 = sexual activity with three genders (*fa'afafine*, men, and women).

Due to non-normal distributions of sexual attraction ratings, Jonckheere-Terpstra trend tests were used for these analyses and median values were used as the measure of central tendency. These tests were two-sided and *p*-values were computed for 1,000 permutations. Analyses of the viewing time variables were conducted using regression with the sexual history scales as the independent variables. The alpha level was set at .05 for all tests.

**Gender-Preference Indices.** It was predicted that participants with low sexual history scale scores (i.e., sexual history with only women) would have low gender index scores (i.e., higher attraction ratings and longer viewing times of women), participants with high sexual history scale scores (i.e., sexual history with only men) would have high gender index scores (i.e., higher attraction ratings and longer viewing times of men), and

participants with intermediate sexual history scale scores (i.e., sexual history with *fa'afafine* and cisgender individuals) would have intermediate scale gender index scores (i.e., less differentiated sexual attraction ratings and viewing times of men and women). An increasing trend in sexual attraction gender-preference index scores by 5-point sexual history scale scores and a positive linear relationship between viewing time gender-preference index scores and 5-point sexual history scale scores would be consistent with the predicted pattern.

**Difference-Magnitude Index.** It was predicted that higher scores on the 3-point sexual history scale (i.e., sexual history with *fa'afafine* and cisgender individuals) would be associated with low sexual attraction difference-magnitude index scores (i.e., similar sexual attraction ratings of men and women) and intermediate scale scores on the 5-point sexual history scale (i.e., sexual history with *fa'afafine* and cisgender individuals) would be associated with low viewing time difference-magnitude index scores (i.e., similar viewing times of men and women). A decreasing trend in sexual attraction difference-magnitude index scores by 3-point sexual history scale scores and a positive (U-shaped) quadratic relationship between the viewing time difference-magnitude index scores and 5-point sexual history scale scores and would be consistent with the predicted pattern.

**Response to Participants' Lesser-Preferred Gender.** It was predicted that higher scores on the 3-point sexual history scale (i.e., sexual history with *fa'afafine* and cisgender individuals) would be associated with greater attraction to participants' lesser-preferred gender and intermediate scale scores on the 5-point sexual history scale (i.e., sexual history with *fa'afafine* and cisgender individuals) would be associated with longer viewing times of participants' lesser-preferred gender. An increasing trend in sexual attraction ratings of participants lesser-preferred gender by 3-point sexual history scale

scores and a negative (inverted U-shaped) quadratic relationship between viewing times of participants' lesser-preferred gender and 5-point sexual history scales scores and would be consistent with the predicted pattern.

## **Results**

Sexual attraction and viewing time responses are shown in Table 2.4. Gender-preference index scores, magnitude index scores, and response to one's lesser preferred gender are shown in Figure 2.2 by group. Sexual attraction gender-preference index scores were moderately related to viewing time gender-preference index scores,  $R^2 = .43$ ,  $F(1, 178) = 135.10$ ,  $p < .001$ ;  $b = .15$ , 95% CI (.12, .17),  $SE = .01$ ,  $p < .001$ .

### ***Gender-Preference Index***

Sexual attraction gender-preference index scores increased based on participants' sexual history scores,  $J = 10485$ ,  $p = .002$ . A positive linear relationship was found between viewing time gender-preference index scores and sexual history scale scores,  $b = .40$ , 95% CI (.34, .46),  $SE = .03$ ,  $p < .001$ ,  $R^2 = .49$ . These findings were consistent with the predicted patterns.

### ***Magnitude of the Difference in Response to Images of Men and Women***

Sexual attraction difference-magnitude index scores decreased based on the number of genders (from 1 to 3) with whom participants engaged in sexual behavior,  $J = 2990$ ,  $p = .002$ . A positive quadratic relationship was found between viewing time difference-magnitude index scores and sexual history scale scores,  $\beta = 1.39$ ,  $p = .002$ ,  $\Delta R^2 = .05$ . These findings were consistent with the predicted patterns. However, it is worth noting that, for viewing time, the lowest point of the curve was among men who had sex with *fa'afafine* and men, not among men who had sex with *fa'afafine*, women, and men.

### ***Response to Participant's Lesser-preferred Gender***

Participants' sexual attraction ratings of their lesser-preferred gender increased based on the number of genders (from 1 to 3) with whom they engaged in sexual behavior,  $J = 5525.5$ ,  $p = .002$ . A negative quadratic relationship was found between viewing times of participants' lesser-preferred gender and their sexual history scale scores,  $\beta = -1.19$ ,  $p = .010$ ,  $\Delta R^2 = .04$ . These findings were consistent with the predicted patterns.

### **Discussion**

Androphilic males and men who had sex with *fa'afafine* and men both reported greater sexual attraction to men than women and they viewed images of men longer than images of women. The remaining groups (i.e., gynephilic men; men who had sex with *fa'afafine* and women; men who had sex with *fa'afafine*, women, and men) reported greater attraction to women than men and they viewed images of women longer than images of men.

Men who had sex with *fa'afafine* (i.e., men who had sex with *fa'afafine* and women; men who had sex with *fa'afafine*, women, and men; and men who had sex with *fa'afafine* and men) exhibited gender-preference index scores that were intermediate between those of gynephilic men and androphilic males. Compared to monosexual males, men who had sex with *fa'afafine* were less marked in their self-reported sexual attraction to one gender over the other and the difference in their viewing times of the two image categories was less pronounced. Additionally, compared to monosexual males, men who had sex with *fa'afafine* were less averse to their lesser-preferred gender and showed prolonged viewing times of their lesser-preferred gender. This pattern suggests relatively greater ambiphilia among men who expressed sexual interest in *fa'afafine*.

Nevertheless, for both sexual attraction ratings and viewing time, one would expect the difference-magnitude index scores to be largest at the monosexual tail ends of the sexual history scale and increasingly smaller toward the center, and each side should mirror the other. Similarly, one would expect participants' response to their lesser-preferred gender to be smaller at the tail ends of the sexual history scale and increasingly larger toward the center, and each side should mirror the other. This pattern was not found (see Table 2.4). First, in terms of their sexual attraction ratings, men who had sex with *fa'afafine* and men responded similarly to androphilic males. But, on the basis of their viewing times, men who had sex with *fa'afafine* and men responded similarly to men who had sex with *fa'afafine*, women, and men. Secondly, in contrast to their sexual attraction ratings, androphilic males differed in their viewing times of men and women to a lesser extent (i.e., they had relative smaller magnitude index scores) than gynephilic men.

Thus, greater support for the predicted relationship was found on the gynephilic to ambiphilic side of the sexual history scales than the ambiphilic to androphilic side. Regarding the gynephilic to ambiphilic side of the sexual history scale, men who had sex with *fa'afafine* and women and men who had sex with *fa'afafine*, women, and men had smaller viewing time difference-magnitude index scores, reported lower aversion to their lesser-preferred gender, and had prolonged viewing times of their lesser-preferred gender compared to gynephilic men. However, if the comparison is restricted to the ambiphilic to androphilic side of the sexual history scale (from [1] men who had sex with *fa'afafine*, women, and men to [2] men who had sex with *fa'afafine* and men to [3] androphilic males), this pattern is less evident. These departures from the expected response patterns were likely owing to differences in the relative cognitive demand that primarily

androphilic males and primarily gynephilic men encounter when assessing sexual stimuli in a Samoan cultural context.

### **General Discussion**

Some of the men who were sexually interested in *fa'afafine* showed relatively ambiphilic patterns of sexual attraction ratings and viewing times to images of men and images of women, namely men who have sex with *fa'afafine*, men, and women. However, this was not true of all men who were sexually interested in *fa'afafine*: some showed response patterns that were fairly consistent with those of monosexual individuals. As such, although ambiphilia may be associated with sexual interest in *fa'afafine* for some men, additional factors may be relevant to men's sexual interest in *fa'afafine*. Furthermore, the present study found that behavioral differences, namely sexual position during anal intercourse, and partner selection differences among the men who were sexually interested in *fa'afafine* were associated with sexual orientation variability. As such, men who were sexually interested in *fa'afafine* appear to be heterogeneous in terms of their sexual orientations.

Given this variability, the groups examined and even the individuals comprising these groups may have unique motivations for engaging in sexual activity with *fa'afafine*. For some men, this behavior may be facilitated by attraction to, or lower aversion to, qualities of one's lesser-preferred gender. However, it is possible that some men, particularly insertive men, are no more attracted, or less averse, to their lesser-preferred gender than monosexual individuals but engage in sexual activity with *fa'afafine* for other reasons. For example, some insertive men may perceive *fa'afafine* as belonging to the same sexual category as cisgender women, they may have financial motivations for

having sex with *fa'afafine*, they may do so because they are inebriated, or they may be motivated by the sexual activity, itself, as opposed to the sexual partner, per se.

Whereas the psychological literature has traditionally focused on individual's peak sexual response, the present findings expand on research that has shown that additional insights can be garnered by focusing on lower-levels of sexual response (i.e., sexual response to individual's lesser-preferred gender) (e.g., Rieger & Savin-Williams, 2012; Rosenthal, Sylva, Safron, & Bailey, 2011, 2012; Savin-Williams & Vrangalova, 2013; Semon, Hsu, Rosenthal, & Bailey, 2017; Vrangalova & Savin-Williams, 2012). Natal males engage in sexual behavior that challenges our current understanding of male sexual orientation—including, but not limited to, sexual interest in both men and women, as well as sexual interest in MtF transgender individuals. Research may benefit from considering whether participants' sexual response to their lesser-preferred genders or pattern of sexual aversion is relevant to partner selection and interest in activities that are not predicted by existing theory.

### **Limitations and Future Directions**

The viewing times of androphilic males and men who had sex with *fa'afafine* and men seemed to belie their sexual attraction ratings. Observations of their raw viewing times indicated that natal males who were exclusively or primarily androphilic (i.e., [1] androphilic males and [2] men who had sex with *fa'afafine* and men) were much quicker at rating their preferred gender relative to the other groups, but they were also quicker at rating their lesser-preferred gender and the control images. In part, this could be an artefact of the decision-making process that underlies viewing time measures.

As discussed in Imhoff et al. (2010), to assess a target's sexual attractiveness, individuals are required to make a series of decisions (e.g., they must determine whether

the target is a member of their preferred gender, whether they have attractive characteristics). This process ends once a target fails to meet a participants' criterion for sexual attractiveness. In Samoa, this process may take longer for predominantly gynephilic men compared to predominantly androphilic males. Gynephilic men must assess whether potential partners exhibit gender characteristics associated with their preferred gender (i.e., femininity) or their lesser-preferred gender (i.e., masculinity). If an individual is feminine, gynephilic men must then decide whether the target individual is a *fa'afafine* or a cisgender woman. In contrast, this process may be abbreviated for men who are primarily interested in men; once they determine that the individual is masculine, they can assume with virtual certainty that that individual is a cisgender man. Thus, a process that only involves one step for androphilic males involves two steps for gynephilic men. Consequently, their quick positive appraisal time places a constraint on the extent to which their viewing times can vary for the two genders.

This study provides evidence that men who have sex with *fa'afafine* differ in their anal-sex positions and sexual partner histories and these differences were associated with patterns of sexual attraction ratings and viewing times of men and women. Thus, it appears that the men who have sex with *fa'afafine* are not a homogeneous group in terms of their sexual behavior or sexual orientations. Additional investigations of male sexual orientation which consider sexual interest in MtF transgender individuals, particularly in non-Western contexts, would enrich our understanding of the structure of male sexual orientation.

### **Ethics Statement**

#### ***Conflict of Interest***

The authors declare that they have no conflict of interest.

#### ***Ethics Approval***



This research was approved by an institutional human participants research ethics board. A Samoan Research Visa was obtained from Samoan Immigration.

***Informed Consent***

Participants were required to provide informed written consent prior to taking part in the study.

## References

- Bailey, J. M. (2009). What is sexual orientation and do women have one? In *Contemporary perspectives on lesbian, gay, and bisexual identities* (pp. 43–63). New York, NY: Springer.
- Bailey, J. M., Vasey, P. L., Diamond, L. M., Breedlove, S. M., Vilain, E., & Epprecht, M. (2016). Sexual orientation, controversy, and science. *Psychological Science in the Public Interest*, 17(2), 45–101. doi:10.1177/1529100616637616
- Benson, P. J., & Perrett, D. I. (1993). Extracting prototypical facial images from exemplars. *Perception*, 22(3), 257–262. doi:10.1068/p220257
- Bianchi, F. T., Reisen, C. A., Zea, M. C., Vidal-Ortiz, S., Gonzales, F. A., Betancourt, F., . . . Poppen, P. J. (2014). Sex work among men who have sex with men and transgender women in Bogota. *Archives of Sexual Behavior*, 43(8), 1637–1650. doi:10.1007/s10508-014-0260-z
- Boellstorff, T. (2004). Playing back the nation: Waria, Indonesian transvestites. *Cultural Anthropology*, 19(2), 159–195. doi:10.1525/can.2004.19.2.159
- Cardoso, F. L. (2005). Cultural universals and differences in male homosexuality: The case of a Brazilian fishing village. *Archives of Sexual Behavior*, 34(1), 103–109. doi:10.1007/s10508-005-1004-x
- Coan, D. L., Schrage, W., & Packer, T. (2005). The role of male sexual partners in HIV infection among male-to-female transgendered individuals. *International Journal of Transgenderism*, 8(2-3), 21–30. doi:10.1300/J485v08n02\_03
- Dixson, B. J., Little, A. C., Dixson, H. G., & Brooks, R. C. (2017). Do prevailing environmental factors influence human preferences for facial morphology? *Behavioral Ecology*, 28(5), 1217–1227. doi:10.1093/beheco/arr067
- Donham, D. L. (1998). Freeing South Africa: The “modernization” of male-male sexuality in Soweto. *Cultural Anthropology*, 13, 3–21.
- Eternity and Empirisoft Corporation. (1997). MediaLab Research Software. New York, NY.
- Greenberg, D. F. (1988). *The construction of homosexuality*. Chicago, IL: The University of Chicago Press.
- Hall, G., Young, A., Krakauer, C., Watson, C. C., Cummings, V., Mayer, K., & Koblin, B. (2017). Sexual risk behaviors among black men who have sex with men who also report having sex with transgender partners: Analysis of HIV Prevention Trials Network (HPTN) 061 study. *AIDS Education and Prevention*, 29(5), 418–431.

- Haller, D. (1992). Homosexuality in Seville. *Solgan*, 14, 27–35. doi:10.1525/sol.1992.14.3.27
- Howe, C., Zaraysky, S., & Lorentzen, L. (2008). Transgender sex workers and sexual transmigration between Guadalajara and San Francisco. *Latin American Perspectives*, 35(1), 31–50. doi:10.1177/0094582X07310956
- Imhoff, R., Schmidt, A. F., Nordsiek, U., Luzar, C., Young, A. W., & Banse, R. (2010). Viewing time effects revisited: Prolonged response latencies for sexually attractive targets under restricted task conditions. *Archives of Sexual Behavior*, 39(6), 1275–1288. doi:10.1007/s10508-009-9595-2
- Imhoff, R., Schmidt, A. F., Weiß, S., Young, A. W., & Banse, R. (2012). Vicarious viewing time: Prolonged response latencies for sexually attractive targets as a function of task-or stimulus-specific processing. *Archives of Sexual Behavior*, 41(6), 1389–1401. doi:10.1007/s10508-011-9879-1
- Johnson, M. (1998). Global desirings and translocal loves: Transgendering and same-sex sexualities in the Southern Philippines. *American Ethnologist*, 25(4), 695–711. doi:10.1525/ae.1998.25.4.695
- Kulick, D. (1997). The gender of Brazilian transgendered prostitutes. *American anthropologist*, 99(3), 574–585. doi:10.1525/aa.1997.99.3.574
- Lancaster, R. N. (1988). Subject honor and object shame: The construction of male homosexuality and stigma in Nicaragua. *Ethnology*, 27(2), 111–125. doi:10.2307/3773623
- Lim, D. C. L. (2015). Visualizing the invisible: Social constructions of straight identified men who have sex with transsexuals and feminized gay men on/off Malaysian film. *Studies in Gender and Sexuality*, 16(3), 183–203. doi:10.1080/15240657.2015.1073047
- Little, A. C., & Hancock, P. J. (2002). The role of masculinity and distinctiveness in judgments of human male facial attractiveness. *British Journal of Psychology*, 93(4), 451–464. doi:10.1348/000712602761381349
- Mauk, D., Perry, A., & Munoz-Laboy, M. (2013). Exploring the desires and sexual culture of men who have sex with male-to-female transgender women. *Archives of Sexual Behavior*, 42(5), 793–803. doi:10.1007/s10508-013-0079-z
- Oetomo, D., & Emond, B. (1993). *Homosexuality in Indonesia*. Paper presented at the An International Conference on AIDS, Berlin.

- Operario, D., Burton, J., Underhill, K., & Sevelius, J. (2008). Men who have sex with transgender women: Challenges to category-based HIV prevention. *AIDS and Behavior, 12*(1), 18–26. doi:10.1007/s10461-007-9303-y
- Petterson, L. J., Dixon, B. J., Little, A. C., & Vasey, P. L. (2015). Viewing time measures of sexual orientation in Samoan cisgender men who engage in sexual interactions with fa'afafine. *PloS one, 10*(2). doi:10.1371/journal.pone.0116529
- Petterson, L. J., Dixon, B. J., Little, A. C., & Vasey, P. L. (2016). Reconsidering male bisexuality: Sexual activity role and sexual attraction in Samoan men who engage in sexual interactions with Fa'afafine. *Psychology of Sexual Orientation and Gender Diversity, 3*(1), 11–26. doi:10.1037/sgd0000160
- Petterson, L. J., Dixon, B. J., Little, A. C., & Vasey, P. L. (2018). Viewing time and self-report measures of sexual attraction in Samoan cisgender and transgender androphilic males. *Archives of Sexual Behavior, 47*(8), 2427–2434. doi:10.1007/s10508-018-1267-7
- Prieur, A. (1994). 'I am my own special creation': Mexican homosexual transvestites' construction of femininity. *Young, 2*(3), 3–17.
- R Development Core Team. (2015). RStudio: Integrated development for R. Boston, MA: RStudio, Inc.
- Reback, C. J., Kaplan, R. L., Bettcher, T. M., & Larkins, S. (2016). The role of the illusion in the construction of erotic desire: narratives from heterosexual men who have occasional sex with transgender women. *Culture, Health, and Sexuality, 18*(8), 951–963. doi:10.1080/13691058.2016.1150515
- Rieger, G., & Savin-Williams, R. C. (2012). The eyes have it: Sex and sexual orientation differences in pupil dilation patterns. *PloS one, 7*(8), e40256. doi:10.1371/journal.pone.0040256
- Rosenthal, A. M., Hsu, K. J., & Bailey, J. M. (2017). Who Are Gynandromorphophilic Men? An Internet Survey of Men with Sexual Interest in Transgender Women. *Archives of Sexual Behavior, 46*(1), 255–264. doi:10.1007/s10508-016-0872-6
- Rosenthal, A. M., Sylva, D., Safron, A., & Bailey, J. M. (2011). Sexual arousal patterns of bisexual men revisited. *Biological Psychology, 88*(1), 112–115. doi:10.1016/j.biopsycho.2011.06.015
- Rosenthal, A. M., Sylva, D., Safron, A., & Bailey, J. M. (2012). The male bisexuality debate revisited: Some bisexual men have bisexual arousal patterns. *Archives of Sexual Behavior, 41*(1), 135–147. doi:10.1007/s10508-011-9881-7

- Savin-Williams, R. C., & Vrangalova, Z. (2013). Mostly heterosexual as a distinct sexual orientation group: A systematic review of the empirical evidence. *Developmental Review, 33*(1), 58–88. doi:10.1016/j.dr.2013.01.001
- Semon, T. L., Hsu, K. J., Rosenthal, A. M., & Bailey, J. M. (2017). Bisexual phenomena among gay-identified men. *Archives of Sexual Behavior, 46*(1), 237–245. doi:10.1007/s10508-016-0849-5
- Stief, M. (2017). The sexual orientation and gender presentation of hijra, kothi, and panthi in Mumbai, India. *Archives of Sexual Behavior, 46*(1), 73–85. doi:10.1007/s10508-016-0886-0
- Sweet, M. J., & Zwilling, L. (1993). The first medicalization: The taxonomy and etiology of queerness in classical Indian medicine. *Journal of the History of Sexuality, 3*(4), 590–607.
- Tiddeman, B., Burt, M., & Perrett, D. (2001). Prototyping and transforming facial textures for perception research. *IEEE computer graphics and applications, 21*(5), 42–50. doi:10.1109/38.946630
- Tucker, C., Arandi, C. G., Bolanos, J. H., Paz-Bailey, G., & Barrington, C. (2014). Understanding social and sexual networks of sexual minority men and transgender women in Guatemala city to improve HIV prevention efforts. *J Health Care Poor Underserved, 25*(4), 1698–1717. doi:10.1353/hpu.2014.0163
- Vrangalova, Z., & Savin-Williams, R. C. (2012). Mostly heterosexual and mostly gay/lesbian: Evidence for new sexual orientation identities. *Archives of Sexual Behavior, 41*(1), 85–101. doi:10.1007/s10508-012-9921-y
- Weinberg, M. S., & Williams, C. J. (2010). Men sexually interested in transwomen (MSTW): Gendered embodiment and the construction of sexual desire. *Journal of Sex Research, 47*(4), 374–383. doi:10.1080/00224490903050568
- Whitam, F. L. (1992). Bayot and callboy in the Philippines. In S. O. Murray (Ed.), *Oceanic homosexualities*. New York, NY: Garland.
- Whitam, F. L. (1995). Os entendidos: Gay life in São Paulo in the 1970s. In S. O. Murray (Ed.), *Latin American male homosexualities* (pp. 231–240). Albuquerque, NM: University of Mexico Press.
- Wikan, U. (1977). Man becomes woman: Transsexualism in Oman as a key to gender roles. *Man, 12*, 304–319.
- Wright, T. (2000). Gay organizations, NGOs, and the globalization of sexual identity: The case of Bolivia. *Journal of Latin American Anthropology, 5*(2), 89–111. doi:10.1525/jlca.2000.5.2.89

**Table 2.1**

*Description of partner histories of men who engage in sexual interactions with fa'afafine throughout participants' lifetime and within the prior year.*

		<i>Fa'afafine and women</i>		<i>Fa'afafine and men</i>		<i>Fa'afafine, women, and men</i>	
		<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>	<i>n</i>	<i>%</i>
Men who had insertive sex with <i>fa'afafine</i>	Throughout their lives	18	60%	3	10%	9	30%
	Within the prior year	23	76.7%	2	6.7%	5	16.7%
Men who had insertive and receptive sex with <i>fa'afafine</i>	Throughout their lives	9	37.5%	9	37.5%	6	25%
	Within the prior year	9	37.5%	11	45.8%	4	16.7%

**Table 2.2***Mean, SD, and inferential statistics for sexual attraction ratings by group.*

	Men who had sex only with women <i>N</i> = 31		Men who had only insertive sex with <i>fa'afafine</i> <i>N</i> = 30		Men who had insertive and receptive sex with <i>fa'afafine</i> <i>N</i> = 24		Males who had sex only with men <i>N</i> = 45	
	Mdn	SD	Mdn	SD	Mdn	SD	Mdn	SD
<i>Sexual attraction rating</i> <sup>a</sup>								
Rating of men	1.00	.29	1.33	1.70	5.44	1.83	6.33	1.27
Rating of women	4.67	1.48	5.00	1.48	5.39	2.43	1.00	.33
Rating of cartoons	1.00	.94	1.00	1.24	1.00	1.36	1.00	.79
<i>Sexual attraction indices</i>								
Gender preference index <sup>b</sup>	-3.44	1.48	-3.06	2.74	-.22	3.78	5.22	1.28
Difference-magnitude index <sup>c</sup>	3.44	1.48	3.28	1.79	3.50	2.03	5.22	1.28
Ratings of one's lesser-preferred gender	0	.92	0	1.11	.43	1.54	0	.83
<i>Viewing times (sec)</i>								
Viewing times of men	<i>M</i> 5.34	<i>SD</i> 4.39	<i>M</i> 8.55	<i>SD</i> 9.99	<i>M</i> 7.26	<i>SD</i> 4.08	<i>M</i> 5.33	<i>SD</i> 3.23
Viewing times of women	10.94	8.64	12.15	11.50	7.84	4.72	4.27	3.97
Viewing times of cartoons	5.60	4.70	7.29	8.10	5.08	2.68	3.83	3.39
<i>Standardized viewing times</i>								
Viewing times of men	-.41	.25	-.19	.37	.18	.40	.45	.44
Viewing times of women	.76	.32	.60	.40	.29	.43	-.11	.31
Viewing times of cartoons	-.35	.30	-.41	.37	-.47	.37	-.34	.39
<i>Viewing time indices</i>								
Gender preference index <sup>b</sup>	-1.17	.49	-.79	.68	-.11	.74	.55	.65
Difference-magnitude index <sup>c</sup>	1.18	.46	.92	.46	.60	.43	.71	.48
Viewing time of one's lesser-preferred gender	-.06	.46	.15	.57	.41	.60	.15	.52

<sup>a</sup> Attraction rating response range 1 = "very unpleasant" to 7 = "very pleasant."

<sup>b</sup> Gender-preference index score = response to men - mean response to women; low scores indicate greater sexual attraction and longer viewing times for images of women than images of men

<sup>c</sup> Magnitude index score = |response to men - mean response to women| or the absolute value of response discrepancies; low scores indicate a similar response to images of men and women.



**Table 2.3***Number of participants who were included in each sexual feeling and sexual behavior group.*

	Men who had sex only with women	Men who had sex with women and <i>fa'afafine</i>	Men who had sex with men, women, and <i>fa'afafine</i>	Men who had sex with men and <i>fa'afafine</i>	Males who had sex with men
Prior-year feelings <i>N</i> = 180	44	44	24	20	48
Prior-year behavior <i>N</i> = 180	<b>51</b>	<b>48</b>	<b>13</b>	<b>18</b>	<b>50</b>
Lifetime feelings <i>N</i> = 185	39	50	28	20	48
Lifetime behavior <i>N</i> = 180	35	57	23	20	45

Analyses pertain to the bolded participant groupings.

**Table 2.4**

*Sexual attraction rating and viewing time of each stimuli category as well as the gender-preference indices, magnitude of the difference in response to images of men and women, and participants' response to their lesser-preferred gender by sexual behavior group.*

	Men who had sex with only women <i>N</i> = 51		Men who had sex with <i>fa'afafine</i> and women <i>N</i> = 48		Men who had sex with <i>fa'afafine</i> , women, and men <i>N</i> = 13		Men who had sex with <i>fa'afafine</i> and men <i>N</i> = 18		Males who have sex with only men in the prior year <i>N</i> = 50	
	Mdn	SD	Mdn	SD	Mdn	SD	Mdn	SD	Mdn	SD
<i>Sexual attraction rating</i>										
Rating of men <sup>a</sup>	1.00	.46	1.83	1.37	4.44	1.29	6.78	1.06	6.33	1.26
Rating of women <sup>a</sup>	4.67	1.70	5.33	1.37	5.56	1.50	1.00	1.24	1.00	.32
Rating of cartoons <sup>a</sup>	1.00	.80	1.33	1.21	1.33	1.50	1.00	1.24	1.00	.76
<i>Sexual attraction indices</i>										
Gender-preference index <sup>b</sup>	-3.44	1.64	-2.83	1.77	-.33	2.04	5.33	1.72	5.22	1.27
Difference-magnitude index <sup>c</sup>	3.44	1.64	2.83	1.66	1.11	1.45	5.33	1.61	5.22	1.27
Rating of one's lesser-preferred gender	0	.89	0	1.22	.78	2.23	0	1.39	0	.79
<i>Viewing times (sec)</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Viewing times of men	5.69	4.61	9.55	9.59	9.87	6.76	6.22	6.42	5.28	3.21
Viewing times of women	10.42	7.62	11.60	9.73	11.78	8.78	5.85	5.38	4.13	3.80
Viewing times of cartoons	5.33	4.17	8.13	7.87	7.58	7.53	3.75	2.43	3.74	3.25
<i>Standardized viewing times</i>										
Viewing times of men	-.34	.30	-.10	.39	.14	.47	.28	.37	.46	.43
Viewing times of women	.72	.31	.48	.45	.34	.44	.21	.37	-.12	.31
Viewing times of cartoons	-.38	.30	-.38	.41	-.47	.43	-.49	.31	-.34	.38
<i>Viewing time indices</i>										
Gender-preference index <sup>b</sup>	-1.06	.54	-.58	.73	-.20	.81	.06	.67	.58	.65
Difference-magnitude index <sup>c</sup>	1.10	.46	.79	.48	.68	.44	.55	.36	.71	.49

Viewing time of one's lesser- .03 .48 .19 .61 .37 .69 .46 .49 .15 .51  
preferred gender

---

<sup>a</sup> Attraction rating response range 1= "very unpleasant" to 3= "neither pleasant nor unpleasant" to 7= "very pleasant."

<sup>b</sup> Gender-preference index score = response to men - mean response to women; low scores indicate greater sexual attraction and longer viewing times for images of women than images of men

<sup>c</sup> Magnitude index score = |response to men - mean response to women| or the absolute value of response discrepancies; low scores indicate a similar response to images of men and women.

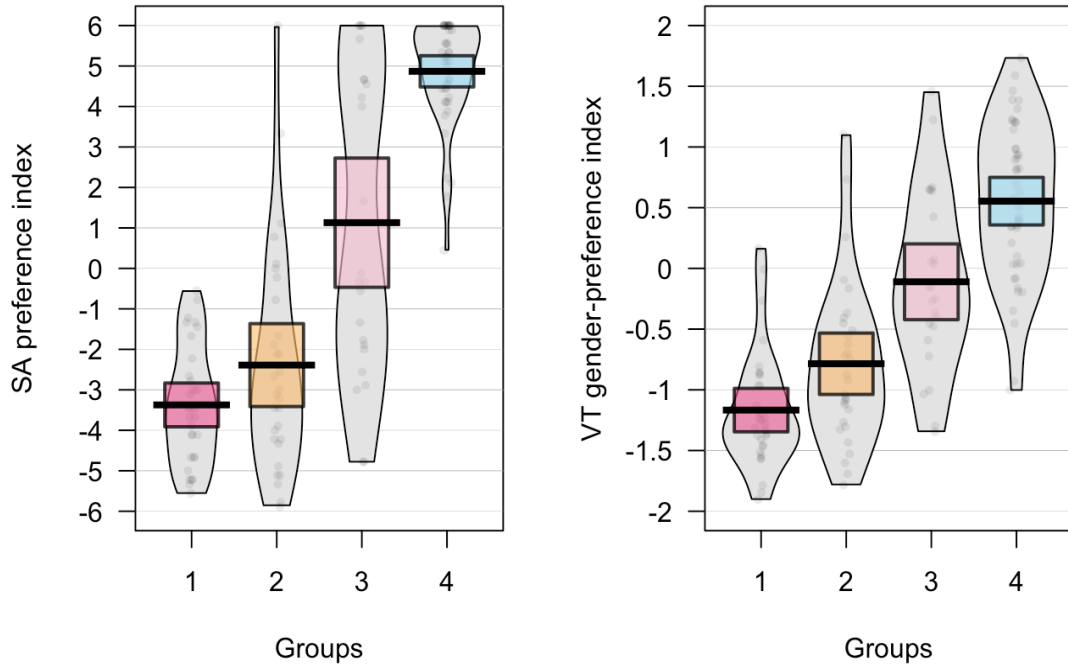


Figure 2.1: Self-reported sexual attraction (SA) and viewing time (VT) gender-preference index scores by anal-sex position. Groups: 1 = men who had sex only with women; 2 = men who had only insertive anal-sex with *fa'afafine*; 3 = men who had both insertive and receptive anal-sex with *fa'afafine*; 4 = males who had sex only with men. Black bars equal group mean. Dark gray boxes represent 95% confidence intervals. Light gray shapes indicate the distribution of participants' score. Light dots represent participants' scores. *Gender-preference index scores* = response to men – response to women (low scores indicate greater sexual attraction for images of women than images of men).

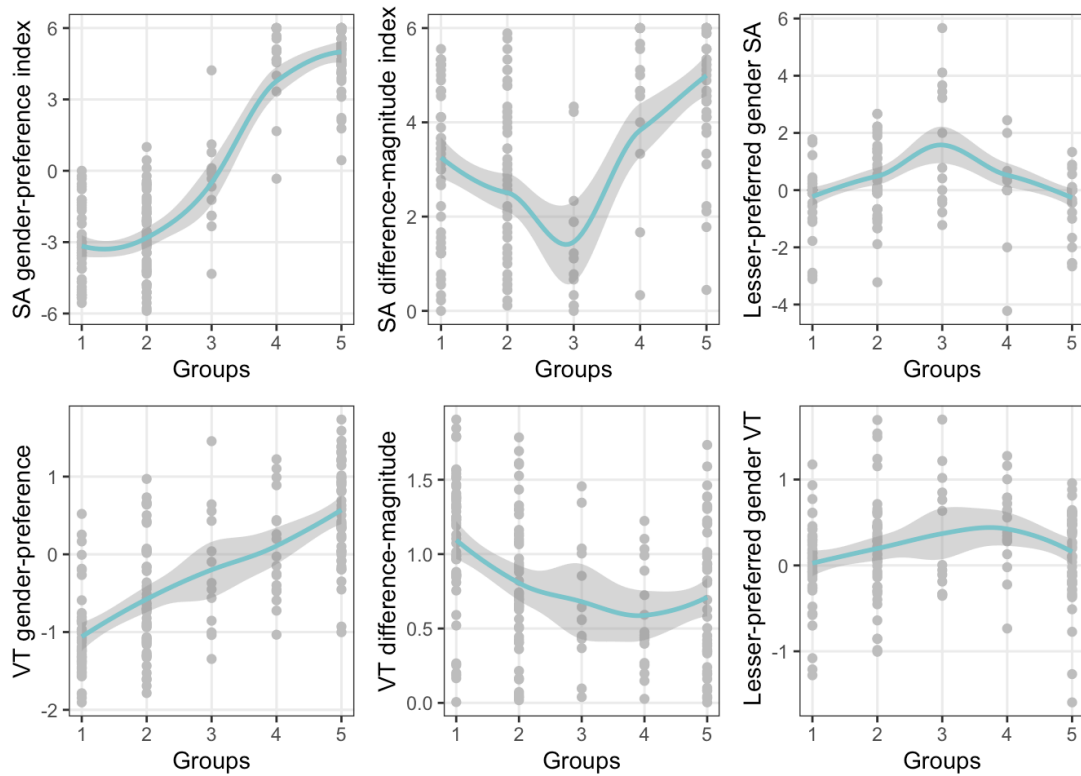


Figure 2.2: Sexual attraction (SA) ratings and viewing times (VT) by prior year sexual behavior. Groups: 1 = men who have sex with only women; 2 = men who have sex with *fa'afafine* and women; 3 = men who have sex with *fa'afafine*, women, and men; 4 = men who have sex with *fa'afafine* and men; 5 = males (i.e., *fa'afafine* and men) who have sex with only men. Regression lines are in black. 95% confidence intervals are shown in shaded gray. Dots represent participants' scores. *Gender-preference index scores* = response to men – response to women (low scores indicate greater sexual attraction for images of women than images of men). *Magnitude index scores* = |response to men – response to women| (low scores indicate a similar response to images of men and women). *Response to one's lesser-preferred gender* = the lower value of participants' response to the 2 image categories (high scores indicate greater sexual attraction to one's lesser-preferred gender).

### **Chapter 3: Samoan Men's Sexual Attraction and Viewing Time Response to MtF Transgender and Cisgender Individuals**

#### **Abstract**

In many different cultures, some men express sexual interest in MtF (male-to-feminine) transgender individuals, but others do not. I examined whether Samoan men who are sexually interested in Samoan MtF transgender individuals (known locally as *fa'afafine*) (MSF;  $N = 40$ ) differed from men who were exclusively sexually interested in women (MSW;  $N = 41$ ) in terms of their self-reported sexual attraction and viewing times responses to images of MtF transgender individuals who have not surgically feminized their bodies, cisgender women, and cisgender men. MSF reported that images of MtF transgender individuals were sexually attractive, although somewhat less attractive than images of cisgender women. In contrast, MSW reported that images of cisgender women were sexually attractive but images of MtF transgender individuals were not. The groups did not differ in their sexual attraction ratings of men, which were uniformly low. MSF viewed MtF transgender individuals and cisgender women for a similar length of time and viewed both longer than cisgender men. In contrast, MSW viewed cisgender women longer than MtF transgender individuals, but they viewed MtF transgender individuals longer than cisgender men. The present study indicates that responses to MtF transgender individuals vary among Samoan men who share a sexual preference for women.

*Keywords:* sexual interest in transgender individuals; viewing time; gynandromorphophilia; sexual orientation; within-sex differences

## Introduction

Some men have sex with male to feminine (MtF) transgender<sup>18</sup> individuals, most of whom have male-typical genitalia (e.g., Money & Lamacz, 1984). This has been found across numerous cultural regions including, but not limited to, Brazil (Kulick, 1997), Costa Rica (Schifter & Madrigal, 1997), India (Stief, 2017), Indonesia (Boellstorff, 2004), Malaysia (Lim, 2015), Mexico (Howe et al., 2008); Mohave First Nations (Devereux, 1937), Nicaragua (Lancaster, 1988), Oman (Wikan, 1977), Philippines (Whitam, 1992), South Africa (Donham, 1998), Spain (Haller, 1992), and the USA (Operario et al., 2008). The majority of these men are also sexually interested in cisgender women and some are interested in both cisgender women and men (e.g., Boellstorff, 2004; Coan et al., 2005; Hall et al., 2017; Hsu et al., 2016; Lim, 2015; Operario et al., 2008; Petterson et al., 2016; Rosenthal et al., 2017; Stief, 2017; ten Brummelhuis, 1999a).

It is not yet known why some men are attracted to MtF transgender individuals, but others are not. Hsu et al. (2016) began to address this issue by characterizing American gynandromorphophilic<sup>19</sup> men's sexual arousal to transgender women with penises, cisgender women, and cisgender men. Men who were sexually interested in transgender women were more aroused by stimuli of transgender women with penises than men who were exclusively sexually interested in cisgender women. Apart from this

---

<sup>18</sup> *Transgender* refers to individuals whose gender identity and presentation does not match the ones they were assigned at birth (e.g., transgender women or individuals who identify as neither women, nor as men, but as a non-binary gender). Because the identities adopted by these individuals vary across different cultural contexts, I employ the term *MtF transgender individuals* when the discussions do not pertain to a specific cultural context.

<sup>19</sup> Gynandromorphophilic men are sexually attracted to MtF transgender individuals with penises. In most instances this interest is neither exclusive, nor preferential.

difference, however, sexual arousal patterns of men who were sexually interested in transgender women and men who were exclusively sexually interested in cisgender women mirrored one another: both were highly sexually aroused by stimuli of women and minimally aroused by stimuli of cisgender men. As such, gynandromorphophilia does not appear to be a unique sexual orientation but, instead, a variant of heterosexuality with the addition of sexual interest in MtF transgender individuals (see Rosenthal et al., 2017 as well).

However, caution must be exercised in extrapolating results obtained from Western populations to populations outside the West. Many Western men who seek out romantic and sexual relationships with transgender women prefer partners who are markedly feminine or pass as cisgender women (Gerico, 2015; Weinberg & Williams, 2010). Transgender women in the West often undergo extensive feminizing procedures (e.g., hormonal treatments, surgical interventions to construct breasts, silicon injections) that are historically and culturally unique (Chasan, 2007; Meyerowitz, 2002; Narins & Beer, 2006). MtF transgender individuals in less developed countries are less likely to augment their bodies surgically or hormonally if such treatments cannot be locally accessed, if they are too costly to obtain.<sup>20</sup> Given this cultural difference, non-Western men who are sexually interested in MtF transgender individuals may differ from Western men who are sexually interested in transgender women.

---

<sup>20</sup> Additionally, there may be less need undergo surgical procedures if there are fewer social incentives for doing so. In Western cultures, transgender women may feel social pressure to present in a gender conforming manner (i.e., in a stereotypical feminine manner). However, many MtF transgender individuals belong to a separate gender category and they are not socially expected to pass as women or to fully conform to female-typical social roles Murray (Murray, 2000).



The aim of the present study was to characterize men who are sexually interested in MtF transgender individuals in Independent Samoa, a Polynesian island nation, where MtF transgender individuals identify, and are identified by others, as *fa'afafine*.<sup>21</sup> Translated literally, *fa'afafine* means “in the manner of a woman,” but the extent to which *fa'afafine* dress and act like women varies (Bartlett & Vasey, 2006; Schmidt, 2016; Vasey et al., 2007). Many *fa'afafine* dress like women and adopt aspects of female-typical behavior as part of their everyday lives. Others adopt only certain female-typical aspects of appearance and behavior or provisionally adopt (or emphasize) certain feminine characteristics for specific social occasions (e.g., some wear makeup and padded bras when they are at nightclubs but do not otherwise do so). A small minority of *fa'afafine* do not attempt to appear feminine in adulthood, but they tend, on average, to be more feminine than males who identify as men. A small number of *fa'afafine* who have lived in Western countries elect to undergo sex reassignment surgery, but the vast majority retain their male-typical genitals. Additionally, a small number of *fa'afafine* use birth control or estrogenic hormones (acquired from acquaintances overseas) to feminize their bodies, but the dosages tend to be erratic and, consequently, the degree of feminization tends to be modest.

I compared the sexual attraction ratings and viewing times of Samoan men who were sexually attracted to, and had sex with, *fa'afafine* (hereafter, men who have sex with *fa'afafine* [MSF]) and Samoan men who were sexually attracted to, and had sex with, only women (hereafter, men who have sex with women [MSW]). Stimuli included MtF

---

<sup>21</sup> *Fa'afafine* are identified in childhood on the basis of their gender presentation, not on their sexual orientation; nonetheless, they are almost always exclusively attracted to men (Bartlett & Vasey, 2006; Schmidt, 2003; Vasey, Pocock, & VanderLaan, 2007).

transgender individuals who had not substantially femininized their bodies hormonally or surgically, cisgender women, cisgender men, and bonobos (*Pan paniscus*)—a non-sexual control. Based on Hsu et al. (2016), MSF were predicted to show substantial and comparable levels of sexual interest in cisgender women and MtF transgender individuals. MSW were predicted to show substantial sexual interest in cisgender women and much less sexual interest in cisgender men.

Additionally, previous research in India (Stief, 2017) and Samoa (Pettersen et al., 2015) has found that, compared to monosexual males, some men who are sexually interested in MtF transgender individuals report greater attraction or lower aversion, as well as prolonged viewing times, to cisgender members of their lesser-preferred sex (in the majority of cases, men). Consequently, I also predicted that, compared to MSW, MSF would exhibit relatively elevated sexual attraction or lower aversion as well as prolonged viewing times to cisgender men.

## **Methods**

### **Participants**

All participants were recruited from Upolu, the most highly populated island of Samoa. A network sampling procedure was used, which involved contacting initial participants who display qualities of interest (i.e., status as a man) then obtaining referrals from them to additional participants who, in turn, provide further referrals, and so on. An effort was made to recruit the majority of the participants from villages across the island. However, the majority of the participants recruited from villages had engaged in sexual activity with *fa'afafine* or had experienced sexual feelings for *fa'afafine* at some point in their lives. As such, the majority of the MSW were recruited from the capital city of Apia.

The present analysis included MSF ( $N = 40$ ) and MSW ( $N = 41$ ). Participants were included in the category MSW if they (1) were biological males who self-identified as men, (2) had sexual feelings only for women during the past year, (3) engaged in sexual activity with women during the past year, and (4) never had sexual feelings for, or engaged in sexual activities with, men or *fa'afafine*. Participants were included in the category MSF if they (1) were biological males who self-identified as men, (2) had sexual feelings for *fa'afafine* during the past year, (3) and had engaged in sexual activity with *fa'afafine* during the past year. The majority of MSF expressed sexual interest (i.e., had sexual feelings and/or engaged in sexual activity) in women but not men ( $n = 27$ ), and a portion ( $n = 13$ ) expressed sexually interested in both men and women as well. The few MSF ( $n = 5$ ) who preferred men to women (based on Kinsey-score) were excluded from the analyses.

## Measures

The study consisted of an image-rating task followed by a brief biographic questionnaire in Samoan. Participants' viewing times<sup>22</sup> and sexual attraction ratings were recorded during the image rating task. Participants were told that the purpose of the study was to understand men's sexual attraction to women, men, and people who are like *fa'afafine*. A Samoan speaking research assistant (a *fa'afafine*) was present for the trial and questionnaire portion of the image-rating task to provide instructions to all of the

---

<sup>22</sup> The period between image presentation and participant response, which is typically referred to as a "viewing time" may reflect the time required to respond to the task of rating attraction (Imhoff et al., 2010; Imhoff et al., 2012). Thus, the term "response time" may be a more accurate reflection of the measure. However, to remain consistent across studies, the term "viewing time" is used here.

participants and to answer questions, but she left for the actual image-rating task. The last author was present throughout the entire period of data collection for every participant.

### *Viewing Time and Sexual Attraction Measures*

Prior to the actual experiment, participants viewed and rated seven trial images (2 men, 2 women, 2 MtF transgender individuals, and 1 bonobo) to familiarize them with the task. Trial images were counterbalanced, and responses were not recorded. The study portion of the image rating task proceeded following one, two, or three practice trials, if (1) the participants stated they understood the task, and (2) were judged to have understood it by both the Samoan research assistant and the last author. Participants that did not understand the task after three trials were given payment and thanked for their time. This resulted in 6 individuals being excluded from the remainder of the study. Additionally, 18 participants were excluded after starting the study because they lost control of the mouse, talked, were interrupted, were not paying attention to the task, or had bad eyesight. One man chose not to participate once the study was described to him.

The image rating portion of the study was conducted using Empirisoft's MediaLab viewing-time software (Eternity and Empirisoft Corporation, 1997). Participants were shown 41 images including 10 MtF transgender individuals, 10 cisgender men (hereafter, men), 10 cisgender women (hereafter, women), and 11 bonobos. To remove the confounds of transitioning from the trial portion to the study portion of the task to the actual study, responses were not recorded for the first image of the study portion of the image rating task (a bonobo). All other images were counterbalanced within the study portion of the image rating task. These were individually displayed on the right side of a computer screen.

Participants were asked to respond a question on the left side of the screen. The question, translated to English, asked “how sexually attractive or unattractive do you find the image?” Response options ranged from 1 = “very sexually unattractive” to 5 = “very sexually attractive.” These responses provided self-report sexual attraction ratings. High scores indicate greater sexual attraction and low scores indicate sexual aversion.

Unbeknownst to the participants, the length of time between stimuli presentation and participant’s response was recorded and served as the measure of viewing time. Viewing time measures have been effective in revealing patterns of gynephilic, androphilic, and ambiphilic<sup>23</sup> response patterns among men (i.e., individuals tend take longer responding to prompts when viewing preferred targets compared to non-preferred targets; e.g., Ebsworth & Lalumiere, 2012; Imhoff et al., 2010; Israel & Strassberg, 2009; Lippa, 2012, 2013; Lippa et al., 2010; Quinsey et al., 1996; Rullo et al., 2010). Objective measures, such as viewing time, are valuable for cross-cultural research because they permit comparisons of individuals who may not share common subjective understandings of sexual orientation, interests, or behavior (see Stief, 2017).

### ***Biographic Information***

After the image rating task, participants were asked to report biographic information including their age, sex, gender, ethnicity, socioeconomic status during childhood, religious affiliation, religiosity, and relationship status. Biographic information is shown in Table 3.1.

### ***Sexual Orientation Measures***

---

<sup>23</sup> *Gynephilia* refers to sexual attraction and arousal to adult females. *Androphilia* refers to sexual attraction and arousal to adult males. *Ambiphilia* refers to sexual attraction and arousal to both adult males and adult females.

Participants were asked to respond to Kinsey-type (Kinsey et al., 1948) questions which asked how sexually attractive they find (1) men, (2) women, and (3) *fa'afafine* (response range: 1 = “very sexually unattractive” to 5 = “very sexually attractive”). Additionally, they were asked whether they had sexual feelings for men, women, and *fa'afafine*, or no one (1) at any point in their lives, and (2) within the year prior to being interviewed. They were also asked whether they engaged in sexual activity with men, women, and *fa'afafine*, or no one (1) at any point in their lives, and (2) within the year prior to being interviewed. For these questions, response options were dichotomous (yes/no). Table 3.2 shows the number and percentage of participants who engaged in sexual activity and had sexual feelings for women, men, *fa'afafine* in the year prior to being interviewed and in their lifetime.

### ***Stimuli***

The stimuli included images of men who were dressed in underwear bottoms, images of women who were dressed in underwear tops and bottoms, and images of MtF transgender individuals who were dressed in underwear bottoms but not tops.<sup>24</sup> Images of bonobos were included as neutral controls. The MtF transgender images were feminine (e.g., they had female-typical hairstyles, makeup), but they did not show obvious signs that they had augmented their bodies to be more feminine (e.g., no female-typical fat deposits, no breast augmentation). Although the MtF transgender models were wearing underwear bottoms, the bulges of their penises were visible.

Images were taken from freely accessible websites and are available from the corresponding author upon request. Images were searched for using similar terms for each

---

<sup>24</sup> Due to cultural mores and Samoan law, nude imagery could not be used.

category type (e.g., using words such as “hot” and “sexy”). Only large, high quality images were considered for inclusion. Images of humans were minimally clothed. Effort was made to match the groups based on physical characteristics (e.g., ethnicity, hair color, posture); however, it was not always possible to match characteristics. It was not possible to acquire underwear clad images of Samoan men, women, and *fa'afafine*. Models appear to be of European, Asian, and Latin decent, although the majority appear to be of European decent.

Stimuli images were edited to control for low-level features using Adobe Photoshop CC 2015. To remove any confounding influence of scene content, backgrounds were removed from images, leaving only the model. Additionally, necklaces with crosses, wedding/engagement rings were removed, and brand labels were removed. Images were transformed to grey scale. Image intensity (the equivalent of luminance for grayscale) was adjusted to limit potential sources of variation. Image complexity (i.e., amount of detail within objects or number of objects within a scene) may influence ratings of image valence (Ochsner, 2000). As such, I examined whether image complexity (estimated by bytes persevered after JPEG compression; Buodo, Sarlo, & Palomba, 2002; Forsythe, Mulhern, & Sawey, 2008) varied across stimuli type. Some features could not be controlled between the human and bonobos: bonobos are darker than humans, which cannot be adjusted, and their fur adds additional complexity to the image.

One image of a woman was removed from the analysis because her underwear hid her breasts, and it seemed that some participants viewed her longer in an effort to determine her sex. To maintain equal numbers in each stimuli group, data was excluded for one image in each of the three additional categories. The three additional images

chosen for exclusion were those within each stimulus category that had the highest count of outlying viewing times (i.e., within participant z-scores equal to, or exceeding, 3.29).

### ***Data Analysis***

For each participant, mean sexual attraction ratings were calculated for the images of men, women, MtF transgender individuals, and bonobos. The variables used for analysis were calculated by subtracting mean sexual attraction ratings of bonobos (control images) from the means for each of the human image categories to control for baseline response. Next, the global standard deviation was calculated across the three baseline-controlled human image ratings and all participants (thus, a single standard deviation was calculated for the sample). The image ratings were standardized by dividing the baseline-controlled human image ratings by the global population standard deviation. This treatment of the data is consistent with previous studies evaluating response to various gender categories (Hsu et al., 2016).

The viewing times were winsorized to reduce the influence of outliers. To do so, the raw data values that corresponded to z-score values of 3.29 or higher were replaced with the participant's next highest viewing time plus 1 second. Thirty-two values (0.01%) were replaced using this method. Following winsorization, participants' mean viewing time of bonobos were subtracted from each of their viewing-time values for the human images to control for baseline response. The global population standard deviation was calculated across all of the 27 baseline-controlled human images viewing times and all participants (thus, a single standard deviation was calculated for the sample). The baseline-controlled viewing times were divided by the global population standard deviation of responses. This method is consistent with previous studies evaluating response to various gender categories (Hsu et al., 2016).



### *Statistical Analysis*

Statistical analysis was conducted using RStudio, version 1.1.383 (R Development Core Team, 2015). The models included between-group (MSF versus MSW) and within-group (standardized response to images of men, women, and MtF transgender individuals) effects. Visual inspection of the histograms and qq-plots indicated that participants' sexual attraction ratings were not normally distributed. As such, analyses of sexual attraction ratings were conducted using non-parametric tests. Analyses involving viewing times were conducted using parametric tests. All alpha levels were set at  $\alpha = .05$ .

Between group comparisons of sexual attraction ratings were conducted using two independent-sample Wilcoxon-Mann-Whitney tests. To compare group response to the three target image categories, two within-group weighted difference contrast scores were created. Each contrast score was entered as an independent variable. The first contrast compared participants' ratings of images of feminine individuals (i.e., women and MtF transgender individuals) and images of masculine individuals (i.e., men). This contrast was created by subtracting participants' sexual attraction ratings of men from the average sexual attraction ratings of women and MtF transgender individuals (feminine vs. masculine contrast = [ratings of women + ratings of MtF transgender individuals]/2] - ratings of men). The second contrast compared participants' sexual attraction ratings of MtF transgender individuals and women. This contrast was created by subtracting sexual attraction ratings of MtF transgender individuals from sexual attraction ratings of women (MtF transgender individuals vs. women contrast = ratings of women - ratings of MtF transgender individuals). Within-group comparisons were conducted using paired Wilcoxon tests. Participants' average rating of feminine individuals were compared to

their ratings of masculine individuals within each group. Next, participants' ratings of MtF transgender individuals were compared to their ratings of women within each group.

Between- and within-participant comparisons were conducted using mixed-effect models. For these analyses, intercepts were permitted to randomly vary across participants. For each analysis, the maximum likelihood estimate of the model was used. The first model included stimuli-category and group predicting viewing times. The group X stimuli category interactions were of particular interest. Orthogonal contrast codes were created to compare participants' viewing times of the three stimuli categories. The first contrast compared participants' viewing times of feminine individuals (i.e., women and images or MtF transgender individuals were both coded as .5) versus masculine individuals (i.e., images of men were coded as -1). The second compared viewing times of women versus MtF transgender individuals (i.e., women were coded as -.5 and MtF transgender individuals were coded as .5). For the between-group contrasts, MSW were coded as -.5 and MSF were coded as .5. Stimuli contrasts were entered as the first predictor and group was entered as a second predictor. Afterwards, within-group comparisons of participants' viewing times to the stimuli categories were conducted using mixed-effect models with stimuli category predicting viewing time within each group.

Additionally, between-group comparisons of sexual attraction ratings of men (i.e., cisgender members of participants' lesser-preferred sex) were compared using a Wilcoxon test. Viewing times of men were compared using a mixed-effects model of viewing times that permitted random variability in intercepts across participants.

## **Results**

Sexual attraction ratings and viewing time responses to images of men, MtF transgender individuals, women, and bonobos are presented in Table 3.3. Mean sexual

attraction ratings of images of men, MtF transgender individuals, women are shown in Figure 3.1 by group. Mean viewing times of images of men, MtF transgender individuals, women are shown in Figure 3.2 by group.

MSF ( $Mdn = 1.50$ ,  $SD = .73$ ) were more discrepant in their sexual attraction ratings of feminine and masculine individuals than MSW ( $Mdn = 1.06$ ,  $SD = .40$ ),  $W = 1195.50$ ,  $Z = 3.55$ ,  $p < .001$ ,  $r = .39$ , owing to MSW's lower ratings of MtF transgender individuals. MSF ( $Mdn = .50$ ,  $SD = .81$ ) were less discrepant in their ratings of women and MtF transgender individuals than MSW ( $Mdn = 1.60$ ,  $SD = .67$ ),  $W = 283.50$ ,  $Z = 5.07$ ,  $p < .001$ ,  $r = .56$ .

When compared within group, MSW rated men as less sexually attractive, or more sexually aversive, than feminine individuals (i.e., women and MtF transgender individuals),  $Z = 5.56$ ,  $p < .001$ ,  $r = .87$ . They rated MtF transgender individuals as less attractive, or more aversive, than women,  $Z = 5.58$ ,  $p < .001$ ,  $r = .87$ .

MSF rated men as less attractive, or more aversive, than feminine individuals (i.e., women and MtF transgender individuals),  $Z = 5.40$ ,  $p < .001$ ,  $r = .85$ . They rated MtF transgender individuals as less attractive than women,  $Z = 4.04$ ,  $p < .001$ ,  $r = .64$ , but still sexually attractive.

Table 3.4 shows the mixed-effect model predicting viewing times. When the full sample was included in the model predicting viewing times, intercepts varied across participants,  $SD = .49$ , 95% CI (.42, .59),  $\chi^2(1) = 447.45$ ,  $p < .001$ . There was a significant main effect of stimuli category,  $\chi^2(2) = 73.00$ ,  $p < .001$ , but not of group,  $\chi^2(1) = 2.59$ ,  $p = .108$  on viewing times. Moreover, there was a significant group X stimuli category interaction,  $\chi^2(2) = 24.10$ ,  $p < .001$ . The masculine vs. feminine stimuli contrast X group interaction was significant,  $b = -.11$ , 95% CI (-.21, -.01),  $t(2102) = -2.14$ ,  $p =$

.033: MSW were more discrepant in their viewing times of feminine and masculine individuals than MSF. The women vs. MtF transgender individual stimuli contrast X group interaction was significant,  $b = .39$ , 95% CI (.22, .57),  $t(2102) = 4.43$ ,  $p < .001$ : MSW were more discrepant in their viewing times of women and MtF transgender individuals than MSF.

When compared within MSW, there was a main effect of stimuli category on viewing times,  $\chi^2(2) = 78.14$ ,  $p < .001$  ( $SD$  of intercepts = .55, approximated 95% CI [.43, .69], residual  $SD = .82$ ,  $SE$  [.79, .86]). MSW viewed feminine individuals longer than masculine individuals,  $b = .27$ ,  $t(1064) = 7.67$ ,  $p < .001$ . Additionally, MSW viewed women longer than MtF transgender individuals,  $b = -.29$ ,  $t(1064) = -4.69$ ,  $p < .001$ .

When compared within MSF, there was a main effect of stimuli category on viewing times,  $\chi^2(2) = 20.97$ ,  $p < .001$  ( $SD$  of intercepts = .43, approximated 95% CI [.34, .56], residual  $SD = .87$ ,  $SE$  [.83, .90]). MSF viewed feminine individuals longer than masculine individuals,  $b = .16$ ,  $t(1038) = 4.28$ ,  $p < .001$ . MSF viewed women and MtF transgender individuals for a similar length of time,  $b = .11$ ,  $t(1038) = 1.66$ ,  $p = .097$ .

MSW and MSF did not differ significantly in their ratings of men (their lesser-preferred gender),  $W = 984.50$ ,  $Z = 1.81$ ,  $p = .071$ ,  $r = .20$ . Similarly, group membership was not predictive of viewing times of men,  $b = -.08$ ,  $t(79) = -0.79$ ,  $p = .43$ .

## Discussion

The present study was the first to employ subjective and objective measures of sexual interest in MtF transgender individuals in a non-Western cultural context. My foremost research interest was whether MSF differed from MSW in their response to images of MtF transgender individuals. With respect to self-reported sexual attraction, both groups rated women as more attractive than MtF transgender individuals and men.

MSW tended to rate images of women as sexually attractive and images of MtF transgender individuals and men as sexually unattractive. In contrast, MSF were less discrepant in their sexual attraction ratings of women and MtF transgender individuals. MSF rated both women and MtF transgender individuals as sexually attractive, although they rated the former as more attractive than the latter. Additionally, both MSW and MSF rated men as sexually unattractive.

With respect to viewing time, MSW viewed MtF transgender individuals for less time than they viewed women, but longer than they viewed men. In contrast, MSF were less discrepant in their viewing times of women and MtF transgender individuals. MSF viewed MtF transgender individual and women for a similar length of time and longer than they viewed men.

Previous research has shown that gynandromorphophilic men in the USA have notable self-reported and genital arousal to both cisgender women and transgender women with penises (Hsu et al., 2016). There were several key methodological differences between Hsu et al. (2016) and the present study. First, Hsu et al. employed measures of genital arousal, whereas the present study employed measures of viewing time. Second, Hsu et al. used stimuli depicting nude transgender women with penises who had undergone surgical treatments to appear more feminine (e.g., breast enhancement). The stimuli consisted of underwear clad MtF transgender individuals who did not have obvious morphological markers of hormonal or surgical feminization. Lastly, Hsu et al. used a sample that was drawn from a unique subset of the USA population: men who were specifically seeking to have sex with MtF transgender women on Craigslist. Here the community sample was used that was collected through snowball sampling.

Despite these differences, the response patterns of Samoan MSF were fairly consistent with, although not identical to, those of American gynandromorphophilic men. Overall, the findings from these studies suggest that sexual interest in MtF transgender individuals is associated with comparable psychophysiological responses across diverse cultural settings. It is worth noting, however, that Samoan MSF reported less attraction to the images of MtF transgender individuals than to images of women. In contrast, American men who were seeking sex with MtF transgender women reported similar levels of subjective arousal to MtF transgender women and cisgender women (Hsu et al., 2016). Thus, the gynandromorphophilic men in Hsu et al. (2016) may represent a subset of men who are highly sexually interested in MtF transgender individuals, whereas the majority of Samoan MSF in this community sample may have been moderately sexually interested in MtF transgender individuals. Nonetheless, the current study suggests a considerable proportion of Samoan men experience notable sexual interest in *fa'afafine*.

It is possible that gynephilic men's sexual attraction to MtF transgender individuals is partially learned. Previous research has shown that men exhibit low levels of sexual arousal (i.e., sexual arousal above that to their non-preferred sexual targets, but far below their preferred sexual targets) to individuals who share commonalities with, but are not in the same category as their preferred sexual targets (e.g., Blanchard et al., 2012). Given this, most gynephilic men may experience lower levels of sexual attraction to MtF transgender individuals because they present in a feminine manner but have some qualities of their non-preferred sex. This attraction may be canalized in one direction or the other depending on cultural context. For instance, men who live in social environments in which MtF transgender individuals are rare or stigmatized may develop higher aversion to these individuals. Conversely, men who live in social environments in

which MtF transgender individuals are commonplace and accepted may experience greater sexual attraction to these individuals, especially when sexual activity between men and MtF transgender individuals is viewed largely unproblematic.

It is also possible that some men may initially engage in sexual activity with MtF transgender individuals, or view erotic content featuring MtF transgender individuals, for reasons other than sexual attraction (e.g., romantic attraction to a MtF transgender individual, curiosity, lack of available cisgender partners, lowered inhibition due to alcohol consumption). If these experiences are pleasurable, then they may become more sexually responsive to MtF transgender individuals.

A secondary question motivating the present study was whether men's sexual interest in *fa'afafine* is, in part, facilitated by high sexual attraction to women in combination with low sexual aversion to men. To assess this, I examined whether MSF reported greater attraction, or lower aversion, to men and had longer viewing times of men than MSW. In contrast to previous studies (e.g., Petterson et al., 2015), no significant group differences were found for participants' sexual attraction ratings or viewing times of men.

The stimuli employed in the previous studies consisted of faces of men and women whereas stimuli used in the present study were comprised of underwear clad models. Some MSF may experience little sexual aversion when presented with faces of men but exhibit greater sexual aversion when presented with minimally clothed men. As such, it is possible that group differences in response to men are much smaller when more sexually explicit imagery is used. Nevertheless, it is somewhat surprising that MSF did not differ from MSW because a non-negligible portion of the former group reported

experiencing sexual feelings for men and engaging in sexual activity with men (see Table 3.2).

### **Limitations**

Factors in addition to sexual interest may underlie men's viewing times of MtF transgender individuals and these may have prolonged their viewing time of these individuals. Viewing time is influenced by the length of time required to assess a target's attractiveness (Imhoff et al., 2010). When evaluating a target's sexual attractiveness, participants are required to make a series of decisions (e.g., they must determine whether the target is a member of their preferred gender, whether they are of an appropriate age, whether they have attractive characteristics) (Imhoff et al., 2010). Participants may be slower to evaluate the sexual attractiveness of MtF transgender individuals if they cannot immediately assess the sex or gender of the targets. Alternative measures of sexual response may provide a more conservative estimate of sexual interest.

Viewing time may be vulnerable to voluntary manipulation because it does not measure autonomic response (see Imhoff et al., 2012). Consequently, participants could attempt to manipulate their viewing times to produce a socially desirable response. This, of course, assumes that participants are aware that their viewing times are being recorded, that they know what a socially desirable pattern of response time would look like, and that they know how to manipulate their viewing times to mimic such a pattern. Nevertheless, the use of alternative assessment measures, such as pupil dilation, could help circumvent this limitation.

Because the base population of cisgender women is much larger than that of MtF transgender individuals, there may have been more internet images of cisgender women models on the higher end of attractiveness than there were internet images of MtF



transgender models. Owing to this, participants' responses to images depicting MtF transgender individuals may have been attenuated relative to those of women. Additionally, because few people report that MtF transgender individuals are their preferred partners, it was not possible to have the images pre-rated for sexual attractiveness (e.g., it would not be possible to determine whether images of MtF transgender individuals were rated lower than women because they were less attractive or because they were not preferred by the rater). To partially mitigate this issue, similar search terms were used for each image category, with the exception of the bonobo images.

## **Ethics Statement**

### ***Ethics Approval***

This research was approved by an institutional human participants research ethics board. A Samoan Research Visa was obtained from Samoan Immigration with the support of the Samoan *Fa'afafine* Association. Participants were required to provide informed written consent prior to taking part in the study.

### ***Conflict of Interest***

The authors declare that they have no conflict of interest.

### ***Informed Consent***

Participants were required to provide informed written consent prior to taking part in the study.

## References

- Bartlett, N. H., & Vasey, P. L. (2006). A retrospective study of childhood gender-atypical behavior in Samoan fa'afafine. *Archives of Sexual Behavior, 35*(6), 659–666. doi:10.1007/s10508-006-9055-1
- Blanchard, R., Kuban, M. E., Blak, T., Klassen, P. E., Dickey, R., & Cantor, J. M. (2012). Sexual attraction to others: A comparison of two models of alloerotic responding in men. *Archives of Sexual Behavior, 41*(1), 13–29. doi:10.1007/s10508-010-9675-3
- Boellstorff, T. (2004). Playing back the nation: Waria, Indonesian transvestites. *Cultural Anthropology, 19*(2), 159–195. doi:10.1525/can.2004.19.2.159
- Buodo, G., Sarlo, M., & Palomba, D. (2002). Attentional resources measured by reaction times highlight differences within pleasant and unpleasant, high arousing stimuli. *Motivation and Emotion, 26*(2), 123–138. doi:10.1023/A:1019886501965
- Chasan, P. E. (2007). The history of injectable silicone fluids for soft-tissue augmentation. *Plastic and Reconstructive Surgery, 120*(7), 2034–2040. doi:10.1097/01.prs.0000267580.92163.33
- Coan, D. L., Schrage, W., & Packer, T. (2005). The role of male sexual partners in HIV infection among male-to-female transgendered individuals. *International Journal of Transgenderism, 8*(2-3), 21–30. doi:10.1300/J485v08n02\_03
- Devereux, G. (1937). Institutionalized homosexuality of the Mohave Indians. *Human Biology, 9*, 498–527.
- Donham, D. L. (1998). Freeing South Africa: The “modernization” of male-male sexuality in Soweto. *Cultural Anthropology, 13*, 3–21.
- Ebsworth, M., & Lalumiere, M. L. (2012). Viewing time as a measure of bisexual sexual interest. *Archives of Sexual Behavior, 41*(1), 161–172. doi:10.1007/s10508-012-9923-9
- Eternity and Empirisoft Corporation. (1997). MediaLab Research Software. New York, NY.
- Forsythe, A., Mulhern, G., & Sawey, M. (2008). Confounds in pictorial sets: The role of complexity and familiarity in basic-level picture processing. *Behavior Research Methods, 40*(1), 116–129. doi:10.3758/BRAI.40.1.116
- Gerico, H. (2015). *Looking for that “special” lady: Exploring hegemonic masculinity in online dating profiles of trans-attracted men.* (Master of Arts Masters). Central European University, Budapest, Hungary.

- Hall, G., Young, A., Krakauer, C., Watson, C. C., Cummings, V., Mayer, K., & Koblin, B. (2017). Sexual risk behaviors among black men who have sex with men who also report having sex with transgender partners: Analysis of HIV Prevention Trials Network (HPTN) 061 study. *AIDS Education and Prevention*, 29(5), 418–431.
- Haller, D. (1992). Homosexuality in Seville. *Solgan*, 14, 27–35.  
doi:10.1525/sol.1992.14.3.27
- Howe, C., Zaraysky, S., & Lorentzen, L. (2008). Transgender sex workers and sexual transmigration between Guadalajara and San Francisco. *Latin American Perspectives*, 35(1), 31–50. doi:10.1177/0094582X07310956
- Hsu, K. J., Rosenthal, A. M., Miller, D. I., & Bailey, J. M. (2016). Who are gynandromorphophilic men? Characterizing men with sexual interest in transgender women. *Psychological Medicine*, 46(4), 819–827.  
doi:10.1017/S0033291715002317
- Imhoff, R., Schmidt, A. F., Nordsiek, U., Luzar, C., Young, A. W., & Banse, R. (2010). Viewing time effects revisited: Prolonged response latencies for sexually attractive targets under restricted task conditions. *Archives of Sexual Behavior*, 39(6), 1275–1288. doi:10.1007/s10508-009-9595-2
- Imhoff, R., Schmidt, A. F., Weiß, S., Young, A. W., & Banse, R. (2012). Vicarious viewing time: Prolonged response latencies for sexually attractive targets as a function of task-or stimulus-specific processing. *Archives of Sexual Behavior*, 41(6), 1389–1401. doi:10.1007/s10508-011-9879-1
- Israel, E., & Strassberg, D. S. (2009). Viewing time as an objective measure of sexual interest in heterosexual men and women. *Archives of Sexual Behavior*, 38(4), 551–558. doi:10.1007/s10508-007-9246-4
- Kinsey, A. C., Pomeroy, W. R., & Martin, C. E. (1948). *Sexual behavior in the human male*. Philadelphia, PA: W. B. Saunders Co.
- Kulick, D. (1997). The gender of brazilian transgendered prostitutes. *American anthropologist*, 99(3), 574–585. doi:10.1525/aa.1997.99.3.574
- Lancaster, R. N. (1988). Subject honor and object shame: The construction of male homosexuality and stigma in Nicaragua. *Ethnology*, 27(2), 111–125.  
doi:10.2307/3773623
- Lim, D. C. L. (2015). Visualizing the invisible: Social constructions of straight identified men who have sex with transsexuals and feminized gay men on/off Malaysian film. *Studies in Gender and Sexuality*, 16(3), 183–203.  
doi:10.1080/15240657.2015.1073047

- Lippa, R. A. (2012). Effects of sex and sexual orientation on self-reported attraction and viewing times to images of men and women: Testing for category specificity. *Archives of Sexual Behavior, 41*(1), 149–160. doi:10.1007/s10508-011-9898-y
- Lippa, R. A. (2013). Men and women with bisexual identities show bisexual patterns of sexual attraction to male and female "swimsuit models". *Archives of Sexual Behavior, 42*(2), 187–196. doi:10.1007/s10508-012-9981-z
- Lippa, R. A., Patterson, T. M., & Marelich, W. D. (2010). Looking at and longing for male and female "swimsuit models". *Social Psychological and Personality Science, 1*(3), 238–245. doi:10.1177/1948550609359814
- Meyerowitz, J. (2002). *How sex changed: A history of transsexuality in the United States*. Cambridge, MA: Harvard University Press.
- Money, J., & Lamacz, M. (1984). Gynemimesis and gynemimetophilia: Individual and cross-cultural manifestations of a gender-coping strategy hitherto unnamed. *Comprehensive Psychiatry, 25*(4), 392–403.
- Murray, S. O. (2000). *Homosexualities*. Chicago, IL: The University of Chicago Press.
- Narins, R. S., & Beer, K. (2006). Liquid injectable silicone: A review of its history, immunology, technical considerations, complications, and potential. *Plastic and Reconstructive Surgery*(3S), 77S–84S. doi:10.1097/01.prs.0000234919.25096.67
- Ochsner, K. N. (2000). Are affective events richly recollected or simply familiar? The experience and process of recognizing feelings past. *Journal of Experimental Psychology: General, 129*(2), 242–261. doi:10.1037//0096-3445.129.2.242
- Operario, D., Burton, J., Underhill, K., & Sevelius, J. (2008). Men who have sex with transgender women: Challenges to category-based HIV prevention. *AIDS and Behavior, 12*(1), 18–26. doi:10.1007/s10461-007-9303-y
- Petterson, L. J., Dixson, B. J., Little, A. C., & Vasey, P. L. (2015). Viewing time measures of sexual orientation in Samoan cisgender men who engage in sexual interactions with fa'afafine. *PloS one, 10*(2). doi:10.1371/journal.pone.0116529
- Petterson, L. J., Dixson, B. J., Little, A. C., & Vasey, P. L. (2016). Reconsidering male bisexuality: Sexual activity role and sexual attraction in Samoan men who engage in sexual interactions with fa'afafine. *Psychology of Sexual Orientation and Gender Diversity, 3*(1), 11–26. doi:10.1037/sgd0000160
- Quinsey, V. L., Ketsetzis, M., Earls, C., & Karamanoukian, A. (1996). Viewing time as a measure of sexual interest. *Ethnology and Sociobiology, 17*, 341–354.
- R Development Core Team. (2015). RStudio: Integrated development for R. Boston, MA: RStudio, Inc.

- Rosenthal, A. M., Hsu, K. J., & Bailey, J. M. (2017). Who are gynandromorphophilic men? An internet survey of men with sexual interest in transgender women. *Archives of Sexual Behavior, 46*(1), 255–264. doi:10.1007/s10508-016-0872-6
- Rullo, J. E., Strassberg, D. S., & Israel, E. (2010). Category-specificity in sexual interest in gay men and lesbians. *Archives of Sexual Behavior, 39*(4), 874–879. doi:10.1007/s10508-009-9497-3
- Schifter, J., & Madrigal, J. (1997). The transvestite's lover: Identity and behavior. In V. L. Bullough & J. Elias (Eds.), *Gender Blending*. New York, NY: Prometheus Books
- Schmidt, J. (2003). Paradise lost? Social change and fa'afafine in Samoa. *Current Sociology, 51*(3-4), 417–432. doi:10.1177/0011392103051003014
- Schmidt, J. (2016). Being 'like a woman': Fa'afāfine and Samoan masculinity. *The Asia Pacific Journal of Anthropology, 17*(3-4), 287–304. doi:10.1080/14442213.2016.1182208
- Stief, M. (2017). The sexual orientation and gender presentation of hijra, kothi, and panthi in Mumbai, India. *Archives of Sexual Behavior, 46*(1), 73–85. doi:10.1007/s10508-016-0886-0
- ten Brummelhuis, H. (1999). Transformations of transgender. *Journal of Gay & Lesbian Social Services, 9*(2-3), 121–139. doi:10.1300/J041v09n02\_06
- Vasey, P. L., Pocock, D. S., & VanderLaan, D. P. (2007). Kin selection and male androphilia in Samoan fa'afafine. *Evolution and Human Behavior, 28*(3), 159–167. doi:10.1016/j.evolhumbehav.2006.08.004
- Weinberg, M. S., & Williams, C. J. (2010). Men sexually interested in transwomen (MSTW): gendered embodiment and the construction of sexual desire. *Journal of Sex Research, 47*(4), 374–383. doi:10.1080/00224490903050568
- Whitam, F. L. (1992). Bayot and callboy in the Philippines. In S. O. Murray (Ed.), *Oceanic homosexualities*. New York, NY: Garland.
- Wikan, U. (1977). Man becomes woman: Transsexualism in Oman as a key to gender roles. *Man, 12*, 304–319.

**Table 3.1***Biographic information by group.*

	Men who were sexually interested in <i>fa'afafine</i> <i>N</i> = 40	Men who were sexually interested in only women <i>N</i> = 41
Age: <sup>a</sup>	18-55	18-57
Age range ( <i>M</i> , <i>SD</i> )	(29.8, 9.01)	(29.48, 11.71)
Ethnicity: % ( <i>n</i> )		
Samoaan	100% (40)	100% (41)
Childhood socioeconomic status: % ( <i>n</i> )		
Lower class	7.7% (3)	7.3% (3)
Lower-middle class	59% (23)	41.5% (17)
Middle class	33.3% (13)	26.8% (11)
Upper-middle class	0% (0)	22% (9)
Upper class	0% (0)	2.4% (1)
Religion: % ( <i>n</i> )		
Christian	100% (40)	100% (41)
Religiosity: % ( <i>n</i> )		
Not at all	2.5% (1)	2.4% (1)
Somewhat religious	67.5% (27)	53.7% (22)
Very religious	30% (12)	43.9% (18)
Relationship status: % ( <i>n</i> )		
Single	51.3% (20)	12.2% (5)
Dating more than one person	0% (0)	2.4% (1)
Dating one person	28.2% (11)	46.3% (19)
Married/common law	20.5% (8)	39% (16)

<sup>a</sup> Age did not differ significantly between groups  $t(78) = .89$ , 95% CI (-4.33, 4.98)

**Table 3.2**

*Number and percentage of participants who engaged in sexual activity and had sexual feelings for women, men, fa'afafine in the year prior to being interviewed and in their lifetime.*

	Men who were sexually interested in <i>fa'afafine</i>	Men who were sexually interested in only women
	<i>N</i> = 40	<i>N</i> = 41
Participants who had sex with women		
Prior-year	85% (34)	100% (41)
Lifetime	95% (38)	100% (41)
Participants who had sexual feelings for women		
Prior-year	100% (40)	100% (41)
Lifetime	100% (40)	100% (41)
Participants who had sex with men		
Prior-year	17.5% (7)	0% (0)
Lifetime	20% (8)	0% (0)
Participants who had sexual feelings for men		
Prior-year	32.5% (13)	0% (0)
Lifetime	32.5% (13)	0% (0)
Participants who had sex with <i>fa'afafine</i>		
Prior-year	100% (40)	0% (0)
Lifetime	100% (40)	0% (0)
Participants who had sexual feelings for <i>fa'afafine</i>		
Prior-year	100% (40)	0% (0)
Lifetime	100% (40)	0% (0)

**Table 3.3***Descriptive statistics for sexual attraction ratings and viewing times by group.*

Stimuli image category	Men who were sexually interested in <i>fa'afafine</i> <i>N</i> = 40		Men who were sexually interested in only women <i>N</i> = 41	
<b>Sexual attraction ratings</b>				
<i>Raw ratings</i>	<i>Mdn</i>	SD	<i>Mdn</i>	SD
Men	1.00	1.20	1.00	.51
MtF transgender individuals	4.11	1.27	1.00	.87
Women	4.89	.45	4.44	.82
Bonobos	1.00	.33	1.00	.42
<i>Baseline controlled ratings</i>	<i>Mdn</i>	SD	<i>Mdn</i>	SD
Men	0	1.16	0	.47
MtF transgender individuals	3.00	1.34	0	.82
Women	3.83	.67	3.44	.89
<i>Standardized ratings</i>	<i>Mdn</i>	SD	<i>Mdn</i>	SD
Men	0	.69	0	.28
MtF transgender individuals	1.80	.80	0	.49
Women	2.30	.40	2.06	.53
<b>Viewing times</b>				
<i>Raw viewing times</i>	<i>M</i>	SD	<i>M</i>	SD
Men	4.55	3.45	3.28	2.51
MtF transgender individuals	5.40	3.83	4.04	3.17
Women	5.09	3.65	4.87	4.34
Bonobos	4.27	2.89	2.77	1.83
<i>Baseline controlled viewing times</i>	<i>M</i>	SD	<i>M</i>	SD
Men	.28	1.31	.51	1.32
MtF transgender individuals	1.13	1.69	1.27	1.88
Women	.82	1.82	2.10	2.76
<i>Standardized viewing times</i>	<i>M</i>	SD	<i>M</i>	SD
Men	.17	.92	.35	.95
MtF transgender individuals	.85	1.24	.93	1.20
Women	.60	1.27	1.61	1.45



**Table 3.4***Mixed-effect model analysis with stimuli category and group predicting viewing times.*

	<i>b</i>	95% CI <sup>a</sup>	<i>SE</i>	df	<i>t</i> -value	<i>p</i> -value
<b>Fixed Effects</b>						
Intercept	.35	.24, .46	.06	2102	6.04	<.001
<i>Stimuli contrasts</i>						
Masculine vs. feminine individuals	.21	.16, .26	.03	2102	8.38	<.001
Women vs. MtF transgender individuals	-.09	-.18, -.00	.04	2102	-2.00	.045
<i>Group comparison</i>						
Group	-.19	-.42, .04	.12	79	-1.62	.109
<i>Interactions</i>						
Masculine vs. feminine individuals X Group	-.11	-.21, -.01	.05	2102	-2.14	.033
Women vs. MtF transgender individuals X Group	.39	.22, .57	.09	2102	4.43	<.001
	SD	95% CI <sup>a</sup>				
<b>Random effects</b>						
Intercept	.49	.42, .59				
Residual	.85	.82, .87 <sup>b</sup>				

<sup>a</sup> Values are approximated.<sup>b</sup> Within-group *SE*

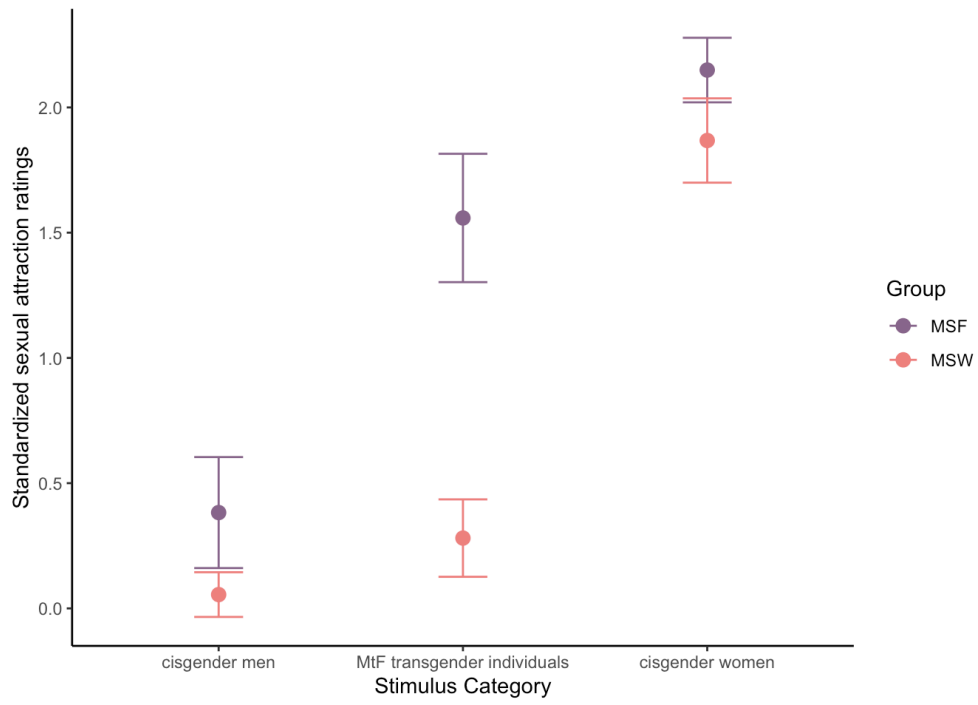


Figure 3.1: Mean (95% CI) standardized sexual attraction ratings of men, MtF transgender individuals, and women.

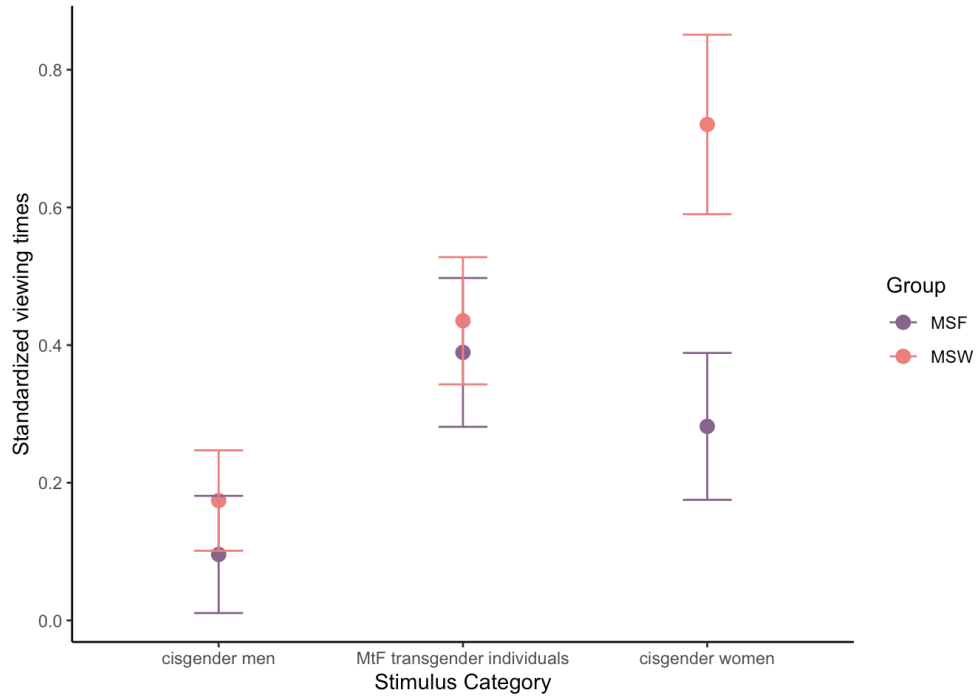


Figure 3.2: Mean (95% CI) standardized viewing times of men, MtF transgender individuals, and women.

## **Chapter 4: Canadian Men's Visual Attention to Cisgender Women, Cisgender Men, and Transgender Women**

### **Abstract**

Some heterosexual men express sexual interest in MtF transgender individuals with penises. It is possible that this interest is derived from a tendency for heterosexual men to be sexually responsive to gender in addition to sex. I compared the self-reported sexual attraction and visual attention patterns of undergraduate Canadian heterosexual men ( $N = 51$ ) to nude images of MtF transgender individuals with penises, cisgender men, and cisgender women. Gay men ( $N = 20$ ) were used as a comparison group. Heterosexual men were most attracted to cisgender women and fixated on them the longest. However, they were more attracted to MtF transgender individuals with penises than to cisgender men, and they biased their attention to MtF transgender individuals with penises over cisgender men. This pattern was unique to heterosexual men. As such, men appear to be responsive to sex and gender, which may account for sexual interest in MtF transgender individuals among some heterosexual men.

*Keywords:* transgender women; eye-tracking; gynandromorphophilia; sexual orientation; within-sex differences

## Introduction

Gynephilic men's (i.e., those who are sexually attracted to adult women) willingness to engage in sexual interactions with feminine biological males who have male-typical genitalia appears to be highly variable across cultures (Whitam, 1992). Ethnographic research suggests that, in many non-Western cultures, these interactions are not uncommon (e.g., Murray, 2000; Nanda, 2014). In the West, however, they seem to be relatively rare (Bailey, 2003).

The identities of feminine biological males vary across cultures (e.g., Murray, 2000; Nanda, 2014). In Western cultures, many, but not all, feminine biological males identify as *women* or *trans women*. In many non-Western cultures, they identify as a non-binary gender that is neither man nor women. Hereafter, the term MtF (male-to-feminine) transgender individuals will be used to refer to feminine presenting individuals who were male at birth.

The femininity of MtF transgender individuals exists along a spectrum. For example, in non-Western cultures, many MtF transgender individuals behave and dress in a feminine manner, but do not augment their bodies substantially beyond modifications such as shaving, growing out their hair, and wearing makeup (e.g., Nanda, 2014). In Western cultures, however, it is not uncommon for these individuals to obtain breast augmentation, facial feminization, and other body modification using surgical and hormonal procedures (e.g., Meyerowitz, 2002).

Despite the substantial cross-cultural variability that characterizes men's sexual activity with MtF transgender individuals, it is possible that the psychological predisposition underlying such behavior is cross-culturally universal (Whitam, 1992). Namely, gynephilic men may generally have the capacity to become sexually interested

in MtF transgender individuals because they share physical and behavioral characteristics with cisgender women. If so, predominantly gynephilic men should exhibit sexual interest in MtF transgender individuals that exceeds their sexual interest in cisgender men and non-sexual stimuli, regardless of cultural setting. In addition, gynephilic men should exhibit significantly greater sexual interest in MtF transgender individuals with breasts than those without breasts, the former having more physical characteristics in common with their preferred sexual targets than the latter. Lastly, because gynephilic men's interest in MtF transgender individuals is hypothesized to derive from their sexual interest in females, this pattern should be unique to gynephilic men and not androphilic men (i.e., those who are sexually attracted to adult men).

To investigate these possibilities, I examined Canadian gynephilic and androphilic men's self-reported sexual attraction and visual attention to nude images of (1) MtF transgender individuals who were feminine (e.g., wore make-up, female-typical hairstyles, and were posed in a feminine manner) and who had surgically augmented their breasts in a female-typical manner<sup>25</sup> (hereafter, *MtF transgender individuals with breasts*), (2) MtF transgender individuals who were feminine but who did not have augmented breasts (hereafter, *MtF transgender individuals without breasts*), (3) cisgender women (hereafter, *women*), (4) cisgender men (hereafter, *men*), and (5) non-sexual controls (bonobos [*pan paniscus*], a species of great apes). All of the MtF transgender individuals depicted in the images had penises.

---

<sup>25</sup> MtF transgender individuals in this group appeared to have undergone other gender confirmation hormonal and surgical treatments, although none had undergone genital surgery. For instance, many had female-typical fat distributions as well as female-typical jaw lines, features which few biological males possess without hormones and surgery.

To assess biases in visual attention, I employed a forced attention paradigm in which individual images were presented on opposite sides of the screen. Doing so precluded participants from viewing both images simultaneously. Previous research demonstrates that men bias their attention toward stimuli of their preferred gender and away from their non-preferred gender when using this paradigm (Dawson & Chivers, 2016; Dawson, Fretz, & Chivers, 2017; Fromberger et al., 2012). In addition, I assessed whether sociosexuality (i.e., a preference for shorter-term and/or lower commitment relationships or longer-term and/or higher commitment relations), interest in visual sexual stimuli, and homonegativity had a confounding influence on men's self-reported visual attention patterns.

## **Methods**

### **Participants**

Heterosexual (hereafter gynephilic) or gay (hereafter androphilic) identified men were recruited from a small Canadian University. Psychology undergraduates were recruited through a participant recruitment system (Sona) and given 1% course credit. Androphilic men were recruited from the university through Sona for an additional semester and posters advertisements. Students recruited through poster advertisements were given \$10 CAD.

Participants were required to have normal/corrected vision, identify as a heterosexual or gay man, have viewed pornography and be comfortable viewing sexual imagery, and be over the age of 18. Ten participants were excluded from the analyses of visual attention due to low gaze accuracy (< 80%), 5 were excluded from analyses of self-reported attraction because they declined to answer or gave consistently low ratings to the

images, and 2 were excluded from reports and analysis of questionnaire measures because they had duplicate participant numbers.

In total, 52 gynephilic men ( $M_{\text{age}} = 22.2$ ,  $SD_{\text{age}} = 3.94$ ; age range = 18-32) and 20 androphilic men ( $M_{\text{age}} = 22.7$ ,  $SD_{\text{age}} = 5.5$ ; age range = 18-37) were included in the study. Analysis of self-reported sexual attraction pertained to 51 gynephilic men and 19 androphilic men. Analysis of visual attention pertained to 47 gynephilic men and 18 androphilic men.

### **Stimuli**

Participants were shown 40 paired images, which included (1) nude MtF transgender individuals with breasts, (2) nude MtF transgender individuals without breasts, (3) nude women, (4) nude men, and (5) bonobos (16 of each). Each stimulus category was matched with the remaining four categories. All pairings were shown four times. A fixation cross was located in the center of the screen and the images appeared in opposing corners (top right/bottom left or top left/bottom right). The images within each category pair appeared in a different corner of the screen each time that the pair was shown.

Nude images were taken from freely accessible websites using similar search terms (e.g. “hot” and “sexy”). To remove the confounding influence of scene content and color (see, Henderson & Hollingworth, 1998), backgrounds were removed leaving only the model and images were transformed to grey scale. Light intensity was adjusted to limit its effect on gaze patters (Loftus, 1985). Additionally, because image complexity can influence ratings of image valence (Ochsner, 2000), I compared mean bytes persevered after JPEG compression of the human stimuli (e.g., Buodo et al., 2002; Forsythe et al., 2008). Individual images were adjusted to 450 pixels (or 6.25 inches) high



with a resolution of 72 pixels/inch. Images ranged in width from 192 pixels to 615 pixels. Some features could not be controlled between the human and bonobos: bonobos are darker than humans and their fur adds complexity. As such, the target images were similar in terms of their low-level features, but the neutral images contained some unique low-level features.

### **Apparatus**

The study was conducted using a 17-inch laptop with 1920 x 1080 resolution, a Tobii X3-120 eye tracker, and Tobii Pro Studio™ Software. The Tobii X3-120 uses near-infrared light operating at 120 Hz to illuminate the eyes and sensors capture pupil movement using bright and dark pupil detection. The X3-120 records participants' distance from the screen and allows for small movements. The eye-tracker was calibrated for each participant, which required participants focus on 9 points on the screen.

### **Procedure**

Participants were told that the study's purpose was to understand how people pay attention when evaluating the sexual appeal of humans who vary in terms of their gender presentation. They were informed that they would be required to evaluate the sexual appeal of nude images of men, women, and transgender individuals as well as bonobos.

During the study, participants were shown the series of paired images. Each pair remained on the screen for 10 seconds. The image pairs were preceded by a fixation cross that appeared on the screen for 2 seconds. The image pairs were entered in a random order, but all participants saw the same order. After each image pair, participants were asked to identify and rate the sexual attractiveness of the image on the top and the image on the bottom. Following the experiment portion, participants were given a questionnaire

that included biographic information, measures of sexual orientation, and additional scale measures.

## **Measures and Data Treatment**

### ***Self-reported Sexual Attraction and Image Identification***

Participants were asked to identify each image (response options: woman, man, transgender woman, or ape) and then rate how sexually attracted they were to each image using a 7-point Likert-type scale (response range: 1 = “not at all sexually attracted” to 7 = “extremely sexually attracted”).

### ***Attention Measures***

Visual attention was evaluated using a forced attention paradigm (e.g., Dawson & Chivers, 2016; Dawson et al., 2017; Fromberger et al., 2012; Nummenmaa, Hyönä, & Calvo, 2006). Within each scene, images were set as areas of interest (AOIs). Fixation patterns were defined using Tobii Pro Studio™ Fixation Filter. Initial attention was assessed using time to first fixation (TFF) on an image (low TFF scores indicate quicker attention capture). Controlled attention was assessed using total fixation duration (TFD) and total fixation count (TFC) for each stimuli category (high TFD and TFC scores indicate greater controlled attention).

TFF, TFC, and TFD were calculated for each image. Values were winsorized to reduce the influence of outliers (values corresponding to a z-score > 3.29). Image values were standardized within each participant for all attention measures. Average values were calculated for each image category and each visual attention measure.

### ***Sexual Orientation***

Participants were asked whether they identified as heterosexual, gay, bisexual, or other. Participants were grouped based on their sexual orientation identity. In addition,

participants' reported their sexual behavior and sexual feelings (i.e., sexual attraction, thoughts, or fantasies) for men, women, and transgender women over their lifetime and the past year (response range: 0 = “no sexual activity with [sexual feelings for] [either women, men, or transgender women]” to 3 = “sexual activity with [feelings for] [either women, men, or transgender women] only”; X = “no sexual behavior [sexual attractions, thoughts or fantasies]”). Participants were also asked to complete a modified version of the Attraction to Feminine Males Scale (Veale, Clarke, & Lomax, 2008) (See Appendix A). Responses to the modified version of the Attraction to Feminine Males Scale were summed.

### ***Additional Scale Measures***

Participants completed the Interest in Visual Sexual Stimuli Scale (Bailey, Gaulin, Agyei, & Gladue, 1994), the Sociosexual Orientation Inventory (Simpson & Gangestad, 1991), and the Modern Homonegativity Scale (Morrison & Morrison, 2002). Responses to the Interest in Visual Sexual Scale and the Modern Homonegativity Scale were averaged across each scale. Aggregate Sociosexual Orientation Inventory scores were calculated using the weighting suggested by Simpson and Gangestad (1991) (response to the sexual behavior items were capped at 30). Response to the scale measures were standardized across participants.

### **Statistical Analysis**

Statistical analysis was conducted using RStudio, version 1.1.383 (R Development Core Team, 2015). The threshold for statistical significance was set at  $p < .005$  whereas  $p$ -values below  $p < .05$  were taken as suggestive evidence (see Benjamin et al., 2018). Due to the low power to detect interaction effects, each sexual orientation group was

assessed separately. Androphilic men's responses were used to assess whether the pattern found among gynephilic men was uniquely associated with gynephilia.

Non-parametric tests were used for analyses of sexual attraction ratings because participants' responses were highly skewed. Three paired Wilcoxon tests with continuity correction were used to compare sexual attraction to (1) women versus the grand mean of natal male individuals, (2) men versus the grand mean of MtF transgender individuals, and (3) MtF transgender individuals without breast versus MtF transgender individuals with breasts.

Analyses pertaining to visual attention were conducted using linear regressions. Three orthogonal contrasts were used to compare (1) women (coded as -3) versus natal male individuals (each coded as 1), (2) men (coded as -2) versus MtF transgender individuals (each coded as 1) (women were coded as 0), and (3) MtF transgender individuals with breasts (coded as 1) versus MtF transgender individuals without breasts (coded as -1) (women and men were coded as 0). To compare responses to bonobo and human images, four planned contrasts were entered as predictor variables. For each contrast, the relevant human image category was coded as 1 and all others were coded as 0; bonobos were coded as 0 for every contrast.

Additionally, linear regressions with interest in visual sexual stimuli, sociosexuality, and homonegativity predicting visual attention were conducted. Orthogonal contrasts were calculated to compare (1) women and biological males, (2) men and MtF transgender individuals, and (3) response to MtF transgender individuals without breasts and MtF transgender individuals with breasts. For each measure, difference scores were included as separate dependent variables.

## **Results**

Self-reported sexual attraction and behavior with transgender women, cisgender women, and cisgender men as well as response to the Modified Attraction to Feminine Male Scale are shown in Table 4.1. Descriptive statistics for the standardized and raw self-reported sexual attraction, TFF, TFD, and TFC measures are shown in Table 4.2 by group. Figure 4.1 shows gynephilic men's standardized attraction ratings and fixation patterns. Figure 4.2 shows androphilic men's standardized attraction ratings and fixation patterns.

### **Self-Reported Sexual Attraction**

Gynephilic men were more sexually attracted to women than to natal male individuals,  $Z = 6.21, p < .001, r = .87$ . They were less sexually attracted to men than to MtF transgender individuals,  $Z = 4.58, p < .001, r = .64$ . Additionally, they were less sexually attracted to MtF transgender individuals without breast than to MtF transgender individuals with breasts,  $Z = 5.11, p < .001, r = .72$ .

Androphilic men were less sexually attracted to women than to natal male individuals,  $Z = 3.8, p < .001, r = .87$ . They were more sexually attracted to men than to MtF transgender individuals,  $Z = 3.8, p < .001, r = .87$ . Androphilic men reported similar sexual attraction to MtF transgender individuals without breast and MtF transgender individuals with breasts,  $Z = 1.53, p = .127, r = .35$ .

### **Time to First Fixation**

For gynephilic men, there was an effect of human-stimuli category on TFF,  $F(3, 184) = 30.58, p < .001, R^2 = .33$ . They were slower to fixate on natal male individuals than on women,  $b = .04, 95\% \text{ CI } (.02, .05), SE = .01, p < .001$ . However, they were quicker to fixate on MtF transgender individuals than on men,  $b = -.09, 95\% \text{ CI } (-.11, -.06), SE = .01, p < .001$ . Gynephilic men's TFFs were similar for MtF transgender

individuals with breasts and MtF transgender individuals without breasts,  $b = -.04$ , 95% CI  $(-.07, < .01)$ ,  $SE = .02$ ,  $p = .058$ . The confidence intervals for gynephilic men's TFF on women, MtF transgender individuals with breasts, and MtF transgender individuals without breasts overlapped considerably, indicating that all feminine images tended to capture their early attention.

For androphilic men, there was an effect of human-stimuli category on TFF,  $F(3, 68) = 5.7$ ,  $p = .002$ ,  $R^2 = .20$ . Androphilic men were quicker to fixate on natal male individuals than on women,  $b = -.04$ , 95% CI  $(-.07, -.02)$ ,  $SE = .01$ ,  $p = .002$ . There was suggestive evidence that androphilic men were slower to fixate on MtF transgender individuals than on men,  $b = .04$ , 95% CI  $(0, .08)$ ,  $SE = .02$ ,  $p = .03$ . Androphilic men's TFFs were similar for MtF transgender individuals with breasts and MtF transgender individuals without breasts,  $b = -.04$ , 95% CI  $(-.11, .03)$ ,  $SE = .03$ ,  $p = .25$ .

There was an effect of stimuli category (including control images) on TFF for gynephilic men,  $F(4, 230) = 68.06$ ,  $p < .001$ ,  $R^2 = .54$ , and androphilic men,  $F(4, 85) = 29.88$ ,  $p < .001$ ,  $R^2 = .58$ . Both gynephilic men and androphilic men were slower to fixate on images of bonobos than all other stimuli (all  $p$ -values  $< .001$ ).

### **Total Fixation Duration**

For gynephilic men, there was an effect of human-stimuli category on TFD,  $F(3, 184) = 113.5$ ,  $p < .001$ ,  $R^2 = .65$ . Gynephilic men fixated on natal male individuals for less time than they fixated on women,  $b = -.27$ , 95% CI  $(-.3, -.24)$ ,  $SE = .02$ ,  $p < .001$ . They fixated on MtF transgender individuals longer than they fixated on men,  $b = .15$ , 95% CI  $(.1, .19)$ ,  $SE = .02$ ,  $p < .001$ . Additionally, they fixated on MtF transgender individuals with breasts longer than they fixated on MtF transgender individuals without breasts,  $b = .12$ , 95% CI  $(.04, .19)$ ,  $SE = .04$ ,  $p = .003$ .

For androphilic men, there was an effect of human-stimuli category on TFD,  $F(3, 68) = 52.34, p < .001, R^2 = .7$ . Androphilic men fixated on natal male individuals longer than they fixated on women,  $b = .16, 95\% \text{ CI } (.11, .21), SE = .02, p < .001$ . They fixated on MtF transgender individuals for less time than they fixated on men,  $b = -.36, 95\% \text{ CI } (-.43, -.3), SE = .03, p < .001$ . Additionally, they fixated on MtF transgender individuals with breasts and MtF transgender individuals without breasts for a similar length of time,  $b = -.1, 95\% \text{ CI } (-.21, .02), SE = .06, p = .114$ .

There was an effect of stimuli category (including control images) on TFD for gynephilic men,  $F(4, 230) = 92.92, p < .001, R^2 = .62$ , and androphilic men,  $F(4, 85) = 60.08, p < .001, R^2 = .74$ . Gynephilic men fixated on images of bonobos and men for a similar length of time,  $p = .946$ . They fixated on bonobos for less time than all other image categories (all  $p$ -values  $< .001$ ). Androphilic men fixated on images of bonobos for less time than all other image categories (all  $p$ -values  $< .001$ ).

### **Total Fixation Count**

For gynephilic men, there was an effect of human-stimuli category on TFC,  $F(3, 184) = 88.68, p < .001, R^2 = .59$ . Gynephilic men fixated on images of natal male individuals less frequently than they fixated on women,  $b = -.23, 95\% \text{ CI } (-.26, -.2), SE = .02, p < .001$ . They fixated on MtF transgender individuals more frequently they fixated on than men,  $b = .11, 95\% \text{ CI } (.07, .15), SE = .02, p < .001$ . Additionally, they fixated on MtF transgender individuals with breasts more frequently than they fixated on MtF transgender individuals without breasts,  $b = .13, 95\% \text{ CI } (.05, .2), SE = .04, p < .001$ .

For androphilic men, there was an effect of human-stimuli category on TFC,  $F(3, 68) = 33.67, p < .001, R^2 = .60$ . Androphilic men fixated on natal male individuals more frequently than they fixated on women,  $b = .13, 95\% \text{ CI } (.08, .17), SE = .02, p < .001$ .

They fixated on MtF transgender individuals less frequently than they fixated on men,  $b = -.28$ , 95% CI (-.34, -.21),  $SE = .03$ ,  $p < .001$ . Additionally, they fixated on MtF transgender individuals with breasts and MtF transgender individuals without breasts a similar number of times,  $b = -.04$ , 95% CI (-.16, .07),  $SE = .06$ ,  $p = .439$ .

There was an effect of stimuli category (including control images) on TFC for gynephilic men,  $F(4, 230) = 79.87$ ,  $p < .001$ ,  $R^2 = .58$ , and androphilic men,  $F(4, 85) = 45.12$ ,  $p < .001$ ,  $R^2 = .68$ . Gynephilic men fixated on bonobos and men a similar number of times,  $b = .1$ , 95% CI (-.05, .25),  $SE = .08$ ,  $p = .202$ . They fixated on bonobos less frequently than all other image categories (all  $p$ -values  $< .001$ ). Androphilic men fixated on bonobos less frequently than all image categories (all  $p$ -values  $< .001$ ).

### **Relationship Between Scale Measures and Visual Attention to Human Stimuli**

Among gynephilic men, none of the regression models with interest in visual sexual stimuli, sociosexuality, and modern homonegativity predicting differences in responses to (1) women and natal males, (2) men and MtF transgender individuals, and (3) MtF transgender individuals with breasts and MtF transgender individuals without breasts obtained significance ( $p = .058 - .756$ ;  $R^2 = .03 - .16$ ).

### **Discussion**

The present study examined gynephilic and androphilic men's self-reported sexual attraction and visual fixations to images of men, women, MtF transgender individuals with and without breasts, and bonobos. In terms of self-reported sexual attraction, gynephilic men were most sexually attracted to women and least sexually attracted to men. They were slightly more sexually attracted to MtF transgender individuals than to men. They were also more sexually attracted to MtF transgender individuals with breasts than to those without breasts. As such, gynephilic men showed a subjective preference for



natal females (i.e., women), but gender presentation (e.g., posture, adornment) also appeared relevant to their subjective sexual attraction. In contrast, androphilic men reported being most sexually attracted to men and less sexually attracted to all categories of feminine individuals.

Models' sex and gender both appeared relevant to men's subjective sexual attraction and visual attention allocation. Namely, gynephilic men's initial attention was captured by feminine individuals quicker than by men and bonobos. Additionally, gynephilic men allocated greater controlled visual attention to all feminine stimuli than to cisgender men and bonobos. However, they subsequently focused their attention on individuals who had the most female-typical sex qualities (i.e., cisgender women). This pattern was unique to heterosexual men.

It is worth noting that, although an effect of sex and gender presentation were found, the effect of sex was more substantial than the effect of gender. Gynephilic men were more sexually attracted to cisgender females (i.e., women) and fixated longer on these women than on natal male individuals. Additionally, gynephilic men allocated greater controlled attention to MtF transgender individuals with breasts—indicating greater sexual interest in them—than to MtF transgender individuals without breasts. Although MtF transgender individuals with breast are born male, they have female-typical secondary sex characteristic. As such, the present findings indicate that MtF transgender individuals with female-typical secondary sex characteristics (i.e., breasts) draw men's controlled attention to a greater extent than those without such characteristics. To further parse the effect of sex and gender on gynephilic men's sexual responses, future studies would benefit from including stimuli of FtM transgender individuals (e.g., trans men).

Interest in visual sexual stimuli, sociosexuality, and modern homonegativity were not related to gynephilic men's visual attention patterns. Additional factors that were not assessed in the present study—such as familiarity with transgender individuals over one's psychosexual-developmental life-course or societal attitudes toward transgender individuals—may have influenced men's response patterns. Subsequent research may benefit from considering whether these, or other, factors are associated with men's visual attention patterns.

Men employ dual processes when evaluating sexual imagery (e.g., Janssen, Everaerd, Spiering, & Janssen, 2000; Spiering, Everaerd, & Janssen, 2003). Physiological arousal may be elicited during the initial processing of sexual stimuli whereas subjective arousal requires focused attention and cognitive appraisal (Spiering & Everaerd, 2007). Cognitive appraisal incorporates explicit memory of past experience (Spiering & Everaerd, 2007). It is possible that initial processing of stimuli directs gynephilic men's attention to stimuli that are gendered in a feminine manner and facilitates further information capture. Following this, cognitive appraisal of feminine images may promote subjective sexual attraction to preferred feminine/female individuals and inhibits subjective attraction to lesser-preferred feminine/male individuals.

These results open the possibility that gynephilic men have the capacity to experience some sexual interest in MtF transgender individuals. This capacity may be enhanced or inhibited by socio-cultural factors and past experiences. In the absence of experiences that enhance subjective interest in MtF transgender individuals (e.g., exposure to MtF transgender individuals in sexual contexts, exposure to cultural messages that MtF transgender individuals are acceptable sexual partners), this sexual interest may be inhibited. If men can access memories associating MtF transgender individuals with

positive sexual experiences or beliefs, subjective sexual attraction may be elicited and fostered.

Hsu et al. (2016) argued that attraction to MtF transgender individuals with breasts is not analogous to attraction to MtF transgender individuals without breasts. MtF transgender individuals with breasts are a historically recent derivative of MtF transgender individuals without breasts (e.g., Meyerowitz, 2002). The former tends to be more common in industrialized (often Western) contexts, whereas the latter tends to be more common in non-industrialized (often non-Western) contexts. The results suggest that men perceive the two types of MtF transgender individuals as distinct, but more comparable to each other, than either is to men or women.

### **Limitations**

There may have been a self-selection bias in participant recruitment. It was noted in the study advertisement that participants would be required to view nude images of women, men, and transgender individuals. Men who were willing to participate may differ from those who elected not to participate. In addition, participants were told to be mindful that they would be asked to identify and assess the sexual attractiveness of each image. They were also informed that I was interested in examining visual attention while evaluating individuals whose gender presentation varied. These instructions may have influenced participants' attention patterns but were necessary in order to (1) collect participants' subjective sexual attraction to the images and (2) account for the use of an eye-tracker to the participants. Future studies may benefit from employing a free-viewing task (in which they view images without being provided with instructions or a task to complete) to mitigate this limitation.

Additionally, this study relied on a convenience sample of Canadian undergraduate men, the majority of whom were enrolled in psychology courses. Psychology and behavior vary across human populations, and Western undergraduate students are often outliers (Henrich et al., 2010). As such, these findings are limited in their generalizability; it cannot be assumed that men in other cultures or even other Canadian men would respond in the same manner. A Western sample was selected because they are less likely to show appreciable sexual interest in MtF transgender individuals than men in cultures in which sexual interactions between cisgender men and MtF transgender individuals commonly occur (e.g., Samoa). Although the present study indicated that gynephilic men have the capacity to experience sexual interest in individuals who exhibit a gender role presentation they prefer, but whose sex they do not, acceptance of this finding should be tempered until it is replicated by future studies using community and non-Western samples.

## **Ethics Statement**

### ***Ethics Approval***

This research was approved by the University of Lethbridge Human Subjects Research Ethics Committee. Participants were required to provide informed written consent prior to taking part in the study.

### ***Competing Interests***

The authors declare no competing interests.

### ***Funding***

This work was supported by a SSHRC CGS Doctoral Scholarship to LJP and a Natural Science and Engineering Research Council of Canada Discovery Grant to PLV.

**Appendix A. Modified version of the Attraction to Feminine Males Scale (Veale et al., 2008)**

Please circle the term that most accurately describes your feelings.

1. I find it sexually attractive when biological males appear feminine and/or have feminine mannerism.

0	1	2	3	4
Not at all	Slightly	Moderately	Quite	Extremely

2. I find women's hairstyles (or feminine hairstyles) on biological males to be sexually attractive.

0	1	2	3	4
Not at all	Slightly	Moderately	Quite	Extremely

3. I find shaved legs to be sexually attractive on biological males.

0	1	2	3	4
Not at all	Slightly	Moderately	Quite	Extremely

4. I find it sexually attractive when a biological male wears articles of women's clothing (e.g., a women's shirt, a dress, a skirt).

0	1	2	3	4
Not at all	Slightly	Moderately	Quite	Extremely

5. I find males who have a feminine (or hourglass) figure to be sexually attractive.

0	1	2	3	4
Not at all	Slightly	Moderately	Quite	Extremely

6. I find males who have feminine mannerisms to be sexually attractive

0	1	2	3	4
Not at all	Slightly	Moderately	Quite	Extremely

7. I find people who were born as males but have female breasts to be sexually attractive.

0	1	2	3	4
Not at all	Slightly	Moderately	Quite	Extremely

8. I find males who identify as (transgender) women to be sexually attractive.

0	1	2	3	4
Not at all	Slightly	Moderately	Quite	Extremely

## References

- Bailey, J. M. (2003). *The man who would be queen: The science of gender-bending and transsexualism*. Washington, D.C.: Joseph Henry Press.
- Bailey, J. M., Gaulin, S., Agyei, Y., & Gladue, B. A. (1994). Effects of gender and sexual orientation on evolutionarily relevant aspects of human mating psychology. *Journal of Personality and Social Psychology*, *66*(6), 1081–1093.
- Benjamin, D. J., Berger, J. O., Johannesson, M., Nosek, B. A., Wagenmakers, E.-J., Berk, R., . . . Camerer, C. (2018). Redefine statistical significance. *Nature Human Behaviour*, *2*(1), 6–10. doi:10.1038/s41562-017-0189
- Buodo, G., Sarlo, M., & Palomba, D. (2002). Attentional resources measured by reaction times highlight differences within pleasant and unpleasant, high arousing stimuli. *Motivation and Emotion*, *26*(2), 123–138. doi:10.1023/A:1019886501965
- Dawson, S. J., & Chivers, M. L. (2016). Gender-specificity of initial and controlled visual attention to sexual stimuli in androphilic women and gynephilic men. *PloS one*, *11*(4), e0152785. doi:10.1371/journal.pone.0152785
- Dawson, S. J., Fretz, K. M., & Chivers, M. L. (2017). Visual attention patterns of women with androphilic and gynephilic sexual attractions. *Archives of Sexual Behavior*, *46*(1), 141–153. doi:10.1007/s10508-016-0825-0
- Forsythe, A., Mulhern, G., & Sawey, M. (2008). Confounds in pictorial sets: The role of complexity and familiarity in basic-level picture processing. *Behavior Research Methods*, *40*(1), 116–129. doi:10.3758/BRAI.40.1.116
- Fromberger, P., Jordan, K., von Herder, J., Steinkrauss, H., Nemetschek, R., Stolpmann, G., & Müller, J. L. (2012). Initial orienting towards sexually relevant stimuli: Preliminary evidence from eye movement measures. *Archives of Sexual Behavior*, *41*(4), 919–928. doi:10.1007/s10508-011-9816-3
- Henderson, J. M., & Hollingworth, A. (1998). Eye movements during scene viewing: An overview. In *Eye guidance in reading and scene perception* (pp. 269–293). Oxford, England: Elsevier.
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, *33*(2-3), 61–83. doi:10.1017/S0140525X0999152X
- Hsu, K. J., Rosenthal, A. M., Miller, D. I., & Bailey, J. M. (2016). Who are gynandromorphophilic men? Characterizing men with sexual interest in transgender women. *Psychological Medicine*, *46*(4), 819–827. doi:10.1017/S0033291715002317

- Janssen, E., Everaerd, W., Spiering, M., & Janssen, J. (2000). Automatic processes and the appraisal of sexual stimuli: Toward an information processing model of sexual arousal. *Journal of Sex Research, 37*(1), 8–23. doi:10.1080/00224490009552016
- Loftus, G. R. (1985). Picture perception: Effects of luminance on available information and information-extraction rate. *Journal of Experimental Psychology: General, 114*(3), 342–356. doi:10.1037/0096-3445.114.3.342
- Meyerowitz, J. (2002). *How sex changed: A history of transsexuality in the United States*. Cambridge, MA: Harvard University Press.
- Morrison, M. A., & Morrison, T. G. (2002). Development and validation of a scale measuring modern prejudice toward gay men and lesbian women. *Journal of Homosexuality, 43*(2), 15–37. doi:10.1300/j082v43n02\_02
- Murray, S. O. (2000). *Homosexualities*. Chicago, IL: The University of Chicago Press.
- Nanda, S. (2014). *Gender diversity: Cross-cultural variations*. Long Grove, IL: Waveland Press.
- Nummenmaa, L., Hyönä, J., & Calvo, M. G. (2006). Eye movement assessment of selective attentional capture by emotional pictures. *Emotion, 6*(2), 257–268. doi:10.1037/1528-3542.6.2.257
- Ochsner, K. N. (2000). Are affective events richly recollected or simply familiar? The experience and process of recognizing feelings past. *Journal of Experimental Psychology: General, 129*(2), 242–261. doi:10.1037//0096-3445.129.2.242
- Petterson, L. J., Dixson, B. J., Little, A. C., & Vasey, P. L. (2020). Heterogeneity in the sexual orientations of men who have sex with fa'afafine in Samoa. *Archives of Sexual Behavior, 49*(2), 517–529. doi:10.1007/s10508-020-01646-6
- R Development Core Team. (2015). *RStudio: Integrated development for R*. Boston, MA: RStudio, Inc.
- Simpson, J. A., & Gangestad, S. W. (1991). Individual differences in sociosexuality: Evidence for convergent and discriminant validity. *Journal of Personality and Social Psychology, 60*(6), 870–883. doi:10.1037//0022-3514.60.6.870
- Spiering, M., & Everaerd, W. (2007). The sexual unconscious. In E. Janssen (Ed.), *The Psychophysiology of Sex*. Bloomington, IN: Indiana University Press.
- Spiering, M., Everaerd, W., & Janssen, E. (2003). Priming the sexual system: Implicit versus explicit activation. *Journal of Sex Research, 40*(2), 134–145. doi:10.1080/00224490309552175

Veale, J. F., Clarke, D. E., & Lomax, T. C. (2008). Sexuality of male-to-female transsexuals. *Archives of Sexual Behavior*, 37(4), 586–597. doi:10.1007/s10508-007-9306-9

Whitam, F. L. (1992). Bayot and callboy in the Philippines. In S. O. Murray (Ed.), *Oceanic homosexualities*. New York, NY: Garland.



**Table 4.1***Self-reported sexual orientation and response to the Modified Attraction to Feminine Male Scale.*

	Women	Men	Women and men	Women and transgender women	Men and transgender women	Women, men, and transgender women	No one
<i>Past year sexual behavior: % (n)</i>							
Gynephilic men: <i>N</i> = 50	86 (43)	0	0	0	0	0	14 (7)
Androphilic men: <i>N</i> = 20	0	90 (18)	5 (1)	0	0	0	5 (1)
<i>Lifetime sexual behavior: % (n)</i>							
Gynephilic men: <i>N</i> = 50	92 (46)	0	2 (1)	0	0	0	6 (3)
Androphilic men: <i>N</i> = 20	0	60 (12)	35 (7)	0	0	5 (1)	0
<i>Past year sexual feelings: % (n)</i>							
Gynephilic men <i>N</i> = 50	78 (39)	0	6 (3)	12 (6)	0	4 (2)	0
Androphilic men: <i>N</i> = 20	0	50 (10)	25 (5)	0	20 (4)	5 (1)	0
<i>Lifetime sexual feelings: % (n)</i>							
Gynephilic men <i>N</i> = 50	70 (35)	0	6 (3)	18 (9)	0	6 (3)	0
Androphilic men: <i>N</i> = 20	0	40 (8)	35 (7)	0	10 (2)	15 (3)	0
<i>Modified Attraction to Feminine Male</i> <sup>a</sup>							
Gynephilic men	<i>M</i> = 1.26, <i>Mdn</i> = 1, <i>SD</i> = 1.9						
Androphilic men	<i>M</i> = 5.3, <i>Mdn</i> = 3.5, <i>SD</i> = 4.68						

<sup>a</sup> Response range from 0 – 10. Maximum possible score is 32.

**Table 4.2**

*Descriptive statistics for the standardized and raw self-reported sexual attraction, time to first fixation, total fixation duration, and total fixation count.*

	Cisgender Women	MtF transgender individuals with breasts	MtF transgender individuals without breasts	Cisgender Men	Bonobos
<b>Standardized values <sup>a</sup></b>					
<i>Sexual attraction ratings: Mdn (SD)</i>					
Gynephilic men N = 51	1.8 (.19)	-.31 (.29)	-.46 (.1)	-.5 (.18)	-.57 (.15)
Androphilic men N = 19	-.45 (.15)	-.43 (.12)	-.42 (.3)	1.86 (.14)	-.59 (.18)
<i>Time to first fixation: M (SD)</i>					
Gynephilic men N = 47	-.21 (.15)	-.18 (.16)	-.11 (.2)	.12 (.21)	.38 (.29)
Androphilic men N = 18	.01 (.22)	-.16 (.16)	-.08 (.24)	-.25 (.17)	.48 (.29)
<i>Total fixation duration: M (SD)</i>					
Gynephilic men N = 47	.92 (.41)	.1 (.34)	-.13 (.34)	-.45 (.41)	-.45 (.49)
Androphilic men N = 18	-.28 (.31)	-.11 (.36)	.08 (.4)	1.08 (.34)	-.77 (.43)
<i>Total fixation count: M (SD)</i>					
Gynephilic men N = 47	.8 (.41)	.12 (.32)	-.14 (.32)	-.34 (.39)	-.44 (.45)
Androphilic men N = 18	-.21 (.3)	-.02 (.37)	.07 (.34)	.86 (.36)	-.7 (.4)
<b>Raw values <sup>a</sup></b>					
<i>Sexual attraction ratings: Mdn (SD)</i>					
Gynephilic men					

<i>N</i> = 51	5.13 (1.02)	1.38 (.8)	1.13 (.41)	1 (.37)	1 (.04)
Androphilic men					
<i>N</i> = 19	1.25 (.44)	1.25 (.53)	1.31 (.76)	6 (.88)	1 (.07)
<i>Time to first fixation: M (SD)</i>					
Gynephilic men					
<i>N</i> = 47	1.04 (.49)	1.05 (.43)	1.14 (.57)	1.34 (.59)	1.62 (.66)
Androphilic men					
<i>N</i> = 18	1.09 (.39)	.9 (.24)	.97 (.35)	.8 (.21)	1.51 (.42)
<i>Total fixation duration: M (SD)</i>					
Gynephilic men					
<i>N</i> = 47	5.94 (1.45)	4.15 (1.22)	3.63 (1.18)	2.98 (1.14)	3.07 (1.07)
Androphilic men					
<i>N</i> = 18	3.46 (1.04)	3.82 (1.14)	4.32 (1.01)	6.66 (1.1)	2.44 (.95)
<i>Total fixation count: M (SD)</i>					
Gynephilic men					
<i>N</i> = 47	18.01 (6.22)	13.37 (4.97)	11.72 (4.98)	10.08 (3.87)	9.88 (3.77)
Androphilic men					
<i>N</i> = 18	11.59 (4.25)	12.56 (4.31)	13.77 (6.21)	19.08 (7.45)	9.01 (5.05)

<sup>a</sup> Outlying time to first fixation, total fixation duration, and total fixation count values have been winsorized.

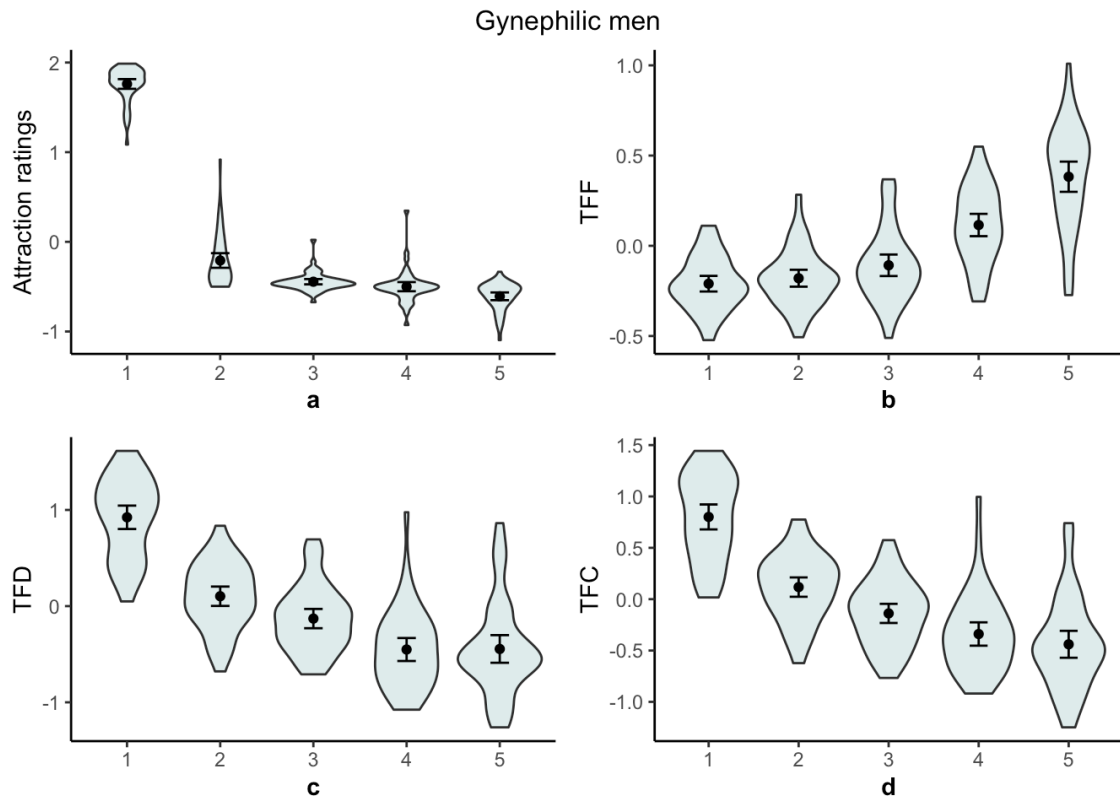


Figure 4.1: Gynephilic men's (A) standardized attraction ratings, (B) standardized time to first fixation (TFF), (C) standardized total fixation duration (TFD), and (D) standardized total fixation count (TFC) by stimuli category. 1 = Cisgender women, 2 = MtF transgender individuals with breasts, 3 = MtF transgender individuals without breasts, 4 = Cisgender men, 5 = Bonobos. Points indicate mean values. Capped lines show 95% confidence intervals. Grey shapes show the density of data points.

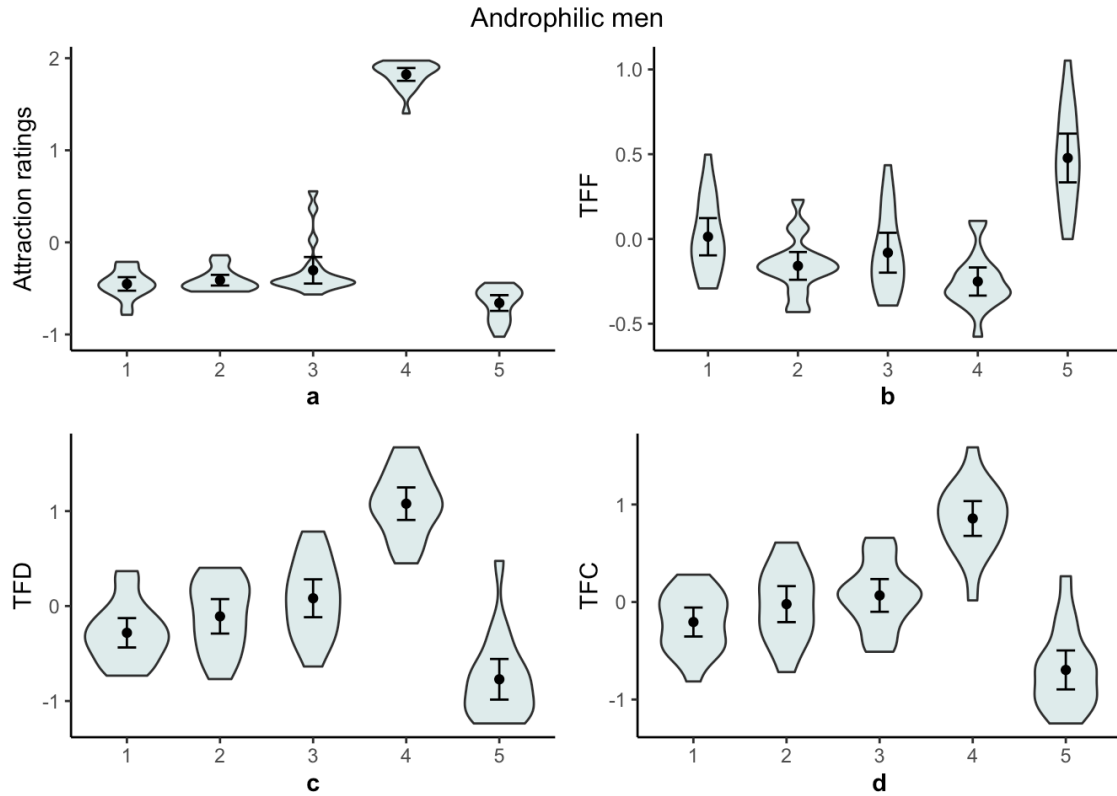


Figure 4.2: Androphilic men's (A) standardized attraction ratings, (B) standardized time to first fixation (TFF), (C) standardized total fixation duration (TFD), and (D) standardized total fixation count (TFC) by stimuli category. 1 = Cisgender women, 2 = MtF transgender individuals with breasts, 3 = MtF transgender individuals without breasts, 4 = Cisgender men, 5 = Bonobos. Points indicate group mean. Capped lines show 95% confidence intervals. Grey shapes show the density of data points.

## **Chapter 5: Men's Categorization of Men, Women and MtF Transgender Individuals in Three Cultures**

### **Abstract**

In Western cultures MtF (male-to-feminine) transgender individuals are relatively rare and are often identified as trans women or simply women. In many non-Western cultures, such as Samoa and the Istmo Zapotec (Oaxaca, Mexico), MtF transgender individuals are relatively common and are routinely identified as a non-binary gender (i.e., neither men, nor women). Sexual interactions between cisgender men and MtF androphilic individuals appear to be relatively common in these cultures compared to the West. In the present study, I investigated whether men's categorization of cisgender men, cisgender women, and MtF individuals differed based on cultural setting. Men in Canada ( $N = 79$ ), Samoa ( $N = 102$ ), and the Istmo Zapotec ( $N = 97$ ) were shown a series of images of minimally clad MtF individuals, cisgender women, and cisgender men and asked to identify the gender of each model. Istmo Zapotec and Samoan men distinguished between MtF individuals and cisgender women to a greater extent than Canadian men, who identified the majority of MtF individuals as women, not trans women. These results suggest that men are more likely to distinguish MtF individuals and women in cultures where the former are recognized as a distinct, non-binary gender.

*Keywords:* perception of sex and gender; cross-culture comparisons; transgender; Canada; Samoa; Istmo Zapotec

## Introduction

*Androphilia* refers to sexual attraction and arousal to adult males. *Gynephilia* refers to sexual attraction and arousal to adult females. The gender presentation of natal male androphiles exists on a spectrum that ranges from masculine to highly feminine (Whitam, 1987). For heuristic purposes, male androphiles tend to be divided into two groups—*transgender* and *cisgender*—although, as with any spectrum, demarcations between the two are not absolute (Murray, 2000).

Both forms of natal male androphilia can be present within the same culture, but typically one form predominates over the other (Hames, Garfield, & Garfield, 2017). In Western cultures, transgender natal male androphiles (hereafter, MtF [male-to-feminine] transgender androphiles) are not nearly as common as their cisgender counterparts. Outside the West, however, androphilia is most commonly expressed in the transgender form among natal males (Hames et al., 2017).

Cisgender male androphiles' gender presentation is largely consistent with the one that they were assigned at birth. They present in a relatively masculine manner when compared to androphilic women. In certain domains (e.g., childhood behavior, occupational preferences), however, cisgender male androphiles tend to be somewhat less gender conforming than gynephilic men (e.g., Bailey, 2003; Bailey & Zucker, 1995; Bartlett & Vasey, 2006; Cardoso, 2009; Lippa, 2008; Zheng, Lippa, & Zheng, 2011).

MtF transgender androphiles' gender presentation is largely inconsistent with the one that they were assigned at birth. They present in a much more feminine manner than cisgender male androphiles. In some domains (e.g., childhood behavior, occupational preferences), they report being as feminine, if not more so, than androphilic women (e.g., Bartlett & Vasey, 2006; Gómez et al., 2017; Gómez Jiménez & Vasey, 2020; Semenyna

& Vasey, 2016; Vasey et al., 2011). Many MtF transgender androphiles wear female-typical clothing, hairstyles, and make-up, they depilate their facial hair. Some also use exogenous hormones or inject silicone to feminize their bodies (Boellstorff, 2004; Howe et al., 2008; Kulick, 1997; Meyerowitz, 2002; Milan, 2017; Prieur, 1994; Stief, 2017).

In many non-Western cultures, relatively few MtF androphiles undergo surgical interventions aimed at feminize the body (e.g., breast augmentation) (e.g., Kulick, 1997; Nanda, 2014; Stief, 2017). In contrast, in Western cultures, an appreciable number of MtF transgender androphiles undergo these types of surgical procedures (James et al., 2016; Kailas et al., 2017; Meyerowitz, 2002). Surgical feminization can also involve genital reconstruction procedures, however, relatively few MtF transgender individuals modify their bodies in this way (Kailas et al., 2017; Puckett et al., 2018).<sup>26</sup> Thus, regardless of cultural context, a substantial number MtF transgender androphiles have penises.

The identities of MtF transgender androphiles vary between cultures.<sup>27</sup> In Western cultures, most cisgender androphilic males identify as *gay* men, although some might identify using other terms (e.g., *queer*). In non-Western cultures, some cisgender androphilic males also identify in this manner, especially those living in large urban centers such as Bangkok or Mumbai (e.g., McLelland, 2000; Shahani, 2008). Often, however, those living outside the West simply identify as men, without any additional qualifier (e.g., Petterson et al., 2018). In cultures that recognize more than two genders,

---

<sup>26</sup> Some individuals may desire genital reconstructive surgery, but the cost may be prohibitive (James et al., 2016). Others may feel that the surgery involves too many negative outcomes (e.g., loss of sexual function). Still other MtF androphiles may forego this procedure if retaining their penis does not infringe on their sense of self as feminine.

<sup>27</sup> I employ culturally specific terminology when discussing MtF androphiles from particular cultures. For more general discussions, I employ the term MtF transgender androphiles.



some cisgender androphilic males may identify, and be identified by others, as a non-binary gender (e.g., Gómez Jiménez & Vasey, 2020).

In Western cultures, MtF transgender androphiles routinely identify as trans women or as women without any additional qualifier. A smaller number of Western MtF transgender androphiles employ other gender identities or reject gender identities altogether (e.g., Richards et al., 2016). In many non-Western cultures, MtF transgender androphiles tend to identify, and are identified by others, as a non-binary gender (i.e., neither men, nor women). These gender categories tend to be culturally specific. Examples include the *bissu* of Sulawesi (Peletz, 2009), the *hijra* of India (Nanda, 1999), the *khanith* of Oman (Wikan, 1977), the *fa'afafine* of Samoa (Vasey & VanderLaan, 2014), and the *muxes* of Mexico (Mirandé, 2017), but many more exist.

Although androphiles are, by definition, sexually attracted to adult males, the structure of their relationships varies.<sup>28</sup> Cisgender androphilic males tend to seek out sexual interactions with other cisgender androphilic males. MtF transgender androphiles also seek out sexual relationships with cisgender men (e.g., Murray, 2000), but the majority of these men are gynephilic (e.g., Boellstorff, 2004; Coan et al., 2005; Devereux, 1937; Hall et al., 2017; Lim, 2015; Operario et al., 2008; Rosenthal et al., 2017; Stief, 2017; Whitam, 1995).

Whitam (1992) argued that, cross-culturally, the prevalence of homosexual orientation is relatively invariant,<sup>29</sup> but gynephilic men's willingness to engage in sexual

---

<sup>28</sup> Relationships can range from fleeting sexual encounters that last a few minutes to multi-year partnerships.

<sup>29</sup> This supposition is supported by a substantial body of research (e.g., Gates, 2011; Gómez, Semenyna, Court, & Vasey, 2018; Lesser, 1961; Rahman et al., 2019; Semenyna, Petterson, VanderLaan, & Vasey, 2017).

activity with MtF transgender androphiles is highly variable. In many non-Western cultures, sexual relationships involving cisgender men and MtF transgender androphiles are not uncommon (e.g., Murray, 2000; Nanda, 2014). In the West, however, these sexual relationships seem to be relatively rare (Bailey, 2003).

In the present study, I investigated whether men's categorization of cisgender men, cisgender women, and MtF transgender individuals differed based on cultural setting. Specifically, I was interested in men's categorization of sexually attractive images of cisgender men, cisgender women, and MtF transgender individuals. It is possible that men categorize these individuals in a manner that is consistent with the way in which gendered categories of personhood are conceptualized in their cultures. If so, men should distinguish MtF transgender androphiles from cisgender women to a greater degree in cultures where the former are recognized as a non-binary gender. In contrast, in cultures where MtF transgender androphiles are identified as (trans) women, men may not distinguish them from cisgender women, or may do so in a more inconsistent manner.

In contrast, men who are exclusively sexually interested in cisgender women may be more motivated to distinguish between cisgender women and MtF transgender androphiles because doing so would allow them to pursue sexual relationships with the former and not the latter. Conversely, men who are sexually interested in both cisgender women and MtF transgender androphiles would not be similarly motivated to make such a distinction. If so, then regardless of cultural context, men who are exclusively attracted to cisgender women should make the relevant distinctions more often, whereas men that are attracted to cisgender women and MtF transgender individuals should do so relatively less often.

I sought to test these possibilities using data collected in Samoa, in the Istmo Zapotec region of Oaxaca, Mexico, and in Canada. In Samoa, MtF transgender androphiles greatly outnumber cisgender male androphiles (Pettersen et al., 2018). They are identified by themselves, and others, as *fa'afafine*. The majority of *fa'afafine* are considerably feminine (e.g., VanderLaan, Pettersen, & Vasey, 2016). *Fa'afafine* engage in sexual activity almost exclusively with cisgender men (Pettersen et al., 2018). Samoans recognize that sexual interactions between men and *fa'afafine* are commonplace and, while not celebrated, they are not regarded with marked disapprobation.

In the Istmo region of Oaxaca, Mexico, the indigenous Zapotec people predominate. Cisgender androphilic males and MtF transgender androphiles both exist at appreciable rates within the Istmo Zapotec culture (Gómez Jiménez, Semenyna, & Vasey, 2020; Mirandé, 2016). They are both identified, by themselves and others, as *muxes*. Cisgender *muxes* engage in sexual activity with other cisgender *muxes* or with cisgender men who are mostly gynephilic or ambiphilic. However, feminine *muxes* generally engage in sexual activity only with cisgender men who are mostly gynephilic or ambiphilic (Mirandé, 2016). Istmo Zapotec attitudes are ambivalent toward sexual interactions involving *muxes* and cisgender men. On the one hand, many do not consider these interactions to be highly unusual or problematic, provided that the men are the insertive partner during anal intercourse (Mirandé, 2016). Additionally, because female virginity is highly valued, it is considered preferable for young men to have sex with *muxes* (Mirandé, 2011). On the other hand, men who have sex with *muxes* on a regular basis are looked upon with some degree of animosity (Mirandé, 2016).

In Canada, cisgender androphilic males are relatively common, whereas MtF transgender androphiles are relatively rare. Canadian MtF transgender androphiles are

generally identified, by themselves and others, as trans women or, simply, women. Although data are lacking, sexual interactions between cisgender men and MtF transgender androphiles appear to be far less common in Canada, when compared to Samoa or the Istmo Zapotec. For example, it is not uncommon for Canadian MtF transgender individuals to report no recent partnered sexual activity (Scheidt & Bauer, 2019). It is likely that many Canadians would be tolerant of such relationships given that the majority of Canadians are supportive of transgender rights (Angus Reid Institute Public Interest Research, 2016). It is probable that many Canadians would be critical of such relationships or view them as unusual and noteworthy (Bauer & Hammond, 2015).

Men in these three cultures were shown a series of images which included minimally clad (1) MtF transgender individuals who had undergone surgical augmentation to enhance their femininity (e.g., breast augmentation), (2) MtF transgender individuals who were feminine but did not show obvious markers of surgical or hormonal augmentation to enhance their femininity, (3) cisgender women, and (4) cisgender men. The participants were asked to identify whether each person was a woman, man, or MtF transgender individual (e.g., transgender woman, *fa'afafine*, *muxes*). The proportion of individuals identified as each sex/gender category were then compared between the three different cultures. Furthermore, a within culture comparison was conducted in Samoa between men who were only attracted to cisgender women versus men who were attracted to both cisgender women and *fa'afafine*.

## **Methods**

### **Participants**

Men were recruited from (1) Samoa, (2) Juchitán, a city in the Istmo Zapotec region of Oaxaca, Mexico, and (3) a small Canadian university. In Samoa and Juchitán,

participants were recruited using network sampling. In Canada, students enrolled in a psychology course were recruited through an online system (Sona). Participants in Juchitán and Samoa were given approximately CAD \$10 in their respective currency. Participants in Canada were given 1% course credit. Data from 3 Canadian men were excluded: 1 man started but did not want to finish, 1 man did not identify several images, and 1 man was unique in that he labelled several people as asexual.

Participants were included in if they identified as men and were sexually attracted to (1) cisgender women, (2) cisgender women and MtF transgender individuals (i.e., trans women, *fa'afafine*, and *muxes*), or (3) cisgender women, MtF transgender individuals, and cisgender men. In total, data from 79 men from Canada, 97 men from Juchitán, and 102 men from Samoa were included in the analysis.

Of the men recruited from Canada, 75 were exclusively sexually attracted to cisgender women, 2 were sexually attracted to cisgender women and cisgender men, 1 was sexually attracted to cisgender women and transgender women, and 1 was sexually attracted to cisgender women, cisgender men and transgender women. Of the men recruited from Juchitán, 96 were exclusively sexually attracted to cisgender women, and 1 was sexually attracted to cisgender women and cisgender men.<sup>30</sup> Of the men recruited from Samoa, 27 were exclusively sexually attracted to cisgender women, 50 were sexually attracted to cisgender women and *fa'afafine*, and 25 were sexually attracted to cisgender women, cisgender men, and *fa'afafine*.

## Measures

---

<sup>30</sup> Mirandé (2017) has noted that it is not uncommon for Istmo Zapotec men to falsely report that they have not had sex, or experienced sexual feelings, for *muxes*.

Participants were provided with a binder that contained 126 images of minimally clad models, including (1) MtF transgender individuals who had undergone surgical augmentation to feminize their bodies (e.g., breast augmentation) but who had penises (36 images), (2) MtF transgender individuals who were feminine (e.g., had feminine hairstyles, makeup), who did not show obvious markers of surgical or hormonal augmentation of their bodies, and who had penises (32 images), (3) cisgender women (36 images), and (4) cisgender men (22 images). Cisgender women and MtF transgender individuals with breasts were dressed in underwear which covered their chest and groin areas. Cisgender men and MtF transgender individuals without breasts were dressed in underwear which covered their groins but exposed their chest. Although all MtF transgender models were wearing underwear bottoms, the bulges of their penises were visible. Ordering of the images was randomized for placement into the flipbook, but participants were shown the same series of images.

Images were taken from freely accessible websites and are available from the corresponding author (LJP) upon request. Images were searched for using similar terms for each category type (e.g., using words such as “hot” and “sexy”). Effort was made to match the groups based on physical characteristics (e.g., ethnicity, hair color, posture), however, it was not always possible to match such characteristics. Models appeared to be of European, Asian, and Latin decent, although the majority appeared to be of European decent. Backgrounds were removed from images, leaving only the model. Additionally, necklaces with crosses, wedding/engagement rings, and brand labels were removed. Images were shown in grey scale.

Participants viewed each image in the flipbook and, as they did so, stated aloud what they believed the model’s gender to be (e.g., man, woman, or MtF transgender

individual [e.g., trans woman, *fa'afafine*, *muxe*]). Their responses were recorded by a member of the research group, who did not respond or comment. Missing values were not replaced but were, instead, treated as images that were not identified as any gender category. Once complete, participants reported their age and their gender. Additionally, participants were asked to indicate if they had been attracted to men, women, or MtF transgender individuals during their lifetimes.

### **Statistical Analysis**

We calculated the proportion of images that were labelled as women, men, and MtF transgender individuals (i.e., trans woman, *fa'afafine*, *muxes*) for each image category (i.e., cisgender men, cisgender women, MtF transgender individuals with and without breasts [combined], MtF transgender individuals with breasts, MtF transgender individuals without breasts). To do so, the number of images that a participant labelled as belonging to each gender category was divided by the total number of images from each category. For example, there were 68 images of MtF transgender individuals; if a participant said 60 were MtF transgender individuals and 8 were women, the proportion of MtF transgender individuals identified as such would be .88 (i.e., 60/68) and the proportion of MtF transgender individuals identified as woman would be .12 (i.e., 8/60).

To examine the extent to which participants distinguished between MtF transgender individuals and cisgender women, accuracy scores were calculated.<sup>31</sup> To do so, the number of MtF transgender individuals that participants identified as transgender (e.g., trans women, *fa'afafine*, *muxes*), and the number of cisgender women participants

---

<sup>31</sup> The term accuracy here refers to the calculation, not identity. An accuracy calculation was used to determine to what extent participants distinguish between MtF transgender individuals and cisgender women in each culture.

identified as women, were added together; this value was then divided by the sum of the number of (1) MtF transgender individuals identified as transgender, (2) cisgender women identified as women, (3) cisgender women identified as transgender, and (4) MtF transgender individuals identified as women. High scores indicate that participants distinguished between MtF transgender individuals and cisgender women, whereas low scores indicated that participants labelled many MtF transgender individuals as women or many cisgender women as transgender. For this comparison, images of MtF transgender individuals were weighted more than images of cisgender women because the former were more numerous than the latter. As such, follow up comparisons were used to assess whether cultural variation in overall accuracy scores were driven by differences in the proportion of (1) images of MtF transgender individuals with breasts labelled as transgender, (2) MtF transgender individuals without breasts labelled as transgender, (3) cisgender women labelled as women, or a combination thereof. These scores were compared between cultures.

Subsequently, I examined whether, in Samoa, men who were sexually attracted to only women and those who were sexually attracted to both *fa'afafine* and cisgender women differed in the extent to which they identified images of MtF transgender individuals as *fa'afafine*. Men who were sexually attracted to *fa'afafine* and cisgender women included those who were sexually attracted to *fa'afafine*, cisgender women, and cisgender men. Because few men in Canada and Juchitán reported having sexual feelings for MtF transgender individuals, this comparison was not conducted in those cultures.

Omnibus between culture comparisons were conducted using Kruskal-Wallis tests. Post hoc independent Wilcoxon-Mann Whitney tests with continuity corrections were used to compare the responses of (1) Canadian and Samoan men, (2) Canadian and



Istmo Zapotec men, and (3) Samoan and Istmo Zapotec men. Within-culture comparisons of men in Samoa were conducted using Wilcoxon-Mann Whitney tests with continuity corrections. In the present study, the threshold for statistical significance was set at  $p < .005$  whereas  $p$ -values below  $p < .05$  were taken as suggestive evidence (Benjamin et al., 2018).

## Results

The proportion of images that participants in Canada, Juchitán, and Samoa categorized as each gender category are shown in Table 5.1. Cultural differences were found in the degree to which men distinguished between MtF transgender individuals and cisgender women,  $H(2) = 100.41, p < .001$  (Canada: accuracy score range = .35–.99,  $Mdn = .63, SD = .16$ ; Istmo Zapotec: accuracy score range = .73–.98,  $Mdn = .88, SD = .06$ ; Samoa: accuracy score range = .65–.97,  $Mdn = .84, SD = .08$ ). Canadian men distinguished between MtF transgender individuals and cisgender women less than Istmo Zapotec men ( $Z = 9.19, p < .001, r = .69$ ) and Samoan men ( $Z = 7.62, p < .001, r = .57$ ). Samoan men distinguished between MtF transgender individuals and cisgender women less than Istmo Zapotec men, but the effect size was relatively small ( $Z = 3.68, p < .001, r = .26$ ), indicating this difference was marginal.

The proportion of MtF transgender individuals with breasts labelled as transgender (e.g., trans women, *fa'afafine*, *muxes*) differed among cultures,  $H(2) = 105.65, p < .001$ . Fewer MtF transgender individuals with breasts were labelled as transgender by Canadian men than Istmo Zapotec men ( $Z = 9.55, p < .001, r = .72$ ) and Samoan men ( $Z = 6.63, p < .001, r = .49$ ). Fewer MtF transgender individuals with breasts were labelled as transgender by Samoa men than Istmo Zapotec men, and the effect was moderate ( $Z = 5.30, p < .001, r = .38$ ).

The proportion of MtF transgender individuals without breasts labelled as transgender (e.g., trans women, *fa'afafine*, *muxes*) also differed among cultures,  $H(2) = 115.10, p < .001$ . Fewer MtF transgender individuals without breasts were labelled as transgender by Canadian men than Istmo Zapotec men ( $Z = 9.55, p < .001, r = .72$ ) and Samoan men ( $Z = 8.99, p < .001, r = .67$ ). There was suggestive evidence that fewer MtF transgender individuals without breasts were labelled as transgender by Samoan men than Istmo Zapotec men ( $Z = 2.49, p = .013, r = .18$ ), but, because the effect size was small, if a difference did exist, it was minor.

The proportion of cisgender women labelled as women differed among cultures as well,  $H(2) = 87.25, p < .001$ . More cisgender women were labelled as women by Canadian men than Istmo Zapotec men ( $Z = 8.78, p < .001, r = .66$ ) and Samoan men ( $Z = 7.11, p < .001, r = .53$ ). More cisgender women were labelled as women by Samoan men than Istmo Zapotec men, but the effect size was small ( $Z = 3.54, p < .001, r = .25$ ), indicating that this difference was marginal.

In Samoa, men who were sexually attracted to both *fa'afafine* and cisgender women ( $Mdn = .69, SD = .24$ ) and men who were sexually attracted only to cisgender women ( $Mdn = .64, SD = .24$ ) labelled a similar number of MtF transgender individuals with breasts as *fa'afafine*. Men who were sexually attracted to both *fa'afafine* and cisgender women ( $Mdn = .94, SD = .10$ ) and men who were sexually attracted only to cisgender women ( $Mdn = .94, SD = .11$ ) also labelled a similar number of MtF transgender individuals without breasts as *fa'afafine*,  $Z = .13, p = .892, r = .01$ .

## Discussion

Canadian men distinguished between MtF transgender individuals and cisgender women to a lesser extent than Istmo Zapotec and Samoan men. This difference was

driven by a greater tendency for Canadian men to identify MtF transgender individuals as women relative to Istmo Zapotec and Samoan men. Canadian men identified the majority of MtF transgender individuals with breasts and approximately half of the MtF transgender individuals without breasts as women. In contrast, Istmo Zapotec and Samoan men identified the majority of MtF transgender individuals as transgender (i.e., *muxes* or *fa'afafine*, respectively). Istmo Zapotec and Samoan men were also more likely to label cisgender women as transgender than Canadian men, although men in all cultures identified the majority of cisgender women as women. Regardless of culture, instances of MtF transgender individuals being identified as men were exceptionally rare. Among the Istmo Zapotec, however, a few cisgender men were labelled as *muxes*. This is likely because, among the Istmo Zapotec, *muxes* can present in a feminine or in a relatively masculine manner.

These patterns are consistent with the prediction that, in cultures where MtF transgender androphiles are formally recognized as a non-binary gender (e.g., Samoa, Istmo Zapotec), cisgender men will distinguish between MtF transgender individuals and cisgender women to a greater degree than men living in cultures where a binary gender system predominates (e.g., Canada). This holds true despite the presence of subtle cues of MtF transgender status (i.e., the bulge of the MtF transgender models' penises through their underwear bottoms) or even more obvious cues (i.e., lack of female-typical breast development).

One implication of these findings is that, in cultures such as the Istmo Zapotec and Samoa, men who seek out sexual interactions with MtF transgender androphiles are generally aware of their birth sex, but this awareness does not inhibit their sexual interest in such individuals. It remains unclear why some men are sexually interested in feminine

individuals of both sexes, whereas others are sexually interested in cisgender women but not MtF transgender individuals. Widespread recognition of MtF transgender androphiles as a non-binary gender, relative frequency and visibility of MtF transgender androphiles in the population, and social tolerance of heterogendered sexual interactions between cisgender men and MtF transgender androphiles may all be contributing factors. More research is necessary to verify these possibilities.

Fewer MtF transgender individuals with breasts were identified as *fa'afafine* by participants from Samoa than as *muxes* by Istmo Zapotec participants. I had not predicted that Samoan and Istmo Zapotec men would differ in their identification of these individuals. This difference might be traced to variation in the prevalence of MtF transgender androphiles who have augmented their breasts in each of these cultures. In Samoa, a small number of *fa'afafine* take exogenous hormones to promote breast growth, but the development of breast tissue is relatively limited, probably because these hormonal supplements are difficult to access, and dosage tends to be inconsistent. Additionally, it is rare for *fa'afafine* to surgically augment their breasts. In contrast, in the Istmo Zapotec, a small subset of *muxes* do augment their breasts—although the use of surgical augmentation is socially stigmatized (Milan, 2017; Mirandé, 2017). Thus, in Samoa, feminine individuals with breasts are, almost without exception, cisgender women, but, in the Istmo Zapotec, some feminine individuals with breasts are *muxes*. This difference could explain why Samoan men identified more MtF transgender models with breasts as women than Istmo Zapotec men.

We predicted that men who were sexually attracted to cisgender women but not MtF transgender androphiles would distinguish between the two more than men who are sexually interested in feminine individuals regardless of sex at birth. Support for this idea

was not borne out in the Samoan data, however—the two groups of men identified a similar number of MtF transgender individuals as *fa'afafine*. Consequently, Samoan men's sexual interest in MtF transgender androphiles, or lack thereof, does not appear to influence their categorization of feminine individuals as women or *fa'afafine*.

### **Limitations**

A number of limitations characterized this study. First, participants were asked to assess the gender of minimally clad models, none of whom were Istmo Zapotec or Samoan. Consequently, the ecological validity of the stimuli was sub-optimal for the Istmo Zapotec and Samoan portions of this study. Ideally, culturally-specific stimuli would have been used, but it was not possible to obtain minimally clad images of feminine *muxes* or *fa'afafine*. In any case, it seems reasonable to suggest that Samoan and Istmo Zapotec men would be more likely to distinguish MtF transgender individuals and cisgender women if ecologically valid stimuli were used, and, because of this, the conclusions of this study would likely remain unaffected.

Second, some cues that may be used to assess an individual's sex/gender (e.g., movement, speech) are not available in images. Future studies with video and audio stimuli could furnish insight into the processes underlying men's categorization of cisgender men, cisgender women, and MtF transgender individuals.

Finally, because I was interested in assessing how participants categorize individuals to whom they might be sexually attraction, I included images of people who were found using search terms such as “hot” and “sexy”. The images acquired using this search method were relatively homogeneous in terms of their physical appearance (e.g., the men were muscular, all feminine individuals were svelte and, the feminine individuals

with breasts generally had large breasts). Future studies may benefit from using more heterogenous stimuli.

## **Ethics Statement**

### ***Ethics Approval***

This research was approved by the University of Lethbridge Human Subjects Research Ethics Committee. A Samoan Research Visa was obtained from Samoan Immigration with the support of the Samoan *Fa'afafine* Association. Research among the Istmo Zapotec was endorsed by the Office of the Municipal Principle in Juchitán, Mexico. Participants were required to provide informed written consent prior to taking part in the study. Participants were required to provide informed written consent prior to taking part in the study.

### ***Competing Interests***

The authors declare no competing interests.

### ***Funding***

This work was supported by a SSHRC CGS Doctoral Scholarship to LJP and a Natural Science and Engineering Research Council of Canada Discovery Grant to PLV.

## References

- Angus Reid Institute Public Interest Research. (2016). *Transgender in Canada: Canadians say accept, accomodate, and move on*. Retrieved from <http://angusreid.org/wp-content/uploads/2016/09/2016.09.06-transgender-issues.pdf>
- Bailey, J. M. (2003). *The man who would be queen: The science of gender-bending and transsexualism*. Washington, D.C.: Joseph Henry Press.
- Bailey, J. M., & Zucker, K. J. (1995). Childhood sex-typed behavior and sexual orientation: A conceptual analysis and quantitative review. *Developmental psychology, 31*(1), 43–55. doi:10.1037/0012-1649.31.1.43
- Bartlett, N. H., & Vasey, P. L. (2006). A retrospective study of childhood gender-atypical behavior in Samoan fa'afafine. *Archives of Sexual Behavior, 35*(6), 659–666. doi:10.1007/s10508-006-9055-1
- Bauer, G. R., & Hammond, R. (2015). *Toward a broader conceptualization of trans women's sexual health*. In: University of Toronto Press Incorporated.
- Boellstorff, T. (2004). Playing back the nation: Waria, Indonesian transvestites. *Cultural Anthropology, 19*(2), 159–195. doi:10.1525/can.2004.19.2.159
- Cardoso, F. L. (2009). Recalled sex-typed behavior in childhood and sports' preferences in adulthood of heterosexual, bisexual, and homosexual men from Brazil, Turkey, and Thailand. *Archives of Sexual Behavior, 38*(5), 726–736. doi:10.1007/s10508-008-9312-6
- Coan, D. L., Schrage, W., & Packer, T. (2005). The role of male sexual partners in HIV infection among male-to-female transgendered individuals. *International Journal of Transgenderism, 8*(2-3), 21–30. doi:10.1300/J485v08n02\_03
- Devereux, G. (1937). Institutionalized homosexuality of the Mohave Indians. *Human Biology, 9*, 498–527.
- Gates, G. J. (2011). How many people are lesbian, gay, bisexual and transgender? *UCLA: The Williams Institute*. Retrieved from <https://escholarship.org/uc/item/09h684X2>
- Gómez, F. R., Semenyna, S. W., Court, L., & Vasey, P. L. (2017). Recalled separation anxiety in childhood in Istmo Zapotec men, women, and muxes. *Archives of Sexual Behavior, 46*(1), 109–117. doi:10.1007/s10508-016-0917-x
- Gómez, F. R., Semenyna, S. W., Court, L., & Vasey, P. L. (2018). Familial patterning and prevalence of male androphilia among Istmo Zapotec men and muxes. *PloS one, 13*(2), e0192683. doi:10.1371/journal.pone.0192683

- Gómez Jiménez, F. R., Semenyna, S. W., & Vasey, P. L. (2020). Offspring production among the relatives of Istmo Zapotec men and muxes. *Archives of Sexual Behavior, 49*(2), 581–594. doi:10.1007/s10508-019-01611-y
- Gómez Jiménez, F. R., & Vasey, P. L. (2020). A retrospective study of childhood sex-typed behavior in Istmo Zapotec men, women, and muxes. *Archives of Sexual Behavior, 49*(2), 467–477. doi:10.1007/s10508-019-01544-6
- Hall, G., Young, A., Krakauer, C., Watson, C. C., Cummings, V., Mayer, K., & Koblin, B. (2017). Sexual risk behaviors among black men who have sex with men who also report having sex with transgender partners: analysis of HIV Prevention Trials Network (HPTN) 061 study. *AIDS Education and Prevention, 29*(5), 418–431.
- Hames, R. B., Garfield, Z. H., & Garfield, M. J. (2017). Is male androphilia a context-dependent cross-cultural universal? *Archives of Sexual Behavior, 46*(1), 63–71. doi:10.1007/s10508-016-0855-7
- Howe, C., Zaraysky, S., & Lorentzen, L. (2008). Transgender sex workers and sexual transmigration between Guadalajara and San Francisco. *Latin American Perspectives, 35*(1), 31–50. doi:10.1177/0094582X07310956
- James, S., Herman, J., Rankin, S., Keisling, M., Mottet, L., & Anafi, M. (2016). *The report of the 2015 U.S. Transgender Survey*. Retrieved from <https://transequality.org/sites/default/files/docs/usts/USTS-Full-Report-Dec17.pdf>
- Kailas, M., Lu, H. M. S., Rothman, E. F., & Safer, J. D. (2017). Prevalence and types of gender-affirming surgery among a sample of transgender endocrinology patients prior to state expansion of insurance coverage. *Endocrine Practice, 23*(7), 780–786. doi:10.4158/EP161727.OR
- Kulick, D. (1997). The gender of Brazilian transgendered prostitutes. *American Anthropologist, 99*(3), 574–585. doi:10.1525/aa.1997.99.3.574
- Lesser, H. (1961). The Hirschfeld Institute for Sexology. In A. Ellis & A. Abarnel (Eds.), *Encyclopedia of sexual behavior* (pp. 967–970). New York, NY: Hawthorn Books.
- Lim, D. C. L. (2015). Visualizing the invisible: Social constructions of straight identified men who have sex with transsexuals and feminized gay men on/off Malaysian film. *Studies in Gender and Sexuality, 16*(3), 183–203. doi:10.1080/15240657.2015.1073047
- Lippa, R. A. (2008). Sex differences and sexual orientation differences in personality: Findings from the BBC internet survey. *Archives of Sexual Behavior, 37*(1), 173–187. doi:10.1007/s10508-007-9267-z



- McLelland, M. J. (2000). Male homosexuality and popular culture in modern Japan. *Intersections, 1*(3), 1–14.
- Meyerowitz, J. (2002). *How sex changed: A history of transsexuality in the United States*. Cambridge, MA: Harvard University Press.
- Milan, K. (2017). In this Mexican city trans people are celebrated, so why do they feel so left out? *Narratively*. Retrieved from <https://narratively.com/in-this-mexican-city-trans-people-are-celebrated-so-why-do-they-feel-so-left-out/>
- Mirandé, A. (2011). The Muxes of Juchitan: A preliminary look at transgender identity and acceptance. *California Western International Law Journal, 42*, 509–540.
- Mirandé, A. (2016). Hombres mujeres: An indigenous third gender. *Men and Masculinities, 19*(4), 384–409. doi:10.1177/1097184X15602746
- Mirandé, A. (2017). *Behind the mask: Gender hybridity in a Zapotec community*. Tucson, AZ: The University of Arizona Press.
- Murray, S. O. (2000). *Homosexualities*. Chicago, IL: The University of Chicago Press.
- Nanda, S. (1999). *Neither man nor woman: Hijras of India (2nd ed.)*. Belmont, CA: Wadsworth Publishing Company.
- Nanda, S. (2014). *Gender diversity: Cross-cultural variations*. Long Grove, IL: Waveland Press.
- Operario, D., Burton, J., Underhill, K., & Sevelius, J. (2008). Men who have sex with transgender women: Challenges to category-based HIV prevention. *AIDS and Behavior, 12*(1), 18–26. doi:10.1007/s10461-007-9303-y
- Peletz, M. G. (2009). *Gender pluralism: Southeast Asia since early modern times*. New York, NY: Taylor & Francis.
- Petterson, L. J., Dixson, B. J., Little, A. C., & Vasey, P. L. (2018). Viewing time and self-report measures of sexual attraction in Samoan cisgender and transgender androphilic males. *Archives of Sexual Behavior, 47*(8), 2427–2434. doi:10.1007/s10508-018-1267-7
- Prieur, A. (1994). 'I am my own special creation': Mexican homosexual transvestites' construction of femininity. *Young, 2*(3), 3–17.
- Puckett, J. A., Cleary, P., Rossman, K., Mustanski, B., & Newcomb, M. E. (2018). Barriers to gender-affirming care for transgender and gender nonconforming individuals. *Sexuality Research and Social Policy, 15*(1), 48–59. doi:10.1007/s13178-017-0295-8

- Rahman, Q., Xu, Y., Lippa, R. A., & Vasey, P. L. (2019). Prevalence of sexual orientation across 28 nations and its association with gender equality, economic development, and individualism. *Archives of Sexual Behavior*, 1–12. doi:10.1007/s10508-019-01590-0
- Richards, C., Bouman, W. P., Seal, L., Barker, M. J., Nieder, T. O., & T'Sjoen, G. (2016). Non-binary or genderqueer genders. *International Review of Psychiatry*, 28(1), 95–102. doi:10.3109/09540261.2015.1106446
- Rosenthal, A. M., Hsu, K. J., & Bailey, J. M. (2017). Who are gynandromorphophilic men? An internet survey of men with sexual interest in transgender women. *Archives of Sexual Behavior*, 46(1), 255–264. doi:10.1007/s10508-016-0872-6
- Scheim, A. I., & Bauer, G. R. (2019). Sexual inactivity among transfeminine persons: A Canadian respondent-driven sampling survey. *Journal of Sex Research*, 56(2), 264–271. doi:10.1080/00224499.2017.1399334
- Semenyna, S. W., Petterson, L. J., VanderLaan, D. P., & Vasey, P. L. (2017). A comparison of the reproductive output among the relatives of Samoan androphilic fa'afafine and gynephilic men. *Archives of Sexual Behavior*, 46(1), 87–93. doi:10.1007/s10508-016-0765-8
- Semenyna, S. W., & Vasey, P. L. (2016). The relationship between adult occupational preferences and childhood gender nonconformity among Samoan women, men, and fa'afafine. *Human Nature*, 27(3), 283–295. doi:10.1007/s12110-016-9258-7
- Shahani, P. (2008). *Gay Bombay: Globalization, love and (be)longing in contemporary India*. Thousand Oaks, CA: Sage.
- Stief, M. (2017). The sexual orientation and gender presentation of hijra, kothi, and panthi in Mumbai, India. *Archives of Sexual Behavior*, 46(1), 73–85. doi:10.1007/s10508-016-0886-0
- VanderLaan, D. P., Petterson, L. J., & Vasey, P. L. (2016). Femininity and kin-directed altruism in androphilic men: A test of an evolutionary developmental model. *Archives of Sexual Behavior*, 45(3), 619–633. doi:10.1007/s10508-015-0632-z
- Vasey, P. L., & VanderLaan, D. P. (2014). Evolving research on the evolution of male androphilia. *The Canadian Journal of Human Sexuality*, 23(3), 137–147. doi:10.3138/cjhs.23.3-CO1
- Vasey, P. L., VanderLaan, D. P., Gothreau, L. M., & Bartlett, N. H. (2011). Traits of separation anxiety in childhood: A retrospective study of Samoan men, women, and fa'afafine. *Archives of Sexual Behavior*, 40(3), 511–517. doi:10.1007/s10508-009-9589-0

- Whitam, F. L. (1987). A cross-cultural perspective on homosexuality, transvestism and transsexualism. In G. D. Wilson (Ed.), *Variant sexuality: Research and Theory* (pp. 176–201). London, England: Croom Helm.
- Whitam, F. L. (1992). Bayot and callboy in the Philippines. In S. O. Murray (Ed.), *Oceanic homosexualities*. New York, NY: Garland.
- Whitam, F. L. (1995). Os entendidos: Gay life in São Paulo in the 1970s. In S. O. Murray (Ed.), *Latin American male homosexualities* (pp. 231–240). Albuquerque, NM: University of Mexico Press.
- Wikan, U. (1977). Man becomes woman: Transsexualism in Oman as a key to gender roles. *Man*, *12*, 304–319.
- Zheng, L., Lippa, R. A., & Zheng, Y. (2011). Sex and sexual orientation differences in personality in China. *Archives of Sexual Behavior*, *40*(3), 533–541.  
doi:10.1007/s10508-010-9700-6

**Table 5.1**

*The number and proportion of images identified as each gender category by men who have sexual attraction to women.*

<b>Image category</b>	<b>Identified as</b>	<b>Women</b>			<b>Transgender</b>			<b>Men</b>		
		<i>n</i>	Proportion		<i>n</i>	Proportion		<i>n</i>	Proportion	
		<i>Mdn</i>	<i>Mdn</i>	<i>SD</i>	<i>Mdn</i>	<i>Mdn</i>	<i>SD</i>	<i>Mdn</i>	<i>Mdn</i>	<i>SD</i>
<b>Cisgender women</b> (36 images)										
	Canada ( <i>N</i> = 79)	36	1	.02	0	0	.02	0	0	.01
	Juchitán ( <i>N</i> = 97)	33	.92	.15	3	.08	.15	0	0	0
	Samoa ( <i>N</i> = 102)	35	.97	.08	1	.03	.08	0	0	.01
<b>MtF transgender individuals</b> (68 images)										
	Canada ( <i>N</i> = 79)	37	.54	.25	29	.43	.26	0	0	.11
	Juchitán ( <i>N</i> = 97)	6	.09	.10	62	.91	.11	0	0	.01
	Samoa ( <i>N</i> = 102)	15	.22	.14	53	.78	.14	0	0	0
<b>MtF transgender women with breasts</b> (36 images)										
	Canada ( <i>N</i> = 79)	23	.64	.27	12	.33	.28	0	0	.08
	Juchitán ( <i>N</i> = 97)	5	.14	.16	31	.86	.16	0	0	0
	Samoa ( <i>N</i> = 102)	12	.33	.24	24	.67	.24	0	0	0
<b>MtF transgender women without breasts</b> (32 images)										
	Canada ( <i>N</i> = 79)	10	.31	.28	17	.53	.30	0	0	.16
	Juchitán ( <i>N</i> = 97)	1	.03	.07	31	.97	.08	0	0	.02
	Samoa ( <i>N</i> = 102)	2	.06	.10	30	.94	.10	0	0	0
<b>Cisgender men</b> (22 images)										
	Canada ( <i>N</i> = 79)	0	0	.02	0	0	.03	22	1	.03
	Juchitán ( <i>N</i> = 97) <sup>a</sup>	0	0	.01	1	.05	.22	21	.95	.22
	Samoa ( <i>N</i> = 102)	0	0	.01	0	0	.01	22	1	.02

<sup>a</sup> Some of the participants from Juchitán labelled images of men as masculine *muxes*

## Chapter 6: A Three Culture Comparison of Men's Sexual Attraction and Viewing Time Responses to MtF Transgender and Cisgender Individuals

### Abstract

In Western cultures MtF (male-to-feminine) transgender individuals are relatively rare. In many non-Western cultures, such as Samoa and the Istmo Zapotec (Oaxaca, Mexico), MtF transgender individuals are more common. Sexual interactions involving cisgender men and MtF transgender individuals seem to occur more regularly in these cultures compared to Western ones. It is not clear whether this variability stems from cross-cultural differences in men's sexual interest in MtF transgender individuals. Sexual attraction ratings and viewing times of images of MtF transgender individuals relative to images of cisgender women, and cisgender men, all of whom were minimally clad were compared among men in Canada ( $N = 84$ ), Samoa ( $N = 105$ ), and the Istmo Zapotec ( $N = 120$ ). Men in all three cultures rated the cisgender women as being more attractive than the MtF transgender individuals. Canadian men's sexual attraction ratings of MtF transgender individuals were lower than those of Samoan men and there was suggestive evidence that they were also lower than those of Istmo Zapotec men. Men in all three cultures viewed MtF transgender individuals and cisgender women for a similar length of time and for longer than cisgender men, although there was suggestive evidence that Istmo Zapotec viewed MtF transgender individuals for less time than cisgender women. As such, sexual attraction ratings support the idea that men's sexual interest in MtF transgender individuals is culturally variable. Viewing times were more consistent across cultures. Possible reasons for this discrepancy are discussed.

*Keywords:* cross-culture comparisons; transgender; viewing time; Canada; Samoa; Istmo Zapotec

## Introduction

*MtF (male-to-feminine) transgender individuals* refers to people who were born male and whose gender presentation is feminine. In many Western cultures, such as the US and Canada, MtF transgender individuals tend to identify as trans women or simply as women. In many non-Western cultures, MtF transgender individuals tend to identify, and are identified by others, as a non-binary gender that is neither man nor woman. The gender non-binary terms used to identify such individuals are often culturally specific. For example, MtF transgender individuals identify, and are identified as, *muxes* (or *muxe gunna*) in the Istmo Zapotec region of Southern Mexico (Mirandé, 2016) and *fa'afafine* in Samoa (Vasey & VanderLaan, 2014), but many more examples exist (e.g., Nanda, 2014).

Regardless of the cultural context in which they are found, MtF transgender individuals tend to be feminine in their behavior, dress, and appearance when compared to cisgender men. They often wear female-typical items of clothing, style their hair in a female-typical manner, and shave their facial hair. That said, many MtF transgender individuals also incorporate both masculine and feminine aspects of behavior, dress, and appearance (Murray, 2000). In Western cultures, it is not uncommon for MtF transgender individuals to undergo various feminizing hormonal and surgical procedures, which may include breast augmentation (e.g., Meyerowitz, 2002). In many non-Western cultures, MtF transgender individuals undergo these same types of surgical procedures more infrequently (e.g., Kulick, 1997; Mirandé, 2016; Nanda, 2014; Stief, 2017).

Sexual interest in MtF transgender individuals is referred to as *gynandromorphophilia* (Blanchard & Collins, 1993). A subset of cisgender men (hereafter, men) express sexual interest in MtF transgender individuals (e.g., Money & Lamacz, 1984). This interest has been found across a broad range of geographical

regions, including, but not limited to, Costa Rica (Schifter & Madrigal, 1997), Ethiopia (Hallpike, 2008), India (Stief, 2017), Indonesia (Boellstorff, 2004), Malaysia (Lim, 2015), Mexico (Howe, Zaraysky, & Lorentzen, 2008), Oman (Wikan, 1977), Peru (Degtyar et al., 2018), South Africa (Donham, 1998), Spain (Haller, 1992), and the USA (Operario, Burton, Underhill, & Sevelius, 2008). Because gynandromorphophilic men have been observed in a diverse range of cultural settings, it is possible that men's capacity for gynandromorphophilia is cross-culturally universal.

What does appear to vary cross-culturally is gynephilic<sup>32</sup> men's willingness to engage in sexual interactions with MtF transgender individuals (Whitam, 1992). In Western cultures, these sexual interactions appear to be relative rare (Bailey, 2003), whereas in many non-Western cultures, these interactions are not uncommon (e.g., Murray, 2000; Nanda, 2014).

In Western cultures, pornography featuring MtF transgender individuals is, however, quite popular (Escoffier, 2011; Ogas, 2011, May 05; Ogas & Goddam, 2011; Pornhub Insights, 2019, December 11). Additionally, a non-negligible number of Western men report having sexual fantasies about MtF transgender individuals (Joyal, Cossette, & Lapierre, 2015; Lehmilller, 2020, April 24). As such, it is possible that gynephilic men's capacity for gynandromorphophilia is cross-culturally invariant, but the frequency with which this interest is expressed varies depending on cultural context.

In the West, many men who seek sexual relationships with MtF transgender individuals preferentially seek out those who are markedly feminine or pass as cisgender

---

<sup>32</sup> Gynephilia refers to sexual attraction and arousal to adult females. Androphilia refers to sexual attraction to adult males. Ambiphilia refers to sexual attraction and arousal to adult females and males.



women (Gerico, 2015; Weinberg & Williams, 2010). Men living in non-Western cultures are also attracted to the femininity of MtF transgender individuals (Kulick, 1997; Mitsuhashi, 2006; Schifter & Madrigal, 1997). Unlike Western men, however, their attraction does not seem to be focused on their partners passing as cisgender women, and they seem to be more willing to engage in sexual interactions with MtF transgender individuals who are feminine but have fewer female-typical physical characteristics, such as breasts (e.g., Whitam, 1992). This suggests that, across cultures, men may vary in terms of their sexual interest in MtF transgender individuals who have not hormonally or surgically feminized their bodies.

In the present study, I assessed whether gynephilic men's sexual interest in MtF transgender individuals without breasts differs across three countries with distinct cultural environments: Samoa, the Istmo Zapotec of Oaxaca, Mexico, and Canada. I employed measures of sexual attraction ratings and viewing times of images depicting minimally clad MtF transgender individuals, cisgender women, and cisgender men. MtF transgender individuals depicted in the stimuli did not have signs of breast buds (which may develop through the use of exogenous hormones) or surgically augmented breasts (hereafter, breasts).

In Samoa, MtF transgender individuals are identified by themselves, and others, as *fa'afafine* (e.g., VanderLaan, Petterson, & Vasey, 2016). *Fa'afafine* enjoy a relatively high level of social acceptance (e.g., Vasey, Pocock, & VanderLaan, 2007). They rarely undergo hormonal or surgical procedures to modify their bodies. Their feminine gender expression is generally met with tolerance and acceptance rather than social condemnation (Bartlett & Vasey, 2006; Croall & Wunderman, 1999).

*Fa'afafine* engage in sexual activity almost exclusively with cisgender men (Pettersson, Dixson, Little, & Vasey, 2018). Many Samoan men say that the majority of Samoan men have, at some point, engaged in sexual interactions with *fa'afafine*, although population frequency studies are still needed to bolster their supposition. Although sexual relationships between men and *fa'afafine* are not considered to be ideal, they are recognized as common and not regarded with strong disapprobation (United Nations Development Programme, United Nations Children's Fund, & The University of New South Wales, 2016).

In the Istmo region of Oaxaca, Mexico, the indigenous Zapotec people predominate. Within the Istmo Zapotec cisgender androphilic cisgender males and MtF transgender individuals both exist at appreciable rates (Gómez Jiménez, Semenyna, & Vasey, 2020; Mirandé, 2016) and they are both identified, by themselves and others, as *muxes*. Feminine *muxes* are referred to as *muxes gunaa*. Cisgender *muxes* are referred to as *muxes nguiiu*. The existing literature suggests that *muxes* are generally accepted by their family, social circles, communities, and religious institutions (Burruso, 2001; Hernández, 2002; Mirandé, 2011, 2016), but the upper-class is less tolerant of *muxes gunaa* (Burruso, 2001; Hernández, 2002). Few *muxes gunaa* undergo hormonal or surgical procedures to modify their bodies (Milan, 2017).

Both *muxes gunaa* and *nguiiu* engage in sexual activity with cisgender men (*muxes nguiiu* also engage in sexual activity with other *muxes nguiiu*) (Mirandé, 2016). Sexual interactions involving *muxes* and cisgender men are not perceived to be highly unusual or problematic, provided that the men are insertive during anal intercourse (Mirandé, 2016). Additionally, it is considered preferable for young men to have sex with *muxes* rather than unmarried cisgender women because female virginity is highly valued

(Mirandé, 2011). On the other hand, men who have sex with *muxes* on a regular basis are looked upon with some degree of animosity (Mirandé, 2016).

MtF transgender individuals appear to be less common in Canada than Samoa and the Istmo Zapotec. MtF transgender individuals living in Western cultures, such as Canada, identify themselves, and are identified by others, as women, trans women, or by use of alternative gender terms (e.g., gender fluid, gender nonbinary) (e.g., Scheim & Bauer, 2015). Most Canadians are supportive of transgender rights (Angus Reid Institute Public Interest Research, 2016). However, many transgender individuals in Canada report that they have experienced discrimination, prejudice, stereotyping, harassment, or violence (Bauer, Scheim, & Trans PULSE Project Team, 2015, June 1). Bodily feminization through hormones and surgery varies (Scheim & Bauer, 2015), but appears to be more common in Canada than Samoa and the Istmo Zapotec.

Data are lacking, but sexual interactions between cisgender men and MtF transgender individuals appear to be far less common in Canada than Samoa or the Istmo Zapotec. For example, in one relatively large sample, the majority of Canadian feminine transgender individuals reported that they had not engaged in partnered sexual activity in the year prior to being interviewed (Scheim & Bauer, 2019). It is probable that many Canadians would be critical of such relationships or view them as unusual and noteworthy (Bauer & Hammond, 2015).

## **Methods**

### **Participants**

Cisgender adult males were recruited from (1) Samoa, (2) Juchitán, the largest city in the Istmo Zapotec region of Oaxaca, Mexico, and (3) a small Canadian university. In Samoa and Juchitán, participants were recruited using network sampling. In Canada,

students enrolled in a psychology course were recruited through an online participant recruitment system (Sona). As compensation for their time, participants in Canada were given 1% course credit and participants in Juchitán and Samoa were given approximately CAD \$10 in their respective currency.

Only participants who reported that they were exclusively or predominantly heterosexual (Kinsey 0 or 1) (Kinsey, Pomeroy, & Martin, 1948) were included in the present study. In Samoa, 23 people were excluded because they were unable to complete the task, did not focus on the task, were interrupted by children or animals (e.g., chickens, dogs), or had poor vision and 1 decided not to participate after hearing the full description of the study. In Mexico, 10 people were excluded because they were unable to complete the task or did not focus on the task and 5 people were excluded because they rated every image as being very, or a little, sexually unattractive. In Canada, 2 people decided not to participate after hearing the full description of the study and 1 person withdrew for reasons unrelated to the study. Additionally, when compared across the sample viewing times, five participants were outliers and, because of this, they were excluded. The analyses pertained to 84 men from Canada, 105 men from Samoa, and 120 men from Juchitán. Biographic data are shown in Table 6.1.

## **Measures**

### ***Sexual Attraction Ratings and Viewing Times***

The study consisted of an image-rating task followed by a brief biographic questionnaire. Participants' viewing times and sexual attraction ratings were recorded during the image rating task. In Samoa, the questionnaire was presented in both English and Samoan (participants could choose which to read). The text presented during the image rating task was presented in Samoan. Samoan translations were completed by two

research assistants, who were fluent in English and Samoan. In Juchitán, study text was presented in Spanish. Spanish translations were completed by one of the study authors (FRGJ), who is fluent in English and Spanish, and a research assistant, who is a Spanish speaker.

Before starting the study portion of the image rating task, participants completed a trial during which they viewed and rated seven images (2 cisgender men, 2 cisgender women, 2 MtF transgender individuals and 1 bonobo; images were counterbalanced). Responses to the trial images were not recorded. In Samoa and the Istmo Zapotec, participants were able to complete the trial a maximum of three times; those who did not understand the task after this point were given payment and thanked for their time.

The image rating portion of the study was conducted using Empirisoft's MediaLab viewing-time software (Eternity and Empirisoft Corporation, 1997). Participants were shown 41 images including 10 MtF transgender individuals, 10 cisgender men (hereafter, men), 10 cisgender women (hereafter, women), and 11 bonobos. Responses were not recorded for the first image of the study portion of the image rating task (a bonobo) to remove the confounds of transitioning from the trial portion to the study portion of the task to the actual study. All other images were counterbalanced within the study portion of the image rating task. These were individually displayed on the right side of a computer screen.

For the image rating task, participants responded a question on the left side of the screen. The question asked, "how sexually attractive or unattractive do you find the image?" Response range: 1 = "very sexually unattractive" to 5 = "very sexually attractive." These responses provided self-report sexual attraction ratings. High scores indicate greater sexual attraction and low scores indicate sexual aversion.

Unbeknownst to the participants, the length of time between stimuli presentation and participant's response was recorded. The period between image presentation and participant response is typically referred to as a viewing time.<sup>33</sup> Individuals tend take longer responding to prompts when viewing preferred targets compared to non-preferred targets (e.g., Ebsworth & Lalumiere, 2012; Imhoff et al., 2010; Israel & Strassberg, 2009; Lippa, 2012, 2013; Lippa, Patterson, & Marellich, 2010; Quinsey, Ketsetzis, Earls, & Karamanoukian, 1996; Rullo, Strassberg, & Israel, 2010). Viewing time measures have been effective in revealing gynephilic, androphilic, and ambiphilic response patterns among men. Objective measures, such as viewing time, permit comparisons of individuals who may not share common subjective understandings of sexual orientation, interests, or behavior (see Stief, 2017).

### ***Biographic Information, Sexual Orientation, and Sexual History***

After completing the image rating task, participants reported biographic information including their age, sex, gender, ethnicity, socioeconomic status during childhood, religious affiliation, religiosity, and relationship status. Additionally, participants responded to 3 questions which asked how sexually attractive they found (1) men, (2) women, and (3) transgender women/*fa'afafine/muxes* (depending on cultural context) (response range: 1 = "very sexually unattractive" to 5 = "very sexually attractive"). They also reported whether they had sexual feelings for (1) men, (2) women, (3) transgender women/*fa'afafine/muxes*, or (4) no one, at any point in their lives, and within the past year (response options were dichotomous). Furthermore, participants

---

<sup>33</sup> This latency reflects the time to respond to the task of rating attraction (Imhoff et al., 2010; Imhoff, Schmidt, Weiß, Young, & Banse, 2012); consequently, the term "response time" may be a more accurate. To remain consistent across studies, the term "viewing time" is used.

reported whether they had engaged in sexual activity with (1) men, (2) women, (3) transgender women/*fa'afafine/muxes*, or (4) no one, at any point in their lives, and within the past year (response options were dichotomous). Responses to these questions were combined into four sexual history variables: (1) past year sexual behavior, (2) past year sexual feelings, (3) lifetime sexual behavior, and (4) lifetime sexual feelings. Further, participants' relative sexual preference for females or males was assessed using 1 Kinsey scale question (Kinsey et al., 1948) (response: 0 = "Sexual feelings only toward females" to 6 = "Sexual feelings only toward males").

### **Stimuli**

The stimuli included images of cisgender men who were dressed in underwear bottoms, cisgender women who were dressed in underwear tops and bottoms, MtF transgender individuals without breasts who were dressed in underwear bottoms but not tops, and bonobos.<sup>34</sup> Images of bonobos were included as non-sexual controls. The MtF transgender individuals depicted in the stimuli were feminine (e.g., they had female-typical hairstyles, makeup), but they did not show obvious signs that they had augmented their bodies to be more feminine (e.g., no female-typical fat deposits, no breast augmentation). All of the MtF transgender individuals depicted in the images had penises. Although the MtF transgender models wore underwear bottoms, the bulges of their penises were visible.

Images were taken from freely accessible websites and are available from the corresponding author (LJP) upon request. Images were searched for using similar terms for each category type (e.g., using words such as "hot" and "sexy"). Images of humans

---

<sup>34</sup> Due to cultural mores and Samoan law, nude imagery could not be used for this tri-culture comparison.

were minimally clothed. Effort was made to match the groups based on physical characteristics (e.g., ethnicity, hair color, posture) but it was not always possible to match these characteristics. Models appear to be of European, Asian, and Latin decent, although the majority appear to be of European decent.

Stimuli images were edited to control for low-level features using Adobe Photoshop CC 2015. To remove any confounding influence of scene content, backgrounds were removed from images, leaving only the model. Necklaces with crosses, wedding/engagement rings were removed, and brand labels were also removed. Images were transformed to grey scale.

One image of a woman was removed from the analysis because her underwear hid her breasts, and it seemed that some participants viewed her longer in an effort to determine whether she had breasts. To maintain equal numbers in each of the erotic stimuli groups, data was excluded for the image with the longest viewing times in the two additional categories. For consistency, self-reported sexual attraction ratings were excluded for these images as well.

### **Statistical Analysis**

Statistical analysis was conducted using RStudio, version 1.1.383 (R Development Core Team, 2015). The analysis included within- and between-group comparisons. Visual inspection of the histograms and qq-plots indicated that participants' sexual attraction ratings were not normally distributed. As such, analyses of sexual attraction ratings were conducted using non-parametric tests. Analyses involving viewing times were conducted using parametric tests. Viewing times were winsorized to reduce the influence of outliers



(.01% of values were replaced).<sup>35</sup> To control for baseline response, the mean viewing time of bonobos were subtracted from the viewing times of each human image. The threshold for statistical significance was set at  $p < .005$ , whereas  $p$ -values below  $p < .05$  were taken as suggestive evidence (Benjamin et al., 2018).

### *Comparison of Stimuli Images*

**Self-Reported Sexual Attraction.** Raw self-reported sexual attraction means were used for analysis. Within-group comparisons of sexual attraction ratings of the human stimuli were conducted using two paired Wilcoxon tests for each culture (6 total). The first test compared mean ratings of cisgender men and the grand mean ratings of the feminine image categories (i.e., cisgender women and MtF transgender individuals). The second test compared mean ratings of cisgender women and MtF transgender individuals.

Afterwards, four between-group comparisons of sexual attraction ratings contrasts were conducted using one-way permutation tests with Monte Carlo resampling. To do so, the within-participant contrasts were entered as independent variables: (1) feminine individuals versus cisgender men (grand mean ratings of the feminine categories [cisgender women and MtF transgender individuals] - mean ratings of cisgender men; positive scores indicate higher ratings of feminine individuals than cisgender men) and (2) cisgender women versus MtF transgender individuals (mean ratings of cisgender women - mean ratings of MtF transgender individuals; scores close to 0 indicate similar ratings of cisgender women and MtF transgender individuals). Cultures were entered

---

<sup>35</sup> Raw data values that corresponded to  $z$ -score values of 3.29 or higher were replaced with the participant's next highest viewing time plus 1 second. When two values were outlying, the highest outlier was replaced by the highest non-outlying value + 1.5 seconds. In the unusual instance when the outlying value was less than 1 second higher than the non-outlying value, .5 seconds were added. In two instance .1 second was added because the values were less than .5 seconds apart.

using dummy codes: (1) men from Canada (coded as 0) versus men from Samoa (coded as 1) and (2) men from Canada (coded as 0) versus men from Juchitán (coded as 1).

**Viewing Times.** Between- and within-participant comparisons were conducted using a mixed-effect model (using the maximum likelihood estimate). All baseline-controlled viewing times were entered into the model. The model included stimuli-category and group contrasts predicting viewing times. Intercepts were permitted to vary across participants. Orthogonal contrast codes were used to compare participants' viewing times of the three baseline-controlled stimuli categories: (1) feminine individuals (cisgender women and MtF transgender individuals were both coded as 1) versus cisgender men (coded as -2); (2) cisgender women (coded as 1) versus MtF transgender individuals (coded as -1) (cisgender men were coded as 0). Dummy codes were created to compare between countries: (1) men from Canada (coded as 0) versus men from Samoa (coded as 1) (men from Juchitán were coded as 0) and (2) men from Canada (coded as 0) versus men from Juchitán (coded as 1) (men from Samoa were coded as 0). Because age differences could affect participant's viewing times, I examined whether age differed between cultures using a Welch's analysis of variance (ANOVA) with Dunnett post-hoc comparisons. Age was added as a covariate in the viewing time model.

## Results

Table 6.2 shows ratings of sexual attraction to men, women, and MtF transgender individuals, Kinsey scores, and sexual histories. Figure 6.1 shows sexual attraction ratings by image category and country. Table 6.3 shows sexual attraction ratings and viewing times for each stimuli category. Figure 6.2 shows raw and baseline-controlled viewing times by image category and country. Mean age differed between cultures, *Welch's F*(2,

196.94) = 35.53,  $p < .001$ , est.  $\omega^2 = .18$ . Canadian men were younger than Samoan ( $p < .001$ ) and Istmo Zapotec men ( $p < .001$ ).

## **Comparison of Stimuli Images**

### ***Sexual Attraction Ratings***

When compared within cultures, feminine individuals (cisgender women and MtF transgender individuals) were rated as being more sexually attractive than cisgender men by Canadian men ( $Z = 7.32$ ,  $p < .001$ ,  $r = .80$ ), Samoan men ( $Z = 8.90$ ,  $p < .001$ ,  $r = .87$ ), and Istmo Zapotec men ( $Z = 9.29$ ,  $p < .001$ ,  $r = .85$ ). Cisgender women were rated as being more sexually attractive than MtF transgender individuals by Canadian men ( $Z = 7.96$ ,  $p < .001$ ,  $r = .87$ ), Samoan men ( $Z = 8.33$ ,  $p < .001$ ,  $r = .81$ ), and Istmo Zapotec men ( $Z = 9.34$ ,  $p < .001$ ,  $r = .85$ ).

When compared between culture, Canadian men were less discrepant in their ratings of feminine individuals and cisgender men than Samoan men ( $Z = 7.23$ ,  $p < .001$ ,  $r = .53$ ) and Istmo Zapotec men ( $Z = 3.16$ ,  $p = .002$ ,  $r = .22$ ). They were more discrepant in their ratings of MtF transgender individuals and cisgender women than men from Samoa ( $Z = 3.08$ ,  $p = .002$ ,  $r = .22$ ). There was suggestive evidence that Canadian men were more discrepant in their ratings of MtF transgender individuals and cisgender women than Istmo Zapotec men ( $Z = 2.13$ ,  $p = .034$ ,  $r = .15$ ).

### ***Viewing Times***

Table 6.4 shows the full mixed-effect model predicting baseline-controlled viewing times. Older participants had longer viewing times than younger ones. Istmo Zapotec men had shorter overall viewing times than Canadian men. Participants viewed images of feminine individuals (cisgender women and MtF transgender individuals) longer than images of cisgender men. There was suggestive evidence of a feminine

stimuli contrast (i.e., cisgender women versus MtF transgender individual) X Canada versus Juchitán contrast. No other comparisons or stimuli by country interactions achieved significance.

Follow up analysis was conducted for the suggested interaction using mixed effect models with age as a covariate. MtF transgender individuals were coded as 1 and cisgender women were coded as 0. Canadian men viewed MtF transgender individuals and cisgender women for a similar length of time,  $b = .08$ ,  $SE = .12$ ,  $p = .498$ . There was suggestive evidence that Istmo Zapotec men viewed cisgender women longer than MtF transgender individuals,  $b = -.24$ ,  $SE = .10$ ,  $p = .022$ .

### **Discussion**

In all cultures, men rated the feminine individuals (i.e., cisgender women and MtF transgender individuals) as more attractive than the cisgender men. They also rated the cisgender women as more attractive than the MtF transgender individuals and the cisgender men. The MtF transgender individuals and cisgender men in the images were not typically rated as sexually attractive, but cisgender women in the images were rated as sexually attractive.

Canadian men were less discrepant in their sexual attraction ratings of cisgender men and feminine individuals than Samoan men and Istmo Zapotec men. This was, in part, a result of Canadian men's lower ratings of MtF transgender individuals but also their higher ratings of cisgender men. Furthermore, Canadian men were more discrepant in their sexual attraction ratings of MtF transgender individuals and cisgender women than Samoan men, indicating that MtF transgender individuals were given higher sexual attraction ratings by the latter group. There was also suggestive evidence that Canadian men were more discrepant in their sexual attraction ratings of MtF transgender

individuals and cisgender women than Istmo Zapotec men, but this difference did not reach significance.

As such, the findings suggest that Samoan men differed from Canadian and Istmo Zapotec men with respect to their sexual interest in MtF transgender individuals. These findings are generally consistent with the idea that cultural background is relevant to men's evaluation of the sexual attractiveness of MtF transgender individuals. Moreover, in Samoa, the majority of participants reported that they had engaged in sexual activity with MtF transgender individuals (55%), whereas a minority of the Istmo Zapotec (30%) and Canadian (1%) participants reported engaging in sexual activity with these partners. As such, cross-cultural differences in the frequency with which men engage in sexual activity with MtF transgender individuals, particularly those who have not augmented their breasts, appear to reflect differences in men's subjective sexual interest in these individuals.

It is difficult to say with certainty, however, why such differences in sexual interest develop. MtF transgender individuals are relatively common and are widely recognized as members of a non-binary gender (*fa'afafine* and *muxes gunaa*, respectively) that is separate from men and women in Samoa and the Istmo Zapotec, but this is not the case in Canada. In addition, *fa'afafine* and *muxes gunaa* are unlikely to feminize their bodies via hormonal or surgical interventions, whereas MtF transgender individuals in Canada are more likely to do so. Given this, one would expect Samoan and the Istmo Zapotec men would be more similar to each other in terms of their appraisals of MtF transgender individuals and cisgender women, than either would be to Canadian men. Nevertheless, Samoan men's sexual appraisals of MtF transgender individuals and cisgender women were less discrepant than those of Canadian men, but evidence that

Istmo Zapotec men differed from Canadian men in this regard was merely suggestive.

Istmo Zapotec men were intermediate between Canadian and Samoan men the two groups in this respect. At a proximate level, it is possible that Samoan men were more sexually attracted to MtF transgender individuals than men in other cultures because (1) MtF transgender androphiles are more prevalent in Samoa than Canada or the Istmo Zapotec (in the Istmo Zapotec, a notable subset of *muxes* are cisgender) and (2) sexual interactions involving cisgender men and MtF transgender individuals are seemingly less stigmatized in Samoa than they are in Canada and the Istmo Zapotec.

With respect to the viewing time measure, men in all cultures had longer viewing times for images of both MtF transgender individuals and cisgender women than images of cisgender men. This finding is consistent with the idea that gynephilic men have a greater capacity for sexual interest in MtF transgender individuals than cisgender members of their non-preferred sex. Further, this finding is in line with previous studies that have employed other measures of sexual interest (Chapter 4; Hsu, Rosenthal, Miller, & Bailey, 2016). When measures of genital arousal were used, gynephilic men showed greater arousal to pornography of MtF transgender individuals (specifically those with augmented breasts) than pornography of cisgender men (Hsu et al., 2016). Additionally, when eye-tracking measures were employed, gynephilic men biased their visual attention to images of MtF transgender individuals (those with augmented breasts as well as those without augmented breasts) over images of cisgender men (Chapter 4).

The present findings did not, however, fully conform to what would have been expected given past research. Although some of the participants, particularly those in Samoa and the Istmo Zapotec, had experienced sexual attraction to MtF transgender individuals, participants were not specifically recruited for their sexual interest in MtF

transgender individuals. As such, in line with previous research (Chapter 3, 4; Hsu et al., 2016), it was expected that men's viewing times of MtF transgender individuals would be shorter than their viewing times of cisgender women. This pattern was not found. Instead, men tended to view MtF transgender individuals and cisgender women for a similar amount of time. There was suggestive evidence that Istmo Zapotec men viewed MtF transgender individuals for less time than they viewed cisgender women. However, this difference was not significant and subsequent research is needed to determine whether a true difference does exist.

Similarities in men's similar viewing times of MtF transgender individuals and cisgender women may not reflect equivalent sexual interests. It is probable, for example, that sexual interest primarily underlies men's viewing times of cisgender women. In contrast, non-sexual factors may have had a greater influence on men's viewing times of MtF individuals, prolonging them to the point where there were similar to those for cisgender women, despite differing sexual attraction ratings for the two groups.

What might these additional factors be? Previous research has suggested that viewing time latencies reflect the time participants spend looking at images as well as the time they spend evaluating targets' sexual attractiveness (Imhoff et al., 2010; Imhoff et al., 2012). In the present study, determining the status of the MtF transgender individuals' birth sex may have given participants pause, regardless of their cultural background. This is because although the bulges of the MtF transgender individuals' penises were visible through their underwear, they were nonetheless somewhat obscured. Additionally, viewing time latencies may have been prolonged, regardless of culture, as participants decided whether they were sexually attracted, on the one hand, to MtF transgender individuals' femininity and, on the other hand, to their male-typical morphological

characteristics (i.e., flat chest, fat distribution, and genitals). The proportion of viewing time influenced by sexual interest versus alternative non-sexual factors could vary across cultures. Further research will be necessary to parse sexual versus non-sexual influences on viewing time of MtF individuals across cultures.

If nude images of MtF individuals were used as stimuli in this study then results similar to those that had been previously documented (e.g., Hsu et al., 2016) may have been obtained. This is because the status of the model's genitals would not have been in question. It was not possible to employ nude images, however, due to legal restriction in Samoa pertaining to possession of pornographic images. The use of nude image could, however, be employed in future research involving a cross-cultural comparison of Canada and the Istmo Zapotec, where such legal restrictions are not in place.

In sum, men's subjective sexual interest in MtF transgender individuals differed across cultures. Men in cultures in which sexual interactions involving MtF transgender individuals and cisgender men are relatively common show greater subjective sexual interest in MtF transgender individuals than men in cultures in which such individuals and such sexual interactions occur less frequently. Further research is needed to resolve whether similar cross-cultural differences can be observed using more objective measures. For example, future studies may seek to employ alternative measures of sexual response (e.g., genital arousal, galvanic skin response).

### **Limitations**

There were several limitations of the present study that must be taken into consideration. First, participants were asked to assess the gender of individuals from images of minimally clad individuals. Men from each culture were given the same series of images, which permitted direct comparisons across cultures. However, this method was



limited because none of the models were Istmo Zapotec or Samoan. Consequently, the ecological validity of the stimuli was sub-optimal for the Istmo Zapotec and Samoan portions of this study. Ideally, within culture comparisons would have been conducted using culturally-specific stimuli. Unfortunately, it was not possible to obtain minimally clad images of *muxes gunaa* and *fa'afafine*.

Second, because the base population of cisgender women is much larger than that of MtF transgender individuals, there may have been more internet images of attractive cisgender women than there were internet images of attractive MtF transgender models. In all three of these cultures, there are very few men who report that MtF transgender individuals are their preferred partners. Consequently, it was not possible to have the images of MtF transgender individuals pre-rated for sexual attractiveness. Owing to this, participants' responses to images depicting MtF transgender individuals may have been attenuated relative to those of women.

Third, the present study was conducted in three distinct cultures and in three different languages. Participants were given the same basic task with translations of the same instructions. However, participants' understandings and interpretations of the task may have differed between cultures. It would not be possible to control for such cultural differences. This issue is partially mitigated for the viewing time portion of the task, which is not dependent on a common understanding of the study text.

Fourth, participants' experience with computers differed between cultures. Because of this, Istmo Zapotec and Samoan participants' understanding of the task was assessed with a trial whereas Canadian participants lead themselves through the trial and were not evaluated on their ability to complete the trial because they were experienced using computers and scale measures. Although I controlled for participants' baseline

responses, these efforts may not have completely corrected for cultural differences in familiarity with computers.

## **Ethics Statement**

### ***Ethics Approval***

This research was approved by an institutional human participants research ethics board. A Samoan Research Visa was obtained from Samoan Immigration with the support of the Samoan *Fa'afafine* Association. Research among the Istmo Zapotec was endorsed by the Office of the Municipal Principle in Juchitán, Mexico. Participants were required to provide informed written consent prior to taking part in the study.

### ***Competing Interests***

The authors declare no competing interests.

### ***Funding***

This work was supported by a SSHRC CGS Doctoral Scholarship to LJP and a Natural Science and Engineering Research Council of Canada Discovery Grant to PLV.

## References

- Angus Reid Institute Public Interest Research. (2016). *Transgender in Canada: Canadians say accept, accomodate, and move on*. Retrieved from <http://angusreid.org/wp-content/uploads/2016/09/2016.09.06-transgender-issues.pdf>
- Bailey, J. M. (2003). *The man who would be queen: The science of gender-bending and transsexualism*. Washington, D.C.: Joseph Henry Press.
- Bartlett, N. H., & Vasey, P. L. (2006). A retrospective study of childhood gender-atypical behavior in Samoan fa'afafine. *Archives of Sexual Behavior, 35*(6), 659–666. doi:10.1007/s10508-006-9055-1
- Bauer, G. R., & Hammond, R. (2015). Toward a broader conceptualization of trans women's sexual health. In: University of Toronto Press Incorporated.
- Bauer, G. R., Scheim, A. I., & Trans PULSE Project Team. (2015, June 1). *Transgender People in Ontario, Canada: Statistics to Inform Human Rights Policy*. Retrieved from <https://transpulseproject.ca/wp-content/uploads/2015/06/Trans-PULSE-Statistics-Relevant-for-Human-Rights-Policy-June-2015.pdf>
- Benjamin, D. J., Berger, J. O., Johannesson, M., Nosek, B. A., Wagenmakers, E.-J., Berk, R., . . . Camerer, C. (2018). Redefine statistical significance. *Nature Human Behaviour, 2*(1), 6–10. doi:10.1038/s41562-017-0189
- Blanchard, R., & Collins, P. I. (1993). Men with sexual interest in transvestites, transsexuals, and she-males. *Journal of Nervous and Mental Disease, 181*(9), 570–575. doi:10.1097/00005053-199309000-00008
- Boellstorff, T. (2004). Playing back the nation: Waria, Indonesian transvestites. *Cultural Anthropology, 19*(2), 159–195. doi:10.1525/can.2004.19.2.159
- Burruso, M. (2001). *Hombres, mujeres y muxe en la sociedad zapoteca del Ismo de Tehuantepec*. (Unpublished doctoral dissertation). Escuela Nacional de Antropología e Historia, Mexico City.
- Croall, H., & Wunderman, E. (Writers). (1999). Paradise bent: Gender diversity in Samoa [Motion picture]. In. New York, NY Filmmakers Library.
- Degtyar, A., George, P. E., Mallma, P., Díaz, D. A., Cárcamo, C., García, P. J., . . . Bayer, A. M. (2018). Sexual risk, behavior, and HIV testing and status among male and transgender women sex workers and their clients in Lima, Peru. *International Journal of Sexual Health, 30*(1), 81–91. doi:10.1080/19317611.2018.1429514
- Donham, D. L. (1998). Freeing South Africa: The “modernization” of male-male sexuality in Soweto. *Cultural Anthropology, 13*, 3–21.

- Ebsworth, M., & Lalumiere, M. L. (2012). Viewing time as a measure of bisexual sexual interest. *Archives of Sexual Behavior, 41*(1), 161–172. doi:10.1007/s10508-012-9923-9
- Escoffier, J. (2011). Imagining the she/male: Pornography and the transsexualization of the heterosexual male. *Studies in Gender and Sexuality, 12*(4), 268–281. doi:10.1080/15240657.2011.610230
- Eternity and Empirisoft Corporation. (1997). MediaLab Research Software. New York, NY.
- Gerico, H. (2015). *Looking for that “special” lady: Exploring hegemonic masculinity in online dating profiles of trans-attracted men*. (Master of Arts Masters). Central European University, Budapest, Hungary.
- Gómez Jiménez, F. R., Semenyna, S. W., & Vasey, P. L. (2020). Offspring production among the relatives of Istmo Zapotec men and muxes. *Archives of Sexual Behavior, 49*(2), 581–594. doi:10.1007/s10508-019-01611-y
- Haller, D. (1992). Homosexuality in Seville. *Solgan, 14*, 27–35. doi:10.1525/sol.1992.14.3.27
- Hallpike, C. R. (2008). *Konso Of Ethiopia: A study of the values of An East Cushitic people*. Central Milton Keynes, England: AuthorHouse.
- Herández, P. (Writer). (2002). Juchitan, queer paradise. In. New York, NY: Filmmakers Library.
- Howe, C., Zaraysky, S., & Lorentzen, L. (2008). Transgender sex workers and sexual transmigration between Guadalajara and San Francisco. *Latin American Perspectives, 35*(1), 31–50. doi:10.1177/0094582X07310956
- Hsu, K. J., Rosenthal, A. M., Miller, D. I., & Bailey, J. M. (2016). Who are gynandromorphophilic men? Characterizing men with sexual interest in transgender women. *Psychological Medicine, 46*(4), 819-827. doi:10.1017/S0033291715002317
- Imhoff, R., Schmidt, A. F., Nordsiek, U., Luzar, C., Young, A. W., & Banse, R. (2010). Viewing time effects revisited: Prolonged response latencies for sexually attractive targets under restricted task conditions. *Archives of Sexual Behavior, 39*(6), 1275–1288. doi:10.1007/s10508-009-9595-2
- Imhoff, R., Schmidt, A. F., Weiß, S., Young, A. W., & Banse, R. (2012). Vicarious viewing time: Prolonged response latencies for sexually attractive targets as a function of task-or stimulus-specific processing. *Archives of Sexual Behavior, 41*(6), 1389–1401. doi:10.1007/s10508-011-9879-1

- Israel, E., & Strassberg, D. S. (2009). Viewing time as an objective measure of sexual interest in heterosexual men and women. *Archives of Sexual Behavior, 38*(4), 551–558. doi:10.1007/s10508-007-9246-4
- Joyal, C. C., Cossette, A., & Lapierre, V. (2015). What exactly is an unusual sexual fantasy? *Journal of Sexual Medicine, 12*(2), 328–340. doi:10.1111/jsm.12734
- Kinsey, A. C., Pomeroy, W. R., & Martin, C. E. (1948). *Sexual behavior in the human male*. Philadelphia, PA: W. B. Saunders Co.
- Kulick, D. (1997). The gender of Brazilian transgendered prostitutes. *American Anthropologist, 99*(3), 574–585. doi:10.1525/aa.1997.99.3.574
- Lehmiller, J. (2020, April 24). I'm a cisgender woman and my husband watches trans porn: Does that mean he's not into me? Retrieved from <https://www.lehmiller.com/blog/2020/4/24/im-a-cisgender-woman-and-my-husband-watches-trans-porn-does-that-mean-hes-not-into-me>
- Lim, D. C. L. (2015). Visualizing the invisible: Social constructions of straight identified men who have sex with transsexuals and feminized gay men on/off Malaysian film. *Studies in Gender and Sexuality, 16*(3), 183–203. doi:10.1080/15240657.2015.1073047
- Lippa, R. A. (2012). Effects of sex and sexual orientation on self-reported attraction and viewing times to images of men and women: Testing for category specificity. *Archives of Sexual Behavior, 41*(1), 149–160. doi:10.1007/s10508-011-9898-y
- Lippa, R. A. (2013). Men and women with bisexual identities show bisexual patterns of sexual attraction to male and female "swimsuit models". *Archives of Sexual Behavior, 42*(2), 187–196. doi:10.1007/s10508-012-9981-z
- Lippa, R. A., Patterson, T. M., & Marelich, W. D. (2010). Looking at and longing for male and female "swimsuit models". *Social Psychological and Personality Science, 1*(3), 238–245. doi:10.1177/1948550609359814
- Meyerowitz, J. (2002). *How sex changed: A history of transsexuality in the United States*. Cambridge, MA: Harvard University Press.
- Milan, K. (2017). In this Mexican city trans people are celebrated, so why do they feel so left out? *Narratively*. Retrieved from <https://narratively.com/in-this-mexican-city-trans-people-are-celebrated-so-why-do-they-feel-so-left-out/>
- Mirandé, A. (2011). The Muxes of Juchitan: a preliminary look at transgender identity and acceptance. *California Western International Law Journal, 42*, 509–540.

- Mirandé, A. (2016). Hombres mujeres: An indigenous third gender. *Men and Masculinities, 19*(4), 384–409. doi:10.1177/1097184X15602746
- Mitsuhashi, J. (2006). The transgender world in contemporary Japan: The male to female cross-dressers' community in Shinjuku. *Inter-Asia cultural studies, 7*(2), 202–227. doi:10.1080/14649370600673847
- Money, J., & Lamacz, M. (1984). Gynemimesis and gynemimetophilia: Individual and cross-cultural manifestations of a gender-coping strategy hitherto unnamed. *Comprehensive Psychiatry, 25*(4), 392–403.
- Murray, S. O. (2000). *Homosexualities*. Chicago, IL: The University of Chicago Press.
- Nanda, S. (2014). *Gender diversity: Cross-cultural variations*. Long Grove, IL: Waveland Press.
- Ogas, O. (2011, May 05). Shemales, bestiality, and granny porn: Mere curiosity or genuine sexual interest: An analysis of unorthodox sexual searches. *A Billion Wicked Thoughts*. Retrieved from <https://www.psychologytoday.com/blog/billion-wicked-thoughts/201105/shemales-bestiality-and-granny-porn-mere-curiosity-or-genuine>.
- Ogas, O., & Goddam, S. (2011). *A Billion wicked thoughts: What the internet tells us about sexual relationships*. New York, NY: Penguin Group.
- Operario, D., Burton, J., Underhill, K., & Sevelius, J. (2008). Men who have sex with transgender women: Challenges to category-based HIV prevention. *AIDS and Behavior, 12*(1), 18–26. doi:10.1007/s10461-007-9303-y
- Petterson, L. J., Dixson, B. J., Little, A. C., & Vasey, P. L. (2018). Viewing time and self-report measures of sexual attraction in Samoan cisgender and transgender androphilic males. *Archives of Sexual Behavior, 47*(8), 2427–2434. doi:10.1007/s10508-018-1267-7
- Pornhub Insights. (2019, December 11). 2019 Year in Review. Retrieved from <https://www.pornhub.com/insights/2019-year-in-review>
- Quinsey, V. L., Ketsetzis, M., Earls, C., & Karamanoukian, A. (1996). Viewing time as a measure of sexual interest. *Ethnology and Sociobiology, 17*, 341–354.
- R Development Core Team. (2015). RStudio: Integrated development for R. Boston, MA: RStudio, Inc.
- Rullo, J. E., Strassberg, D. S., & Israel, E. (2010). Category-specificity in sexual interest in gay men and lesbians. *Archives of Sexual Behavior, 39*(4), 874–879. doi:10.1007/s10508-009-9497-3

- Scheim, A. I., & Bauer, G. R. (2015). Sex and gender diversity among transgender persons in Ontario, Canada: Results from a respondent-driven sampling survey. *The Journal of Sex Research, 52*(1), 1–14. doi:10.1080/00224499.2014.893553
- Scheim, A. I., & Bauer, G. R. (2019). Sexual inactivity among transfeminine persons: A Canadian respondent-driven sampling survey. *Journal of Sex Research, 56*(2), 264–271. doi:10.1080/00224499.2017.1399334
- Schifter, J., & Madrigal, J. (1997). The transvestite's lover: Identity and behavior. In V. L. Bullough & J. Elias (Eds.), *Gender blending*. New York, NY: Prometheus Books
- Stief, M. (2017). The sexual orientation and gender presentation of hijra, kothi, and panthi in Mumbai, India. *Archives of Sexual Behavior, 46*(1), 73–85. doi:10.1007/s10508-016-0886-0
- United Nations Development Programme, United Nations Children's Fund, & The University of New South Wales. (2016). *Pacific multi-country mapping and behavioural study: HIV and STI Risk vulnerability among key populations – Samoa*. Retrieved from <http://www.pacific.undp.org/content/pacific/en/home/library/DG/pacific-multicountry-mapping-behavioural-study-key-findings.html>
- VanderLaan, D. P., Petterson, L. J., & Vasey, P. L. (2016). Femininity and kin-directed altruism in androphilic men: A test of an evolutionary developmental model. *Archives of Sexual Behavior, 45*(3), 619–633. doi:10.1007/s10508-015-0632-z
- Vasey, P. L., Pocock, D. S., & VanderLaan, D. P. (2007). Kin selection and male androphilia in Samoan fa'afafine. *Evolution and Human Behavior, 28*(3), 159–167. doi:10.1016/j.evolhumbehav.2006.08.004
- Vasey, P. L., & VanderLaan, D. P. (2014). Evolving research on the evolution of male androphilia. *The Canadian Journal of Human Sexuality, 23*(3), 137–147. doi:10.3138/cjhs.23.3-CO1
- Weinberg, M. S., & Williams, C. J. (2010). Men sexually interested in transwomen (MSTW): Gendered embodiment and the construction of sexual desire. *Journal of Sex Research, 47*(4), 374–383. doi:10.1080/00224490903050568
- Whitam, F. L. (1992). Bayot and callboy in the Philippines. In S. O. Murray (Ed.), *Oceanic homosexualities*. New York, NY: Garland.
- Wikan, U. (1977). Man becomes woman: Transsexualism in Oman as a key to gender roles. *Man, 12*, 304–319.

**Table 6.1***Biographic information.*<sup>a</sup>

	Canada <i>N</i> = 84	Juchitán <i>N</i> = 120	Samoa <i>N</i> = 105
Age: <i>M</i> ( <i>SD</i> )	22.34 (4.98)	28.27 (7.99)	30.60 (10.94)
Age range	18 - 46	18 - 54	18 - 59
Ethnicity: <i>n</i> (%)			
Samoan	-	-	105 (100%)
Zapotec	-	116 (97%)	-
Hispanic/Latino	2 (2%)	4 (3%)	-
White	60 (71%)	-	-
Black	7 (8%)	-	-
FNMI <sup>b</sup>	5 (6%)	-	-
Asian	5 (6%)	-	-
Middle Eastern	3 (4%)	-	-
Other	2 (2%)	-	-
Socioeconomic status: <i>n</i> (%)			
Lower class	-	31 (26%)	5 (5%)
Lower-middle class	20 (24%)	36 (30%)	53 (51%)
Middle class	35 (42%)	45 (38%)	32 (31%)
Upper-middle class	25 (30%)	7 (6%)	13 (13%)
Upper class	4 (5%)	-	1 (1%)
Religious affiliation: <i>n</i> (%)			
Christian	40 (48%)	12 (10%)	105 (100%)
Catholic	-	60 (50%)	-
Other	12 (14%)	10 (8%)	-
None	32 (38%)	38 (32%)	-
Religiosity			
Not at all religious	32 (39%)	25 (21%)	2 (2%)
Somewhat religious	37 (45%)	88 (73%)	63 (60%)
Very religious	13 (16%)	7 (6%)	40 (38%)
Relationship status			
Single	35 (42%)	28 (23%)	29 (28%)
Dating multiple people	1 (1%)	3 (3%)	1 (1%)
Dating one person	34 (40%)	34 (28%)	40 (38%)
Married/common law	14 (17%)	55 (46%)	34 (33%)

<sup>a</sup> Missing values were not imputed<sup>b</sup> First Nations, Metis, Inuit



**Table 6.2***Modified Kinsey score attraction ratings and sexual histories*

	Canada N = 84	Juchitán N = 120	Samoa N = 105
<b>Sexual attraction ratings of men</b>			
A little sexually attractive	7 (8%)	2 (2%)	6 (6%)
Neither attractive nor unattractive	36 (43%)	17 (14%)	11 (10%)
A little sexually unattractive	6 (7%)	11 (9%)	2 (2%)
Very sexually unattractive	35 (42%)	90 (75%)	86 (82%)
<b>Sexual attraction ratings of women</b>			
A little sexually unattractive	4 (5%)	16 (13%)	6 (6%)
Very sexually unattractive	80 (95%)	104 (87%)	99 (94%)
<b>Sexual attraction ratings of MtF transgender individuals</b>			
Very sexually attractive	-	2 (2%)	11 (10%)
A little sexually attractive	11 (13%)	35 (33%)	34 (32%)
Neither attractive nor unattractive	15 (18%)	24 (20%)	6 (6%)
A little sexually unattractive	19 (23%)	20 (17%)	9 (9%)
Very sexually unattractive	39 (46%)	39 (29%)	45 (43%)
<b>Kinsey scores</b>			
Kinsey 0	76 (90%)	112 (93%)	93 (89%)
Kinsey 1	8 (10%)	8 (7%)	12 (11%)
<b>Past year sexual behavior</b>			
No one	13 (15%)	5 (4%)	3 (3%)
MtF transgender individuals	-	-	5 (5%)
Women	70 (83%)	106 (88%)	68 (65%)
Women & men	1 (1%)	2 (2%)	-
Women & MtF transgender individuals	-	7 (6%)	25 (24%)
Women, MtF transgender individuals, & men	-	-	4 (4%)
<b>Lifetime sexual behavior</b>			
No one	13 (15%)	-	2 (2%)

MtF transgender individuals	-	-	3 (3%)
Women	65 (77%)	84 (70%)	46 (44%)
Women & men	5 (6%)	1 (1%)	-
Women & MtF transgender individuals	1 (1%)	32 (27%)	47 (45%)
Women, MtF transgender individuals, & men	-	3 (3%)	7 (7%)
<b>Past year sexual feelings</b>			
No one	1 (1%)	-	-
MtF transgender individuals	-	-	-
Women	72 (86%)	87 (73%)	56 (53%)
Women & men	5 (6%)	1 (1%)	1 (1%)
Women & MtF transgender individuals	3 (4%)	32 (26%)	40 (38%)
Women, MtF transgender individuals, & men	3 (4%)	-	8 (8%)
<b>Lifetime sexual feelings</b>			
No one	1 (1%)	-	-
MtF transgender individuals	-	-	-
Women	69 (82%)	62 (52%)	45 (43%)
Women & men	8 (10%)	-	1 (1%)
Women & MtF transgender individuals	3 (4%)	55 (46%)	47 (45%)
Women, MtF transgender individuals, & men	3 (4%)	3 (3%)	12 (11%)

**Table 6.3***Sexual attraction rating and viewing times by country.*

<b>Sexual attraction Ratings</b> <sup>a</sup>	Canada			Juchitán			Samoa		
	<i>Mdn</i>	<i>SD</i>	Range	<i>Mdn</i>	<i>SD</i>	Range	<i>Mdn</i>	<i>SD</i>	Range
<i>Raw ratings</i>									
Bonobo	1.00	.90	1.00 – 3.00	1.00	.62	1.00 – 3.70	1.00	.39	1.00 – 3.20
Cisgender men	1.89	.89	1.00 – 3.67	1.00	.86	1.00 – 4.00	1.00	.68	1.00 – 4.00
MtF transgender individuals	1.44	.75	1.00 – 3.56	1.56	1.08	1.00 – 4.89	2.00	1.40	1.00 – 5.00
Cisgender women	4.33	.51	2.00 – 5.00	4.22	.70	2.11 – 5.00	4.78	.68	2.22 – 5.00
<b>Viewing times</b> <sup>b</sup>									
<i>Raw viewing times</i>									
Bonobo	2.65	1.40	.58 – 9.10	3.66	1.91	1.27 – 10.81	3.41	2.41	1.19 – 14.90
Cisgender men	3.16	1.54	.78 – 8.00	3.73	2.02	1.17 – 11.20	3.75	2.90	1.27 – 16.70
MtF transgender individuals	4.16	1.79	.99 – 10.06	4.48	2.44	1.48 – 12.69	4.68	3.20	1.48 – 20.03
Cisgender women	4.08	1.40	1.64 – 7.58	4.72	1.94	1.55 – 10.63	4.73	2.80	1.79 – 19.52
<i>Baseline controlled viewing times</i>									
Cisgender men	.51	1.27	-2.62 – 4.29	.07	1.10	-2.60 – 6.42	.34	1.21	-2.63 – 6.10
MtF transgender individuals	1.51	1.62	-3.13 – 6.15	.82	1.37	-1.95 – 6.32	1.27	1.60	-1.72 – 6.12
Cisgender women	1.43	1.48	-3.10 – 5.11	1.06	1.73	-4.31 – 7.48	1.32	1.52	-1.40 – 7.57

<sup>a</sup> Response options: 1 = “very sexually unattractive” to “5 = “very sexually attractive”<sup>b</sup> Seconds

**Table 6.4**

*Mixed-effect model analysis with stimuli category and group predicting viewing times.*

	<i>b</i>	95% CI <sup>a</sup>	<i>SE</i>	df	<i>t</i> -value	<i>p</i> -value
<b>Fixed Effects</b>						
Intercept	.54	.15, .93	.20	8028	2.72	.007
Age	.03	.01, .04	.01	305	3.76	<.001
<i>Stimuli contrasts</i>						
Feminine individuals vs. cisgender men	.32	.25, .39	.04	8028	9.12	<.001
Cisgender women vs. MtF transgender individuals	-.04	-.16, .08	.06	8028	-.67	.504
<i>Group comparison</i>						
Samoa vs. Canada	-.39	-.72, -.06	.17	305	-2.35	.020
Juchitán vs. Canada	-.66	-.97, -.35	.16	305	-4.16	<.001
<i>Interactions</i>						
Feminine individuals vs. cisgender men X Samoa vs. Canada	-.00	-.09, .09	.05	8028	-.04	.965
Cisgender women vs. MtF transgender individuals X Samoa vs. Canada	.07	-.09, .22	.08	8028	.80	.423
Feminine individuals vs. cisgender men X Samoa vs. Canada	-.03	-.12, .06	.05	8028	-.64	.524
Cisgender women vs. MtF transgender individuals X Samoa vs. Canada	.16	.00, .31	.08	8028	2.02	.044
<hr/>						
		SD	95% CI <sup>a</sup>			
<b>Random effects</b>						
Intercept		.97	.87, 1.08			
Residual		2.32	2.32, 2.39 <sup>b</sup>			

<sup>a</sup> Values are approximated.

<sup>b</sup> Within-group *SE*

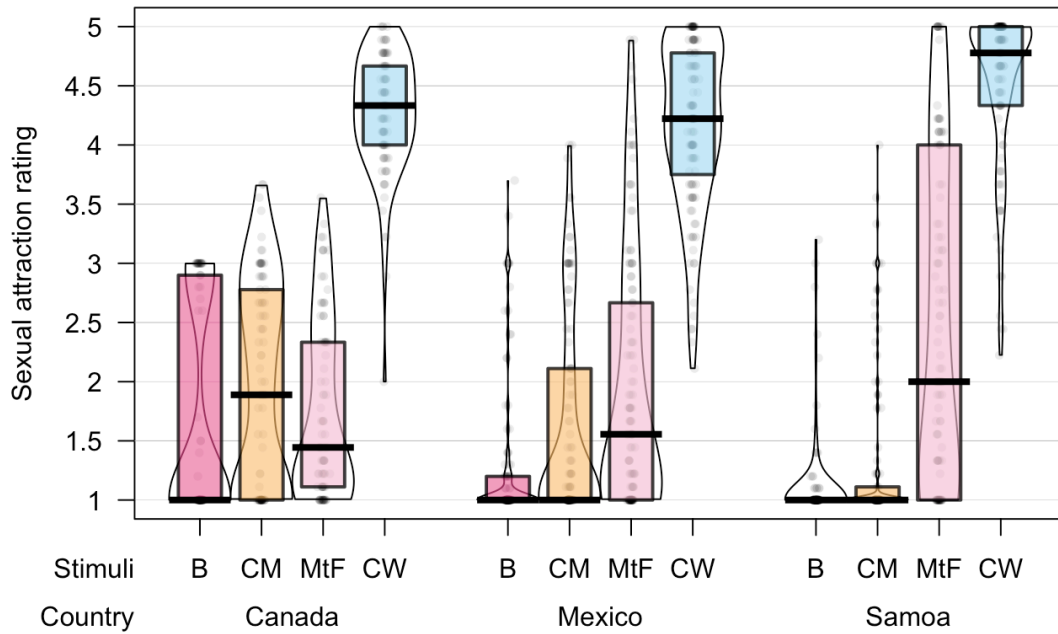


Figure 6.1: Sexual attraction rating by image category and country. Image categories: B = bonobos; CM = cisgender men; MtF = MtF transgender individuals; CW = cisgender women. Black bars equal the median image rating. Boxes represent the interquartile range. White shapes indicate the distribution of participant's score. Light dots represent participant's scores.

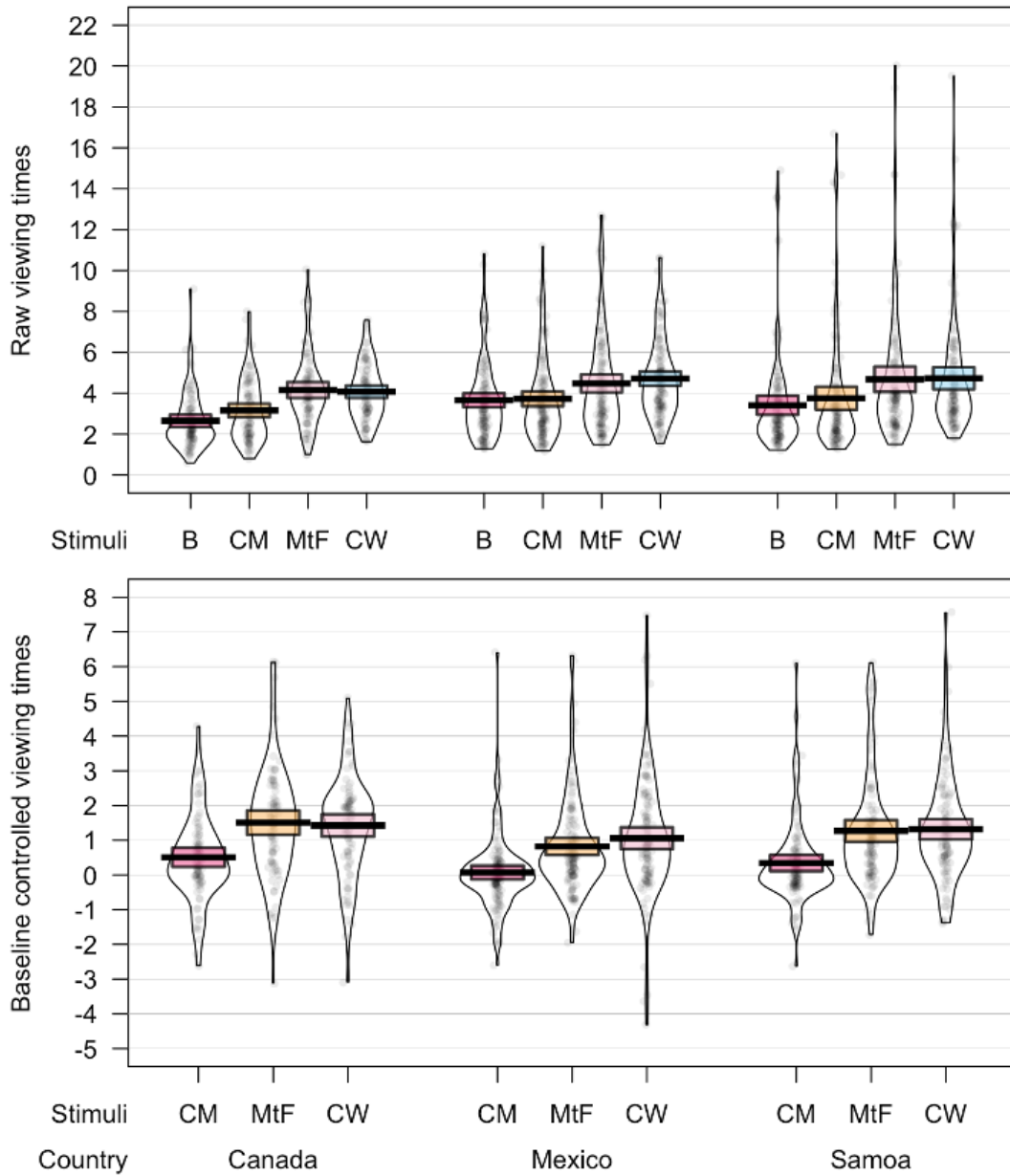


Figure 6.2: Raw and baseline-controlled viewing times by image category and country. Image categories: B = bonobos; CM = cisgender men; MtF = MtF transgender individuals; CW = cisgender women. Black bars equal the mean image viewing time. Boxes represent 95% confidence intervals. White shapes indicate the distribution of participant's score. Light dots represent participant's scores.

## **Chapter 7: Do Individual Factors and Exposure Influence Men's Sexual Attraction and Visual Attention MtF Individuals?**

### **Abstract**

Some gynephilic men experience sexual interest in MtF transgender individuals with penises whereas others do not. In the present study, I employed measures of self-reported sexual attraction and visual attention to, first, examine whether gynephilic men ( $N = 82$ ) commonly experience some sexual interest in MtF transgender individuals, in addition to cisgender women. Second, I assessed whether men who are sexually interested in MtF transgender individuals differ from those who are not in terms of self-reported sexual attraction and allocation of visual attention to images of MtF transgender individuals. Lastly, I assessed whether greater sexual attraction and visual attention to images of MtF transgender individuals were associated with less restricted sociosexuality, lower homonegativity, greater interest in visual sexual stimuli, lower socially desirable response, and exposure to sexual stimuli depicting these individuals. Gynephilic men were more attracted to, and biased their attention toward, images of MtF transgender individuals compared to those of cisgender men. The participants who had some sexual interest in MtF transgender individuals reported greater sexual attraction and allocated greater visual attention to images of these individuals than those of cisgender men. Finally, lower homonegativity was associated with greater visual attention to images of MtF transgender individuals. The results suggest that heterosexual men, in general, possess some capacity for sexually attraction to MtF transgender individuals, and social attitudes, such as homonegativity, appear relevant to this response.

*Keywords:* transgender women; eye-tracking; gynandromorphophilia; sexual orientation; homonegativity

## Introduction

*Transgender* refers to individuals whose gender assigned at birth differs from their present gender identity and behavior. In Western cultures, such as the USA and Canada (male-to-feminine) MtF transgender individuals often identify as trans women or, simply, women, although not all do so (e.g., Richards et al., 2016). MtF transgender individuals may, to varying degrees, assume female-typical dress and appearance (e.g., they may wear feminine hairstyles and make-up). Some MtF transgender individuals undergo breast augmentation, using surgical and hormonal procedures (James et al., 2016; Kailas et al., 2017; Meyerowitz, 2002) but others do not modify their bodies in this manner (James et al., 2016; Kuper, Nussbaum, & Mustanski, 2012). Relatively few MtF transgender individuals undergo genital reconstructive surgeries, although some do (James et al., 2016; Kailas et al., 2017; Puckett et al., 2018; Scheim & Bauer, 2015).

A subset of cisgender men (hereafter, men) expresses sexual interest in MtF transgender individuals with penises (Blanchard & Collins, 1993; Money & Lamacz, 1984; Operario et al., 2008). This sexual interest is referred to as *gynandromorphophilia*. The majority of gynandromorphophilic men are predominantly gynephilic (i.e., sexually attracted and aroused by adult females) although a considerable portion are ambiphilic (i.e., sexually attracted and aroused by adult females and adult males) (e.g., Boellstorff, 2004; Coan et al., 2005; Hall et al., 2017; Hsu et al., 2016; Lim, 2015; Operario et al., 2008; Petterson et al., 2016; Rosenthal et al., 2017; Stief, 2017; ten Brummelhuis, 1999a). A small portion of these men are predominantly androphilic (i.e., sexually attracted and aroused by adult males) (e.g., Bockting et al., 2007; Coan et al., 2005; Hall et al., 2017; Stief, 2017).



Why are some men sexually interested in MtF transgender individuals with penises (hereafter, MtF transgender individuals) whereas others do not express this interest? It is possible that men who are sexually attracted to cisgender women have the capacity to become sexually interested in MtF transgender individuals because MtF transgender individuals and cisgender women share many physical and behavioral characteristics. If so, men who are predominately gynephilic would be predicted to show greater sexual interest in MtF transgender individuals than in cisgender men and sexually irrelevant stimuli. This interest should be positively correlated with the degree to which MtF transgender individuals have undergone surgical and hormonal feminizing treatments (e.g., breast augmentation).

One previous study, which assessed sexual interest using self-report measures as well as initial and controlled visual attention capture produced results that are, by and large, consistent with these ideas (Chapter 4). Gynephilic men (i.e., men who identified as heterosexual) reported that they were most sexually attracted to cisgender women, but they were somewhat more sexually attracted to MtF transgender individuals, particularly those with breasts, than they were to cisgender men and non-sexual images (i.e., bonobos, *Pan paniscus*—a species of great ape). Moreover, their initial attention was biased toward all feminine individuals—including cisgender women, MtF transgender individuals with breasts, and MtF transgender individuals without breasts—over cisgender men and bonobos. Although they allocated greater controlled attention to cisgender women over all other image categories, they allocated greater controlled attention to MtF transgender individuals, particularly those with breasts, than to cisgender men and bonobos. The first aim of this study was to replicate these previous findings.

Additional studies indicate that men who are sexually interested in MtF transgender individuals show an appreciable psychophysiological response to these individuals (e.g., Chapter 3; Hsu et al., 2016). For instance, men who seek out sexual relationships with MtF transgender individuals show greater genital arousal to these individuals than men who are exclusively sexually interested in cisgender women (Hsu et al., 2016). In light of this research, the second aim of this study was to assess whether gynephilic men who are sexually interested in MtF transgender individuals allocate greater controlled attention to these individuals than men who are exclusively sexually interested in cisgender women.<sup>36</sup>

If most men have the capacity for sexual interest in MtF transgender individuals, why would this interest be expressed by only a portion of men? This question motivated the third, and foremost, aim of the present study, which was to investigate whether individual factors, including sociosexuality (i.e., motivation to pursue short-term or long term mating), homonegativity, interest in visual sexual stimuli, and socially desirable response bias, were associated with sexual interest in MtF transgender individuals—as indicated by self-reported sexual attraction and controlled visual attention.

Another individual factor that may influence men's patterns of sexual attraction involves exposure to MtF transgender individuals. Psychological research demonstrates that people tend to prefer familiarity over novelty (known as the mere exposure effect; Zajonc, 1968). For example, people rate others as more attractive if they look familiar (e.g., Peskin & Newell, 2004). In regions where MtF transgender individuals are

---

<sup>36</sup> Measures of initial attention were excluded from this comparison because gynephilic men's initial attention is uniformly allocated to cisgender women and MtF individuals (Chapter 4).

prevalent in the population (e.g., the Istmo region of Mexico, Samoa, India), sexual interactions between these individuals and men do not appear to be uncommon (Mirandé, 2016; Petterson et al., 2015; Stief, 2017). As such, the present study sought to test whether exposure to erotic images of MtF transgender individuals across the span of a month affected men's self-reported sexual attraction and visual attention to these individuals. If exposure to MtF transgender individuals influenced men's sexual interest in these individuals, this would provide evidence that conditioning and experiential learning, in part, shape sexual preferences, motivations, arousal, and behavior within the bounds of one's sexual orientation (Imhoff et al., 2017; Toates, 2009).

To investigate my three aims, I examined Canadian gynephilic men's self-reported sexual attraction and controlled visual attention to nude images of (1) MtF transgender individuals with surgically augmented breasts,<sup>37</sup> (2) MtF transgender individuals without surgically augmented breasts, (3) cisgender women, (4) cisgender men, and (5) non-sexual controls (bonobos). Previous research demonstrates that men bias their attention toward stimuli of their preferred gender and away from their non-preferred gender when using this paradigm (Dawson & Chivers, 2016; Dawson et al., 2017; Fromberger et al., 2012). On the basis of the previous literature and my aims, I made the following three predictions:

### **Prediction 1**

Men were predicted to report (1) greater sexual attraction to cisgender women than all other image categories, (2) greater sexual attraction to MtF transgender

---

<sup>37</sup> Individuals in this group appeared to have undergone other hormonal and surgical treatments, although none had undergone genital surgery. For instance, many had female-typical fat distributions, as well as female-typical jaw lines.

individuals than cisgender men and bonobos, and (3) greater sexual attraction to MtF transgender individuals with breasts than those without. Men were predicted to allocate their initial attention to all feminine image categories over images of cisgender men and bonobos. Finally, men were predicted to allocate (1) greater controlled attention to cisgender women than all other image categories, (2) greater controlled attention to MtF transgender individuals than cisgender men and bonobos, and (3) greater controlled attention to MtF transgender individuals with breasts than those without.

### **Prediction 2**

Men who are sexually interested in MtF transgender individuals were predicted to report greater sexual attraction to MtF transgender individuals than men who were only sexually interested in cisgender women. They were also predicted to allocate greater controlled attention to MtF transgender individuals than men who are only sexually interested in cisgender women.

### **Prediction 3**

Sexual interest in MtF transgender individuals was predicted to be positively associated with sociosexuality and interest in visual sexual stimuli and negatively associated with homonegativity and socially desirable response bias. Additionally, men were predicted to report greater sexual attraction to MtF transgender individuals and allocate greater controlled attention to them following exposure to erotic images of MtF transgender individuals over a one-month period. Men who were exposed to images of cisgender women over the course of a month were not predicted to show a similar change in response to MtF transgender individuals.

## **Methods**

### **Participants**

Heterosexual-identified men (hereafter, gynephilic men) were recruited from a small Canadian university. Participants were ineligible if they were (1) under 18; (2) had an existing medical condition that would prevent them from viewing a computer screen for an extended time, or being in close proximity to a small magnet [which is used to affix the eye tracker to the laptop]; (3) had vision that was anything but normal or corrected to normal; (4) female; (5) identified as gay or bisexual; (6) had previously discussed the purpose of the study with one of their peers; (7) had not previously viewed pornography; (8) were not comfortable viewing sexually explicit imagery; (9) had participated in a previous image rating study conducted by our research group.

The study was advertised via posters and an advertisement that was emailed to students who were enrolled in a psychology course. Interested participants were asked to contact the first author for more information. Participants were informed that the study involved the investigation of attention processes and attraction to nude and sexually explicit images. Additionally, they were informed that participation in the study could potentially change their response to the stimuli, which might change how they think about their sexuality and, in turn, possibly alter their social status and personal relationships. Men who elected to participate were given CAD \$50 for their time.

In total,  $N = 82$  men (age range 18–33,  $M_{\text{age}} = 21.11$ ,  $SD = 2.86$ ) completed the study. Participants were randomly assigned to exposure condition. Participants were excluded from the analysis of visual attention measures if the gaze accuracy of their recording was low (below 80%). As such, analysis of visual attention during Session 1 (i.e., prior to exposure to the experimental stimuli) pertained to  $N = 78$  men, and analysis comparing participants visual attention during Session 1 and Session 2 (i.e., following one month of exposure to the experimental stimuli) pertained to  $N = 73$  men. Between

sessions,  $n = 42$  participants were sent images of MtF transgender individuals with breasts ( $n = 38$  used for analysis of visual attention) and  $n = 40$  were sent images of cisgender women ( $n = 35$  used for analysis of visual attention). One participant withdrew from the study in between sessions. Additionally, two participants were excluded from the analysis of initial attention because their mean values were outliers; the removal of these participants did not change the results.

All participants reported that they were mostly or exclusively sexually attracted to cisgender women. Some participants reported that they had experienced sexual feelings (i.e., sexual attraction, thoughts, or fantasies; which may have included seeking erotica) or had engaged in sexual activities with transgender women<sup>38</sup> and cisgender men. Participants' self-reported sexual feelings for, and sexual behavior with, transgender women, cisgender women, and cisgender men are shown in Table 7.1.

Participants' pornography viewing histories are shown in Table 7.2. Participants viewed a range of pornographic videos. All participants had viewed heterosexual pornography, which involves a cisgender man and cisgender woman. Nearly all participants (over 80%) also viewed lesbian, teen (18+), female-female-male threesome, female solo (i.e., masturbation), and amateur porn. The majority of participants had not viewed pornography of MtF transgender individuals.

### **Stimuli**

During the eye-tracking experiments, participants were shown a series of 40 paired images, which included (1) nude MtF transgender individuals with breasts, (2)

---

<sup>38</sup> Participants were specifically asked about transgender women, and not MtF transgender individuals, because the former is a recognizable and culturally intelligible identity term in the West, whereas "MtF transgender individuals" is not.

nude MtF transgender individuals without surgically augmented breasts, (3) nude cisgender women, (4) nude cisgender men, and (5) bonobos (16 images from each category were used). All pairings were shown four times (40 pairs total, with each stimuli pair displayed 4 times and each stimuli category displayed 16 times). Images were taken from freely accessible websites using similar terms for each category type (e.g. using words such as “hot” and “sexy”). Images of humans were nude and sexually explicit. Effort was made to match the groups based on various characteristics (e.g., ethnicity, hair color, standing, posture). However, it was not possible to do so in every respect (e.g., ethnicity, hair color, standing, posture, and facial expressions were not completely matched). Images are available from the corresponding author upon request.

Stimuli images were edited to control for low-level features using Adobe Photoshop CC 2015. Image features such as scene content and image color may influence eye-gaze patterns (see Henderson & Hollingworth, 1998). As such, backgrounds were removed from images and images were transposed to grayscale. Necklaces with crosses and wedding/engagement rings were removed from the models. Because image luminance can influence gaze patterns (Loftus, 1985), image intensity was adjusted to limit variation. Additionally, because image complexity may influence ratings of image valence (Ochsner, 2000), I examined whether image complexity (estimated by bytes persevered after JPEG compression; Buodo et al., 2002; Forsythe et al., 2008) varied across stimuli type. Image size were adjusted to 450 pixels (or 6.25 inches) high with a resolution of 72 pixels/inch. Images ranged in width from 192 pixels to 615 pixels (the widest human was 455 pixels).

The human images were similar in terms of their low-level features. However, bonobos are darker than humans, which cannot be fully adjusted, and their fur adds

additional complexity. As such, the control images differed from the target images with respect to their low-level features.

### **Apparatus**

The study was conducted using a 17-inch laptop with 1920 x 1080 resolution. Eye tracking and pupil dilation was measured using a Tobii X3-120 eye tracker and Tobii Pro Studio™ Software. The Tobii X3-120 uses near-infrared light to illuminate the eye and sensors capture pupil movement using bright and dark pupil detection and operates at 120 Hz. The X3-120 records participant's distance and allows for small movements. The eye-tracker was calibrated for each participant using 9 points of focus.

### **Procedure**

Participants were informed that the study would require them to view nude, and sexually explicit images of men, women, transgender women, as well as images of bonobos. To account for the eye-tracker, they were told that the study's purpose is to understand the way in which people pay attention when evaluating the sexual appeal of humans who vary in terms of their gender presentation.

Consistent with previous studies that have assessed sexual interests using eye-tracking measures, visual attention bias was assessed using a forced attention paradigm (Dawson & Chivers, 2016; Dawson et al., 2017; Fromberger et al., 2012; Nummenmaa et al., 2006). This involved presenting images in opposing corners of the screen (top right/bottom left or top left/bottom right), which precluded participants from viewing both images simultaneously. A fixation cross was located in the center of the screen. Images within each category pair appeared in a different corner of the screen each time the pair was shown. The images were placed so that the corners of the images closest to the center were equidistant from the center cross.



The same eye-tracking task was completed during Session 1 and Session 2. Each image pair remained on the screen for 10 seconds and was preceded by a fixation cross that appeared on the screen for 2 seconds. The images were entered in a random order, but all participants viewed the images in the same order. After each image pair was shown, participants were asked to identify the image on the top (response options included: woman, man, transgender woman, or ape) and rate how sexually attractive they were to each individual in the images (response options ranged from 1 = “not at all sexually attracted” to 7 = “extremely sexually attracted”). Following this, the same questions were asked for the images on the bottom.

Between Session 1 and 2, participants were sent survey links daily, which contained a sexually explicit image and a single question asking them to confirm that they had viewed the image, (1 image per day, five times per week on weekdays; 20 images total). Participants were randomly assigned to receive images of nude cisgender women or MtF transgender individuals with breasts. Participants were required to view the images on a daily basis throughout the month to remain in the study. Due to scheduling conflicts, some participants did not view the last image before the second session (for example, if they were scheduled to complete the study in the morning, before they viewed the image). Session 2 was scheduled approximately 4 weeks after Session 1. Many participants completed the second session 4 weeks after the first, but, due to scheduling issues and technical problems with the equipment, some participants completed the study 5 weeks after the first session. Following the eye-tracking portion of Session 2, participants were given a questionnaire that included biographic questions, measures of sexual orientation, and the scale measures (see below).

### **Measures and Data Treatment**

### ***Image Identification and Self-Reported Sexual Attraction***

Questions pertaining to the model's identity were used to assess whether participants were rating the correct image. Missing self-reported sexual attraction ratings were replaced with participant's mean response to the respective image category. Mean self-reported sexual attraction ratings were calculated for each image category.

### ***Measures of Visual Attention***

The images were set as areas of interest (AOIs). Fixation patterns were defined using Tobii Pro Studio™ Fixation Filter. Tobii Pro Studio™ Fixation Filter uses an algorithm to distinguish fixations from saccades for the AOIs. With this algorithm, fixations are defined as periods when eye movement is minimal and focused on a particular area of the screen.

Initial attention was assessed using time to first fixation (TFF) (i.e., the latency between stimulus presentation and participants' first fixation on an AOI). Low TFF scores indicate quicker attention capture. Controlled attention was assessed using total fixation duration (TFD) (i.e., the total amount of time that participants fixated on an AOI) for each stimuli category. High TFD scores indicate greater controlled attention capture.

Values were winsorized to reduce the influence of outliers. To do so, the z-scores were calculated for TFFs and TFDs within each session. TFD values that exceeded a z-score of 3.29 were replaced with the next highest value + .5 seconds. TFF values that exceeded a z-score of 3.29 were replaced with the next highest value + .1 seconds. In cases in which a participant had two outlying TFF values, the lowest outlying value was replaced with the participant's highest non-outlying value + .1 seconds and the higher outlying value was replaced participant's highest non-outlying value + .2 seconds.

### ***Questionnaire Measures***

During both sessions, participants were asked to provide biodemographic information. They were also asked to recall the frequency with which they had they experienced sexual attraction to men, women, and transgender women and the frequency with which they had engaged in sexual behavior with men, women, and transgender women using modified Kinsey Scales (Kinsey et al., 1948) (response range: 0 = “I have engaged in no sexual activity with/I have had no sexual feelings for women/men/transgender women” to 4 = “I have only engaged in sexual activity with/I have only had sexual feelings for women/men/transgender women”, X = “I have engaged in no sexual activity/I have had no sexual attractions, thoughts or fantasies”). For this measure, participants were asked to report how frequently they had experienced sexual feelings for each gender and had engaged in sexual activity with each gender during the past year and their lifetime.

During Session 1, participants selected the pornography categories they had viewed previously from a list (see categories listed in Table 7.2). During Session 2, participants selected the pornography categories they viewed between sessions (excluding the stimuli that were sent them). Additionally, during Session 2, they completed a modified Attraction to Feminine Males Scale (Veale et al., 2008; see Chapter 4 for modifications), the Modern Homonegativity Scale (Morrison & Morrison, 2002), the Sociosexual Orientation Inventory (Simpson & Gangestad, 1991), the Socially Desirable Response Set (Hays, Hayashi, & Stewart, 1989), and the Interest in Visual Sexual Stimuli Scale (Bailey et al., 1994).

Responses to the Interest in Visual Sexual Scale and the Modern Homonegativity Scale were averaged across each scale (high scores indicate greater interest in visual sexual stimuli and homonegativity, respectively). Responses to the Socially Desirable

Response Set were aggregated based on the calculation suggested by Hays et al. (1989) (high scores indicate a socially desirable response bias). Responses to the Sociosexual Orientation Inventory were aggregated using the weightings suggested in Simpson and Gangestad (1991) (higher scores indicate less restricted mate strategies), but response to Item 2 (“how many different partners do you foresee yourself having sex with during the next five years?”) and Item 3 (“with how many different partners have you had sex with, on one and only one occasion?”) were capped at 15. Values were standardized across participants before they were entered into the analyses.

### **Statistical Analysis**

Statistical analyses were conducted using RStudio, version 1.1.383 (R Development Core Team, 2015). The threshold for statistical significance was set at  $p < .005$  and  $p$ -values below  $p < .05$  were taken as suggestive evidence of an effect (Benjamin et al., 2018). Because, participant’s sexual attraction ratings were highly skewed, non-parametric tests were used for analyses of self-reported sexual attraction. Parametric tests were used for analyses of visual attention.

### ***Aim 1***

I assessed whether there was an effect of sex and gender presentation on participant’s self-reported sexual attraction and visual attention during Session 1. Participant’s self-reported sexual attraction to the human image categories were compared using 3 paired Wilcoxon tests: (1) mean sexual attraction to cisgender women versus grand mean sexual attraction to the remaining human categories; (2) mean sexual attraction to cisgender men versus grand mean sexual attraction to MtF transgender individuals; (3) mean sexual attraction to MtF transgender individuals without breasts versus mean sexual attraction to MtF transgender individuals with breasts.

Analyses of visual attention measures were conducted with mixed-effect models using maximum likelihood estimates. Intercepts were permitted to vary across participants. TFFs and TFDs for each image were included in separate models. Orthogonal contrast codes were created to compare participant's TFFs and TFDs on the various image categories: (1) cisgender women (coded as -3) versus the remaining image categories (each coded as 1); (2) cisgender men (coded as -2) versus MtF transgender individuals (both coded as 1) (cisgender women coded as 0); (3) MtF transgender individuals with breasts (coded as 1) versus MtF transgender individuals without breasts (coded as -1) (cisgender women and cisgender men coded as 0). For each measure, the three contrasts were entered as predictors. Regression coefficients (*b*-values) represent the difference between the categories being compared divided by the number of groups in each contrast.

For the measures of visual attention, I also compared men's TFFs and TFDs on the human images to images of bonobos. To do so, four planned contrasts were created. For each of these contrasts, bonobos were coded as 0, the relevant human image category was coded as 1, and all other human image categories were coded as 0.

### ***Aim 2***

I assessed whether men who had sexual feelings for transgender women differed from those who did not have sexual feelings for transgender women in their mean response to MtF transgender individuals relative to their mean response to cisgender women. Participants' mean sexual attraction ratings of MtF transgender individuals were subtracted from their mean sexual attraction ratings of cisgender women. Additionally, participants' mean TFDs on MtF transgender individuals were subtracted from their mean TFDs on cisgender women. These discrepancy scores were calculated for MtF

transgender individuals with breasts and those without breasts. For both measures, smaller scores indicate less of a discrepancy in participants' response to the two image categories, or greater sexual interest in MtF transgender individuals. The between-group comparisons of self-reported sexual attraction were conducted using one-way permutation tests with Monte Carlo resampling. The between-group comparisons of TFDs were conducted using regressions.

### *Aim 3*

I assessed whether sociosexuality, homonegativity, socially desirable response bias, and interest in visual sexual stimuli were related to participants' response to MtF transgender individuals. This was done for MtF transgender individuals with breasts and those without breasts. The relationship between individual differences in sociosexuality, homonegativity, socially desirable response bias, interest in visual sexual stimuli and self-reported sexual attraction to MtF transgender individuals was assessed using Kendall Tau correlations. The relationship between individual differences in sociosexuality, homonegativity, socially desirable response bias, interest in visual sexual stimuli and TFDs on MtF transgender individuals was assessed using regressions. For these regressions, sociosexuality, homonegativity, socially desirable responding, and interest in visual were entered as predictors.

Additionally, one-way permutation tests were used to assess whether there was a difference in participants' mean sexual attraction to MtF transgender individuals between Session 1 and 2 (mean response to MtF transgender individuals at Session 2 – mean response to MtF transgender individuals at Session 1). Multilevel models (using maximum likelihood estimation) were used to assess whether there was a difference in participants TFDs on MtF transgender individuals between Session 1 and 2. For these

analysis, significant session X condition group interaction would indicate an effect of exposure. Intercepts were permitted to vary across participants. TFDs for each image were included in the model.

## Results

Table 7.3 shows self-reported sexual attraction, TFF, and TFD measures of central tendency. For measures included in the exposure analysis (i.e., self-reported sexual attraction and TFD), values for Session 1 and Session 2 are shown by exposure group in Table 7.3.

### Aim 1

Figure 7.1 shows self-reported sexual attraction to each image category. Participants reported greater sexual attraction to cisgender women than the remaining human image categories,  $Z = 7.78, p < .001, r = .86$ . They reported greater sexual attraction to images of MtF transgender individuals than to cisgender men,  $Z = 5.57, p < .001, r = .62$ . Additionally, they reported greater sexual attraction to MtF transgender individuals with breast than to MtF transgender individuals without breasts,  $Z = 6.63, p < .001, r = .73$ . The difference between participants' sexual attraction to MtF transgender individuals with breasts and MtF transgender individuals without breasts was larger than the difference between sexual attraction to MtF transgender individuals and cisgender men.

Figure 7.2 shows TFFs for each image category. For the comparison of human images, intercepts varied across participants,  $\chi^2(1) = 382.37, p < .001$ . There was a significant effect of stimuli category on TFFs,  $\chi^2(3) = 81.66, p < .001$ . Participants were quicker to fixate on cisgender women than the remaining human image categories,  $b = .05, 95\% \text{ CI } (.04, .07), SE = .01, p < .001$ . They were slower to fixate on cisgender men

than on MtF transgender individuals,  $b = -.07$ , 95% CI (-.09, -.05),  $SE = .01$ ,  $p < .001$ .

Their TFFs on MtF transgender individuals without breasts and MtF transgender individuals with breasts were similar,  $b = -.01$ , 95% CI (-.05, .02),  $SE = .02$ ,  $p = .466$ . The confidence intervals for TFFs on cisgender women, MtF transgender individuals with breasts, and MtF transgender individuals without breasts overlapped considerably, indicating that participants' initial attention was captured by all feminine individuals.

For the comparisons TFFs on bonobos and human images, intercepts varied across participants,  $\chi^2(1) = 507.63$ ,  $p < .001$ . There was an effect of stimuli category on TFFs,  $\chi^2(4) = 279.34$ ,  $p < .001$ . Participants were slower to fixate on bonobos than all human categories (all  $p$ -values  $< .001$ ).

Figure 7.3 shows TFDs on each image category. For the comparison of human images, intercepts varied across participants,  $\chi^2(1) = 285.05$ ,  $p < .001$ . There was a significant effect of stimuli category on TFDs,  $\chi^2(3) = 2090.42$ ,  $p < .001$ . Participants fixated on cisgender women longer than the remaining stimuli categories,  $b = -.30$ , 95% CI (-.31, -.28),  $SE = .01$ ,  $p < .001$ . They fixated on cisgender men for less time than on MtF transgender individuals,  $b = .17$ , 95% CI (.15, .19),  $SE = .01$ ,  $p < .001$ . Additionally, they fixated on MtF transgender individuals without breasts for less time than on MtF transgender individuals with breasts,  $b = .13$ , 95% CI (.1, .16),  $SE = .02$ ,  $p < .001$ .

For the comparison of bonobos and human images, intercepts varied across participants,  $\chi^2(1) = 314.74$ ,  $p < .001$ . There was an effect of stimuli category on TFDs,  $\chi^2(4) = 2665.41$ ,  $p < .001$ . Participants fixated on bonobos less than all other stimuli (all  $p$ -values  $< .001$ ) with the exception of cisgender men ( $p = .308$ ).

## **Aim 2**



Figure 7.4 shows self-reported sexual attraction and controlled attention to MtF transgender individuals by participants' sexual feelings for transgender women. Men who had sexual feelings for transgender women ( $Mdn$  difference = 2.56,  $SD = .90$ ) were less discrepant in their self-reported sexual attraction to MtF transgender individuals with breasts and cisgender women than men who did not have sexual feelings for transgender women ( $Mdn$  difference = 3.50,  $SD = 1.24$ ),  $Z = 3.07$ ,  $p = .002$ . Men who had sexual feelings for transgender women ( $Mdn$  difference = 3.31,  $SD = .94$ ) did not differ from men who did not have sexual feelings for transgender women ( $Mdn$  difference = 3.94,  $SD = 1.23$ ) with respect to their discrepancies in self-reported sexual attraction to MtF transgender individuals without breasts and cisgender women,  $Z = 1.66$ ,  $p = .094$ .

Men who had sexual feelings for transgender women ( $M$  difference = 1.28,  $SD = .90$ ) were also less discrepant in their TFDs on MtF transgender individuals with breasts and cisgender women than men who did not have sexual feelings for transgender women ( $M$  difference = 2.45,  $SD = 1.85$ ),  $b = -.71$ , 95% CI (1.15, .28),  $SE = .22$ ,  $p = .002$ . There was suggestive evidence that men who had sexual feelings for transgender women ( $M$  difference = 1.99,  $SD = 1.38$ ) were also less discrepant in their TFDs on MtF transgender individuals without breasts and cisgender women than men who did not have sexual feelings for transgender women ( $M$  difference = 2.98,  $SD = 1.86$ ),  $b = -.57$ , 95% CI (1.01, -.12),  $SE = .22$ ,  $p = .013$ .

### **Aim 3**

TFDs on MtF transgender individuals were negatively associated with homonegativity (MtF transgender individuals with breasts:  $b = -.39$ , 95% CI [-.61, -.17],  $SE = .11$ ,  $p = .001$ ; MtF transgender individuals without breasts:  $b = -.50$ , 95% CI [-.71, -.30],  $SE = .10$ ,  $p = .001$ ). There was suggestive evidence that self-reported sexual

attraction to MtF transgender individuals was negatively associated with homonegativity (MtF transgender individuals with breasts:  $\tau = -.18, p = .022$ ; MtF transgender individuals without breasts:  $\tau = -.18, p = .021$ ). No other significant associations were found between the scale measures (i.e., sociosexuality, socially desirable response bias, interest in visual sexual stimuli) and responses to MtF transgender individuals ( $p$ -values ranged from .064 – .974).

Figure 7.5 shows self-reported sexual attraction and controlled attention to MtF transgender individuals for each image category by session. Exposure condition (i.e., exposure to MtF transgender individuals or cisgender women) did not have a significant effect on participants' self-reported sexual attraction to MtF transgender individuals (MtF transgender individuals with breasts:  $Z = -.14, p = .900$ ; MtF transgender individuals without breasts:  $Z = -.90, p = .387$ ). Similarly, the session X exposure condition interactions were not significant for participants' TFDs on MtF transgender individuals (MtF transgender individuals with breasts:  $b = -.08, 95\% \text{ CI } [-.22, .07], SE = .07, p = .299$ ; MtF transgender individuals without breasts:  $b = -.06, 95\% \text{ CI } [-.20, .08], SE = .07, p = .417$ ) (see Figure 7.5).

## Discussion

The present findings were consistent with the idea that gynephilic men have the propensity to experience some, albeit lower levels, of sexual interest in MtF transgender individuals. Self-report measures indicated that gynephilic men were most sexually attracted to cisgender women, but they were more sexually attracted to MtF transgender individuals than to cisgender men and non-sexual stimuli (bonobos). The difference between participants' sexual attraction to MtF transgender individuals and cisgender men was primarily driven by their heightened sexual attraction to MtF transgender individuals

with breasts. Additionally, men directed their initial attention towards all categories of feminine individuals, underscoring the importance of a model's gender with respect to this measure. Most of their controlled attention (TFD) was allocated to cisgender women, underscoring the influence of a model's birth sex on this measure. However, they allocated greater controlled attention to MtF transgender individuals—particularly those with breasts—than to cisgender men and non-sexual stimuli. Gynephilic men allocated greater controlled attention to all feminine image categories than bonobos, but they allocated comparably low levels of controlled visual attention to cisgender men and bonobos. These patterns of self-reported sexual attraction and visual attention were in line with those of Chapter 4.

It has been previously suggested that attraction to MtF transgender individuals with breasts and to attraction to MtF transgender individuals without breasts are distinct phenomenon (Hsu et al., 2016). The former tends to be more common in industrialized (often Western) contexts, and the latter tends to be more common in non-industrialized (often non-Western) contexts. Gynephilic men do differ in their response to MtF transgender individuals with breasts and those without augmented breasts. Nevertheless, participants' responses to these image categories were more similar to each other than either was to their responses to cisgender women and men. This suggests that MtF transgender individuals with and without breasts are perceived as distinct, but more similar to each other, than either is to cisgender men or cisgender women.

Some gynephilic men reported greater sexual attraction and allocated greater visual attention to MtF transgender individuals than others. Men who experienced sexual attraction, thoughts, or fantasies related to transgender women reported greater sexual attraction to MtF transgender individuals than men who did not report such feelings. They

also allocated greater controlled attention to MtF transgender individuals than men who did not report having such feelings. These findings are consistent with previous studies showing that gynandromorphophilic men differ from non-gynandromorphophilic men in terms of their response to sexual stimuli depicting MtF transgender individuals (e.g., Chapter 3; Hsu et al., 2016). However, this difference was primarily found in response to MtF transgender individuals with breasts and not in response to MtF transgender individuals without augmented breasts. An effect of group on men's response to the latter may have been revealed if a larger sample had been used. Nevertheless, it seems likely that if such an effect does exist, it is comparatively small.

Sociosexuality, socially desirable responding, and interest in visual sexual stimuli were not associated with men's self-reported sexual attraction or controlled attention to MtF transgender individuals. Homonegativity, however, was associated with controlled visual attention to MtF transgender individuals such that men who were less homonegative allocated greater attention to these individuals. Similarly, there was suggestive evidence that homonegativity was associated with self-reported sexual attraction to MtF transgender individuals. Comparable results were found for MtF transgender individuals with breasts and MtF transgender individuals without augmented breasts. These findings suggest that social attitudes, such as homonegativity, are, at least partially, related to gynephilic men's sexual interest in MtF transgender individuals.

Contrary to the results presented here, Chapter 4 found no association between homonegativity and expressions of sexual interest in MtF transgender individuals. In this previous study, the association between homonegativity and the discrepancy in participants' visual attention to cisgender men and MtF transgender individuals was assessed using the grand mean of participants' visual attention to MtF transgender

individuals with breasts and MtF transgender individuals without breasts. It is possible that there was not enough variation in men's response to MtF transgender individuals without breasts relative to cisgender men to obtain a significant correlation in that study. Future studies will be necessary to determine whether social attitudes toward same-sex relationships are indeed associated with sexual interest in MtF transgender individuals.

I did not find support for the hypothesis that exposure to MtF transgender individuals influences gynephilic men's sexual responsiveness to them. Daily exposure to images of MtF transgender individuals over a one-month period did not affect gynephilic men's self-reported sexual attraction or controlled visual attention to these individuals. It is possible that men are sensitive to such exposure during a critical window of early psychosexual development but not afterwards. If this were the case, the participants, who were young adults, would have been outside this critical developmental window.

Consistent with this idea, some heterosexual-identified men who occasionally have sex with MtF transgender individuals attribute their sexual interest to early, often unsolicited, sexual contact with a transgender woman (Reback & Larkins, 2006). It is not clear, however, whether these early sexual interactions truly fostered this sexual interest or simply provided the opportunity to actualize a latent sexual interest. It is also possible that positive social relationships with MtF transgender individuals may encourage gynephilic men's sexual and romantic interest in these individuals, which may, in turn, lead to actual sexual interactions that are experienced as pleasurable. Sexual reward experienced during these interactions could conceivably reinforce this type of sexual interest. Exposure to erotic imagery of MtF transgender individuals in a laboratory study over a period of one month, obviously, does not have the same sort of ecologically validity as exposure to MtF transgender individuals over the course of one's development

in childhood, adolescence and young adulthood. As such, the experimental conditions employed in this study may not have been sufficient to produce any effect. Future research is needed to further assess the tenability of these speculations.

### **Limitations**

There may have been a self-selection bias in participant recruitment. It was noted in the study advertisement that participants would be required to view nude images of women, men, and transgender women. Additionally, interested individuals were informed that it was possible participation could impact their sexual response patterns. Men who were willing to participate may have differed from those who elected not to participate; they may, for example, have been more open to novel sexual experiences.

Finally, participants were informed that I was interested in examining visual attention when evaluating the attractiveness of various sexual images. These instructions may have influenced participants' attention patterns but were necessary because (1) I was interested in participant's subjective sexual attraction to the images, and (2) I needed to justify the use of an eye-tracker. Future studies may benefit from employing a free viewing task to mitigate this limitation.

### **Ethics Statement**

#### ***Ethics Approval***

This research was approved by the University of Lethbridge Human Subjects Research Ethics Committee. Participants were required to provide informed written consent prior to taking part in the study.

#### ***Competing Interests***

The authors declare no competing interests.

#### ***Funding***

This work was supported by a SSHRC CGS Doctoral Scholarship to LJP and a Natural Science and Engineering Research Council of Canada Discovery Grant to PLV.

## References

- Bailey, J. M., Gaulin, S., Agyei, Y., & Gladue, B. A. (1994). Effects of gender and sexual orientation on evolutionarily relevant aspects of human mating psychology. *Journal of Personality and Social Psychology, 66*(6), 1081–1093.
- Benjamin, D. J., Berger, J. O., Johannesson, M., Nosek, B. A., Wagenmakers, E.-J., Berk, R., . . . Camerer, C. (2018). Redefine statistical significance. *Nature Human Behaviour, 2*(1), 6–10. doi:10.1038/s41562-017-0189
- Blanchard, R., & Collins, P. I. (1993). Men with sexual interest in transvestites, transsexuals, and she-males. *Journal of Nervous and Mental Disease, 181*(9), 570–575. doi:10.1097/00005053-199309000-00008
- Bockting, W., Miner, M., & Rosser, B. R. (2007). Latino men's sexual behavior with transgender persons. *Archives of Sexual Behavior, 36*(6), 778–786. doi:10.1007/s10508-006-9133-4
- Boellstorff, T. (2004). Playing back the nation: Waria, Indonesian transvestites. *Cultural Anthropology, 19*(2), 159–195. doi:10.1525/can.2004.19.2.159
- Buodo, G., Sarlo, M., & Palomba, D. (2002). Attentional resources measured by reaction times highlight differences within pleasant and unpleasant, high arousing stimuli. *Motivation and Emotion, 26*(2), 123–138. doi:10.1023/A:1019886501965
- Coan, D. L., Schragger, W., & Packer, T. (2005). The role of male sexual partners in HIV infection among male-to-female transgendered individuals. *International Journal of Transgenderism, 8*(2-3), 21–30. doi:10.1300/J485v08n02\_03
- Dawson, S. J., & Chivers, M. L. (2016). Gender-specificity of initial and controlled visual attention to sexual stimuli in androphilic women and gynephilic men. *PloS one, 11*(4), e0152785. doi:10.1371/journal.pone.0152785
- Dawson, S. J., Fretz, K. M., & Chivers, M. L. (2017). Visual attention patterns of women with androphilic and gynephilic sexual attractions. *Archives of Sexual Behavior, 46*(1), 141–153. doi:10.1007/s10508-016-0825-0
- Forsythe, A., Mulhern, G., & Sawey, M. (2008). Confounds in pictorial sets: The role of complexity and familiarity in basic-level picture processing. *Behavior Research Methods, 40*(1), 116–129. doi:10.3758/BRAI.40.1.116
- Fromberger, P., Jordan, K., von Herder, J., Steinkrauss, H., Nemetschek, R., Stolpmann, G., & Müller, J. L. (2012). Initial orienting towards sexually relevant stimuli: Preliminary evidence from eye movement measures. *Archives of Sexual Behavior, 41*(4), 919–928. doi:10.1007/s10508-011-9816-3



- Hall, G., Young, A., Krakauer, C., Watson, C. C., Cummings, V., Mayer, K., & Koblin, B. (2017). Sexual risk behaviors among black men who have sex with men who also report having sex with transgender partners: Analysis of HIV Prevention Trials Network (HPTN) 061 study. *AIDS Education and Prevention, 29*(5), 418–431.
- Hays, R. D., Hayashi, T., & Stewart, A. L. (1989). A five-item measure of socially desirable response set. *Educational and Psychological Measurement, 49*(3), 629–636. doi:10.1177/001316448904900315
- Henderson, J. M., & Hollingworth, A. (1998). Eye movements during scene viewing: An overview. In *Eye guidance in reading and scene perception* (pp. 269–293). Oxford, England: Elsevier.
- Hsu, K. J., Rosenthal, A. M., Miller, D. I., & Bailey, J. M. (2016). Who are gynandromorphophilic men? Characterizing men with sexual interest in transgender women. *Psychological Medicine, 46*(4), 819–827. doi:10.1017/S0033291715002317
- Imhoff, R., Banse, R., & Schmidt, A. F. (2017). Toward a theoretical understanding of sexual orientation and sexual motivation. *Archives of Sexual Behavior, 46*(1), 29–33. doi:10.1007/s10508-016-0881-5
- James, S., Herman, J., Rankin, S., Keisling, M., Mottet, L., & Anafi, M. (2016). *The report of the 2015 U.S. Transgender Survey*. Retrieved from <https://transequality.org/sites/default/files/docs/usts/USTS-Full-Report-Dec17.pdf>
- Kailas, M., Lu, H. M. S., Rothman, E. F., & Safer, J. D. (2017). Prevalence and types of gender-affirming surgery among a sample of transgender endocrinology patients prior to state expansion of insurance coverage. *Endocrine Practice, 23*(7), 780–786. doi:10.4158/EP161727.OR
- Kinsey, A. C., Pomeroy, W. R., & Martin, C. E. (1948). *Sexual behavior in the human male*. Philadelphia, PA: W. B. Saunders Co.
- Kuper, L. E., Nussbaum, R., & Mustanski, B. (2012). Exploring the diversity of gender and sexual orientation identities in an online sample of transgender individuals. *Journal of Sex Research, 49*(2-3), 244–254. doi:10.1080/00224499.2011.596954
- Lim, D. C. L. (2015). Visualizing the invisible: Social constructions of straight identified men who have sex with transsexuals and feminized gay men on/off Malaysian film. *Studies in Gender and Sexuality, 16*(3), 183–203. doi:10.1080/15240657.2015.1073047
- Loftus, G. R. (1985). Picture perception: Effects of luminance on available information and information-extraction rate. *Journal of Experimental Psychology: General, 114*(3), 342–356. doi:10.1037/0096-3445.114.3.342

- Meyerowitz, J. (2002). *How sex changed: A history of transsexuality in the United States*. Cambridge, MA: Harvard University Press.
- Mirandé, A. (2016). Hombres mujeres: An indigenous third gender. *Men and Masculinities, 19*(4), 384–409. doi:10.1177/1097184X15602746
- Money, J., & Lamacz, M. (1984). Gynemimesis and gynemimetophilia: Individual and cross-cultural manifestations of a gender-coping strategy hitherto unnamed. *Comprehensive Psychiatry, 25*(4), 392–403.
- Morrison, M. A., & Morrison, T. G. (2002). Development and validation of a scale measuring modern prejudice toward gay men and lesbian women. *Journal of Homosexuality, 43*(2), 15–37. doi:10.1300/j082v43n02\_02
- Nummenmaa, L., Hyönä, J., & Calvo, M. G. (2006). Eye movement assessment of selective attentional capture by emotional pictures. *Emotion, 6*(2), 257–268. doi:10.1037/1528-3542.6.2.257
- Ochsner, K. N. (2000). Are affective events richly recollected or simply familiar? The experience and process of recognizing feelings past. *Journal of Experimental Psychology: General, 129*(2), 242–261. doi:10.1037//0096-3445.129.2.242
- Operario, D., Burton, J., Underhill, K., & Sevelius, J. (2008). Men who have sex with transgender women: Challenges to category-based HIV prevention. *AIDS and Behavior, 12*(1), 18–26. doi:10.1007/s10461-007-9303-y
- Peskin, M., & Newell, F. N. (2004). Familiarity breeds attraction: Effects of exposure on the attractiveness of typical and distinctive faces. *Perception, 33*(2), 147–157. doi:10.1068/p5028
- Petterson, L. J., Dixson, B. J., Little, A. C., & Vasey, P. L. (2015). Viewing time measures of sexual orientation in Samoan cisgender men who engage in sexual interactions with fa'afafine. *PloS one, 10*(2). doi:10.1371/journal.pone.0116529
- Petterson, L. J., Dixson, B. J., Little, A. C., & Vasey, P. L. (2016). Reconsidering male bisexuality: Sexual activity role and sexual attraction in Samoan men who engage in sexual interactions with fa'afafine. *Psychology of Sexual Orientation and Gender Diversity, 3*(1), 11–26. doi:10.1037/sgd0000160
- Puckett, J. A., Cleary, P., Rossman, K., Mustanski, B., & Newcomb, M. E. (2018). Barriers to gender-affirming care for transgender and gender nonconforming individuals. *Sexuality Research and Social Policy, 15*(1), 48–59. doi:10.1007/s13178-017-0295-8
- R Development Core Team. (2015). RStudio: Integrated development for R. Boston, MA: RStudio, Inc.

- Reback, C. J., & Larkins, S. (2006). *Once in a blue moon: Toward a better understanding of heterosexually identified men who have sex with men and/or preoperative transgender women*. Los Angeles, CA: City of Los Angeles, AIDS Coordinator.
- Richards, C., Bouman, W. P., Seal, L., Barker, M. J., Nieder, T. O., & T'Sjoen, G. (2016). Non-binary or genderqueer genders. *International Review of Psychiatry*, 28(1), 95–102. doi:10.3109/09540261.2015.1106446
- Rosenthal, A. M., Hsu, K. J., & Bailey, J. M. (2017). Who are gynandromorphophilic men? An internet survey of men with sexual interest in transgender women. *Archives of Sexual Behavior*, 46(1), 255–264. doi:10.1007/s10508-016-0872-6
- Scheim, A. I., & Bauer, G. R. (2015). Sex and gender diversity among transgender persons in Ontario, Canada: Results from a respondent-driven sampling survey. *The Journal of Sex Research*, 52(1), 1–14. doi:10.1080/00224499.2014.893553
- Simpson, J. A., & Gangestad, S. W. (1991). Individual differences in sociosexuality: evidence for convergent and discriminant validity. *Journal of Personality and Social Psychology*, 60(6), 870–883. doi:10.1037//0022-3514.60.6.870
- Stief, M. (2017). The sexual orientation and gender presentation of hijra, kothi, and panthi in Mumbai, India. *Archives of Sexual Behavior*, 46(1), 73–85. doi:10.1007/s10508-016-0886-0
- ten Brummelhuis, H. (1999). Transformations of Transgender. *Journal of Gay & Lesbian Social Services*, 9(2-3), 121–139. doi:10.1300/J041v09n02\_06
- Toates, F. (2009). An integrative theoretical framework for understanding sexual motivation, arousal, and behavior. *Journal of Sex Research*, 46(2-3), 168–193. doi:10.1080/00224490902747768
- Veale, J. F., Clarke, D. E., & Lomax, T. C. (2008). Sexuality of male-to-female transsexuals. *Archives of Sexual Behavior*, 37(4), 586–597. doi:10.1007/s10508-007-9306-9
- Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology*, 9(2p2), 1. doi:10.1037/h0025848

**Table 7.1***Self-reported sexual orientation and response to the Modified Attraction to Feminine Male Scale.*

	Only cisgender women		Cisgender women & cisgender men		Cisgender women & transgender women		Cisgender women, cisgender men, & transgender women		None	
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
<i>Sexual behavior:</i>										
Reported during Session 1	81.5	66	7.4	6			2.5	2	8.6	7
Reported during Session 2 <sup>a</sup>	82.7	67	8.6	7			1.2	1	7.4	6
<i>Sexual feelings:</i>										
Reported during Session 1 <sup>b</sup>	61.7	50	7.4	6	21	17	9.9	8		
Reported during Session 2	51.9	42	13.6	11	21	17	13.6	11		
	Sexual feelings for transgender women				No sexual feelings for transgender women					
	% <i>n</i>		% <i>n</i>		% <i>n</i>		% <i>n</i>		% <i>n</i>	
<i>Sexual feelings for transgender women:</i>	37.8 31				62.2 51					
<i>Modified Attraction to Feminine Male</i> <sup>c</sup>	<i>M = 2.32, Mdn = 0, SD = 4.8, range = 0 - 25</i>									

Note: 1 participant did not answer questions about their sexual feelings and behavior during Session 1 and another participant did not answer questions about their sexual feelings and behavior during Session 2.

<sup>a</sup> 1 participant reported that most of their sexual behavior was with women and men.

<sup>b</sup> 1 participant reported equal attraction to cisgender women and transgender women.

<sup>c</sup> Response range from 0 – 10. Maximum possible score is 32.

**Table 7.2***Participants' pornography histories.*

	Categories viewed before Session 1 <sup>a</sup>		Categories viewed between Sessions	
	<i>n</i>	%	<i>n</i>	%
1. Heterosexual	81	100	76	93
2. Lesbian	74	91	46	56
3. Teen (18+)	73	90	57	70
4. Female-female-male threesome	68	84	41	50
5. Amateur	67	83	51	62
6. Female solo	66	81	35	43
7. MILF	62	77	43	52
8. Anal	57	70	30	37
9. Public	47	58	28	34
10. Rough	43	53	28	34
10. Orgy	43	53	25	30
11. Male-male-female threesome	37	46	19	23
12. Fetish	32	40	24	29
12. BDSM	32	40	15	18
13. Transgender	18	22	10	12
14. Gay	8	10	3	4
15. Male solo	3	4	3	4

Categories ranked based on popularity.

<sup>a</sup> 1 participant did not report their porn viewing history during Session 1.

**Table 7.3***Descriptive statistics for self-reported sexual attraction, time to first fixation and total fixation duration.*

	Cisgender women	MtF transgender individuals with breasts	MtF transgender individuals without breasts	Cisgender men	Bonobos
Sexual Attraction Ratings: <i>Mdn (SD)</i> <sup>a</sup>					
<i>Session 1</i>					
Full sample <i>N</i> = 82	5.13 (1.05)	1.69 (.94)	1.13 (.65)	1 (.47)	1 (.03)
MtF transgender individual exposure group <i>N</i> = 42	4.91 (1.05)	1.84 (.98)	1.22 (.71)	1 (.53)	1 (.02)
Cisgender women exposure group <i>N</i> = 40	5.38 (1.05)	1.59 (.92)	1.10 (.57)	1.03 (.39)	1 (.04)
<i>Session 2</i>					
MtF transgender individual exposure group <i>N</i> = 42	5.13 (1.16)	1.31 (.95)	1.06 (.80)	1 (.64)	1 (.06)
Cisgender women exposure group <i>N</i> = 40	5.13 (1.35)	1.19 (.94)	1 (.40)	1 (.41)	1 (.06)
Time to First Fixation: <i>M (SD)</i> <sup>b</sup>					
<i>Session 1</i>					
Full sample <i>N</i> = 76	.91 (.31)	1.02 (.36)	1.05 (.35)	1.23 (.46)	1.52 (.60)
Total Fixation Duration: <i>M (SD)</i> <sup>b</sup>					
<i>Session 1</i>					
Full sample <i>N</i> = 78	6.34 (1.11)	4.36 (1.16)	3.75 (1.10)	2.91 (1.18)	2.84 (.96)
MtF transgender individual exposure group					

<i>N</i> = 40	6.25 (1.13)	4.33 (1.21)	3.84 (1.17)	2.91 (1.18)	2.81 (.99)
Cisgender women exposure group					
<i>N</i> = 38	6.44 (1.09)	4.39 (1.13)	3.67 (1.02)	2.91 (1.20)	2.87 (.93)
<i>Session 2</i>					
MtF transgender individual exposure group					
<i>N</i> = 38	6.62 (1.08)	4.06 (1.37)	3.61 (1.25)	3.06 (1.47)	2.64 (1.13)
Cisgender women exposure group					
<i>N</i> = 35	6.35 (1.17)	4.43 (1)	3.68 (.94)	3.19 (1.31)	2.87 (1.03)

Note: Visual attention values have been winsorized.

<sup>a</sup> Response options ranged from 1 = “not at all sexually attracted” to 7 = “extremely sexually attracted”.

<sup>b</sup> In seconds.

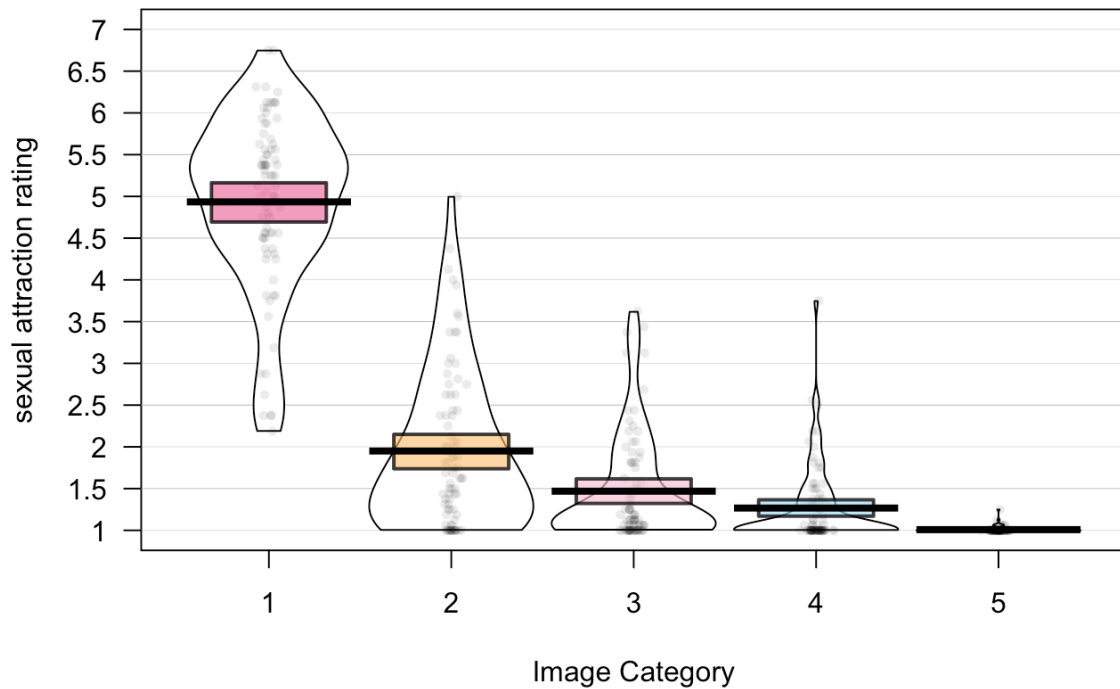


Figure 7.1: Self-reported sexual attraction by image category. Image categories: 1 = cisgender women; 2 = MtF transgender individuals with breasts; 3 = MtF transgender individuals without augmented breasts; 4 = cisgender men; 5 = bonobos. Black bars equal image mean. Boxes represent 95% confidence intervals. White shapes indicate the distribution of participant's score. Light dots represent participant's scores.



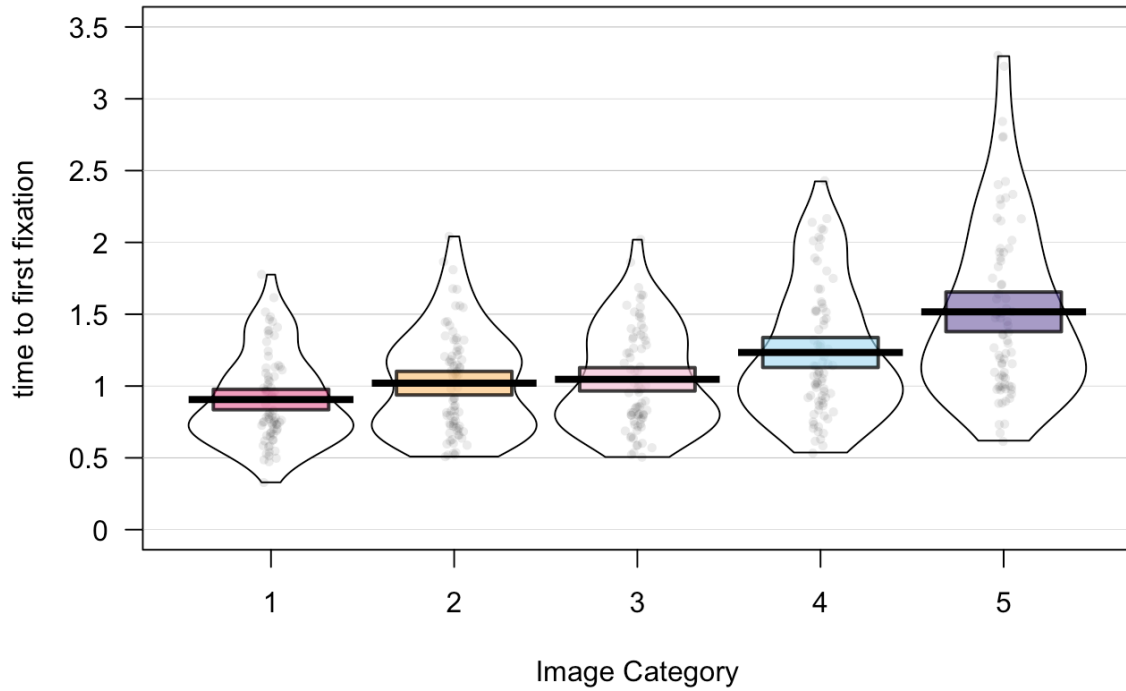


Figure 7.2: Self-reported sexual attraction by image category. Image categories: 1 = cisgender women; 2 = MtF transgender individuals with breasts; 3 = MtF transgender individuals without augmented breasts; 4 = cisgender men; 5 = bonobos. Black bars equal image mean. Boxes represent 95% confidence intervals. White shapes indicate the distribution of participant's score. Light dots represent participant's scores.

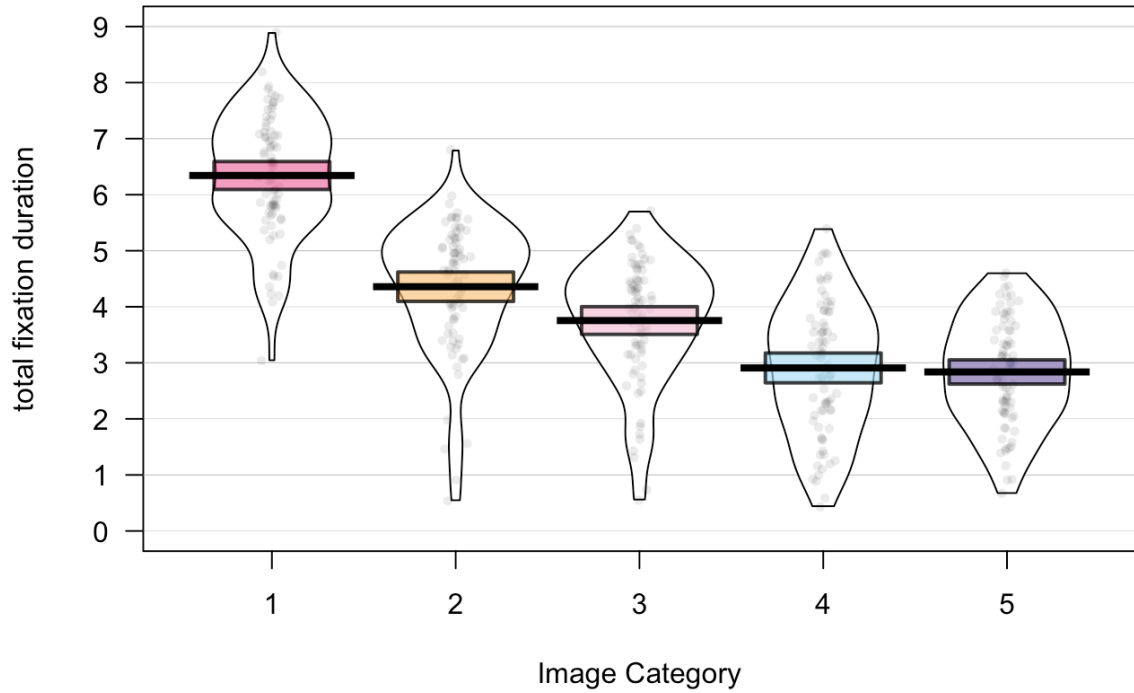


Figure 7.3: Total fixation duration by image category. Image categories: 1 = cisgender women; 2 = MtF transgender individuals with breasts; 3 = MtF transgender individuals without augmented breasts; 4 = cisgender men; 5 = bonobos. Black bars equal image mean. Boxes represent 95% confidence intervals. White shapes indicate the distribution of participant's score. Light dots represent participant's scores.

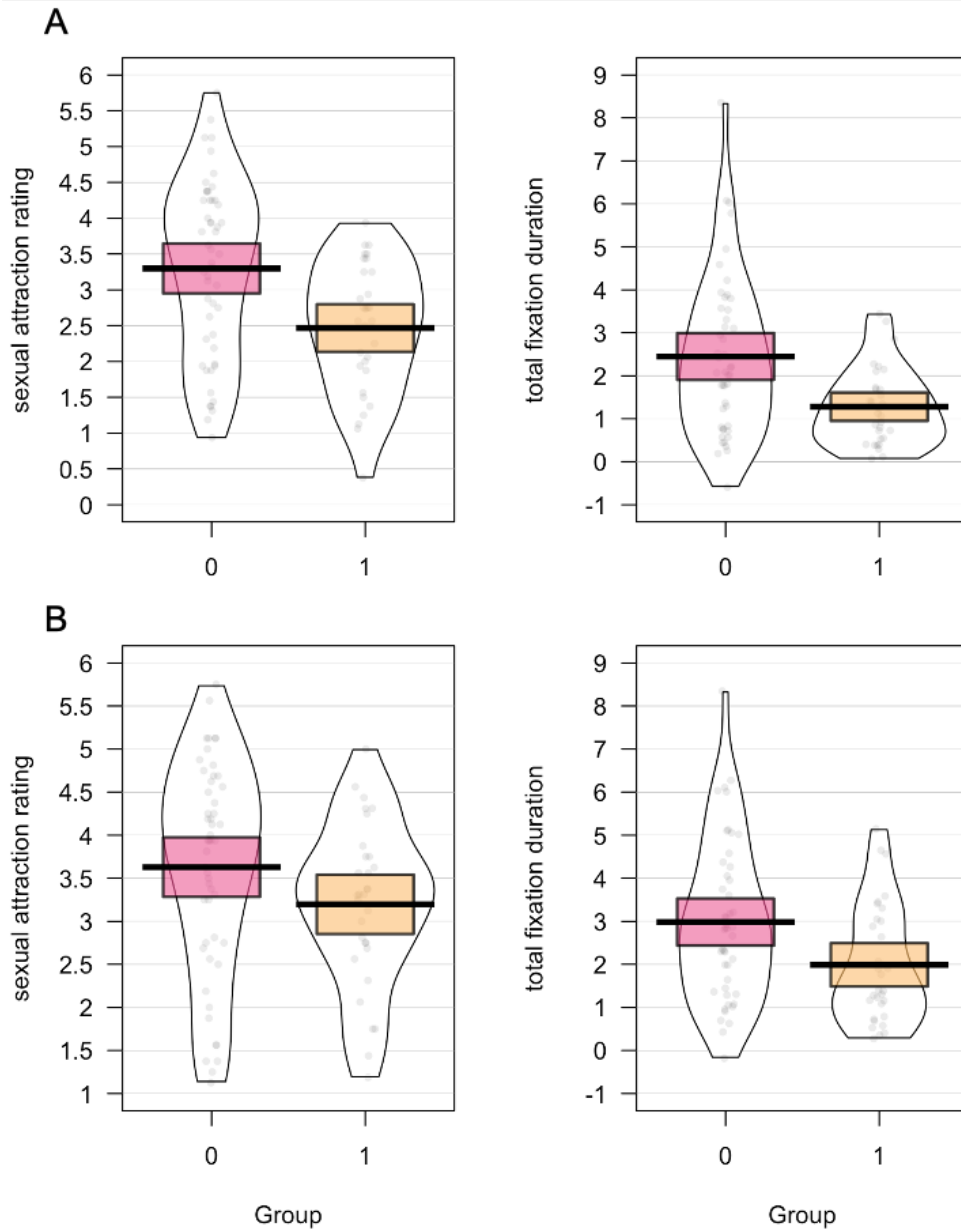


Figure 7.4: Sexual attraction to MtF transgender individuals by sexual feelings group. A = Discrepancies in response to MtF transgender individuals with breasts and cisgender women; B = Discrepancies in response to MtF transgender individuals without augmented breasts and cisgender women. Group: 0 = Men who do not have sexual feelings for transgender women; 1 = Men who have sexual feelings for transgender women. Black bars equal group mean. Boxes represent 95% confidence intervals. White shapes indicate the distribution of participant's score. Light dots represent participant's scores.

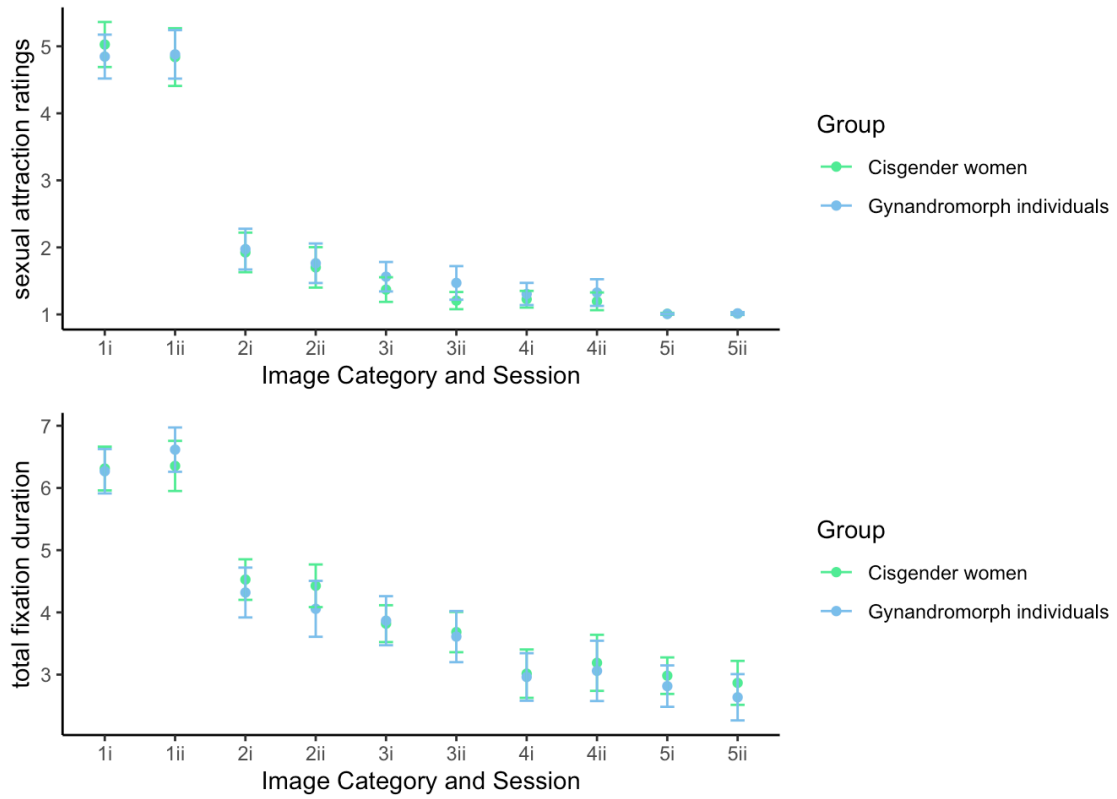


Figure 7.5: Self-reported sexual attraction and total fixation duration by image category and session. Image categories: 1 = cisgender women; 2 = MtF transgender individuals with breasts; 3 = MtF transgender individuals without augmented breasts; 4 = cisgender men; 5 = bonobos. Session: i = Session 1; ii = Session 2. Points equal mean. Error bars represent 95% confidence intervals.

## Chapter 8: On Gynandromorphophilia as a Paraphilia

### Abstract

Explicit sexual interest in MtF (masculine-to-feminine) transgender individuals with penises (hereafter, MtF transgender individuals) has been referred to in the psychological literature as *gynandromorphophilia*. Gynandromorphophilia has been framed as a paraphilic sexual interest. However, it is not clear whether gynandromorphophilia qualifies as a sexual interest as defined by the fifth edition of the *Diagnostic and Statistical Manual for Mental Disorders (DSM-5)*. Here I review whether gynandromorphophilia meets the criteria for a paraphilic interest and whether those who experience distress associated with their gynandromorphophilia are candidates for a diagnosis of a paraphilic disorder. This discussion highlights that the current framing of paraphilias in the *DSM-5* is ambiguous, and, consequently, it cannot be said conclusively that gynandromorphophilia is, or is not, a paraphilic interest. Further, individuals who experience distress associated with gynandromorphophilia may not be said to have a paraphilic disorder because said distress is unlikely to be directly caused by the interest itself. I propose that an evolutionary perspective may contribute to our understanding of gynandromorphophilia.

*Keywords:* Gynandromorphophilia, paraphilia, *DSM-5*, normophilic sexual interests, sexual orientation

## **On Gynandromorphophilia as a Paraphilia**

*Transgender* is an umbrella term that refers to individuals whose gender presentation, identity, and behavior does not conform to that which they were assigned at birth. The term *MtF (male-to-feminine) transgender individuals* will be used to refer to those who were born male but who present in a feminine manner, either continuously or periodically. Money and Lamacz (1984) observed that some men are sexually attracted to MtF transgender individuals. The existence of such men had been previously acknowledged in the literature, but the work by Money and Lamacz (1984) promoted a heightened awareness of this group in psychological and psychiatric circles. Psychologists subsequently coined the term *gynandromorphophilia* to refer to this sexual interest (Blanchard & Collins, 1993).

### **MtF Transgender Individuals**

MtF transgender individuals dress and behave in a female-typical manner, but they are heterogeneous in terms of their gender presentation and physical appearance. Some MtF transgender individuals socially present in a feminine manner and do so on a continuous basis. Others present primarily as cisgender men but will occasionally dress and act in a feminine manner either publicly or privately (e.g., Hill, 1935; King et al., 2019; Mariella Bacigalupo, 2004; Mitsuhashi, 2006). Still others simultaneously incorporate aspects of both female- and male-typical appearance into their gender role presentation (Wikan, 1977).

An appreciable number of MtF transgender individuals, but not all, femininize their bodies through the use of plastic surgery, hormonal treatments, and fillers (e.g., silicone). These treatments are used to, for example, augment their breasts or shape their hips (Boellstorff, 2004; Howe et al., 2008; James et al., 2016; Kulick, 1997; Milan, 2017;

Prieur, 1994; Puckett et al., 2018; Stief, 2017). A relatively small number of MtF transgender individuals undergo genital reconstructive surgeries, although some do (e.g., James et al., 2016; Kulick, 1997; Prieur, 1994; Stief, 2017).

In Western cultures, such as the USA and Canada, many MtF transgender individuals are identified, by themselves and others, as trans women or as women without an additional qualifier. In many non-Western cultures, however, MtF transgender individuals are often identified, by themselves and others, as a non-binary gender (i.e., one that is neither man nor woman), including, but not limited to, the *cochón* of Nicaragua (Lancaster, 1988), the *travesti* of Brazil (Kulick, 1997), the *nachchi* of Sri Lanka (Nichols, 2010), and the *kathoey* of Thailand (Ocha & Earth, 2013).

### **Gynandromorphophilic Men**

Individuals who are sexually attracted to MtF transgender individuals are, by and large, cisgender males who identify as men. The majority of men who express sexual interest in MtF transgender individuals are also sexually attracted to cisgender women or, somewhat less often, to both cisgender women and cisgender men (e.g., Boellstorff, 2004; Coan et al., 2005; Hall et al., 2017; Operario et al., 2008; Rosenthal et al., 2017; Stief, 2017; Whitam, 1992; see also Chapter 2). A small portion of these men are also sexually attracted to cisgender men, but not cisgender women (e.g., Bockting et al., 2007; Coan et al., 2005; Hall et al., 2017; Stief, 2017). Some men develop attraction to particular MtF transgender individuals (e.g., due to their interpersonal connection or their personalities) but are not generally attracted to these individuals (Operario et al., 2008), whereas others are sexually attracted to MtF transgender individuals in general (e.g., Operario et al., 2008; Rosenthal et al., 2017; Schifter & Madrigal, 1997; Weinberg & Williams, 2010).

Gynandromorphophilia in men is not historically recent or culturally restricted (e.g., Greenberg, 1988; Murray, 2000; Whitam, 1992). For example, sexual interactions involving cisgender men and MtF transgender individuals have been reported from before the common era in ancient Greece (Thornton, 1997), the beginning of the common era in India (Sweet & Zwillig, 1993), and the Tokugawa period (1600–1868) in Japan (McLelland, 2000). Sexual interactions between cisgender men and MtF transgender individuals have been reported across a diverse range of cultures and cultural regions, including, but by no means limited to, Australia (Sullivan, 2018), China (Cai et al., 2016), the Côte d'Ivoire (Scheim et al., 2019), India (Stief, 2017), Indonesia (Boellstorff, 2004), Malaysia (Lim, 2015), among the Mohave First Nations (Devereux, 1937), the Netherlands (Drückler et al., 2020), among the Nubu of Sudan (Nadel, 1947), Oman (Wikan, 1977), Peru (Long et al., 2020), Philippines (Whitam, 1992), and Spain (Haller, 1992).

In many cultures, men who occasionally have sex with MtF transgender individuals are not considered to be exceptional relative to other men, particularly if they adopt the insertive role during anal sex (Besnier, 1997; Boellstorff, 2004; Kulick, 1997; McLelland, 2000; Mirandé, 2016; Sweet & Zwillig, 1993; Whitam, 1992). For example, in Japan during the Tokugawa period, it was assumed that, if a man was sexually attracted to women, then he would also be sexually attracted to MtF transgender individuals (McLelland, 2000). In some cultures, however, specialized terms are used to describe men who routinely have sex with MtF transgender partners (Asthana & Oostvogels, 2001; Mirandé, 2016; Schifter & Madrigal, 1997; Tompkins, 2014). This would indicate that the subgroup of men who demonstrate higher levels of sexual interest in MtF transgender individuals are, at least in some contexts, regarded as being distinct from other men. It is



important to note, however, that these terms are primarily used among MtF transgender individuals when discussing such men.

There is evidence that non-gynandromorphophilic men respond with a degree of sexual interest in MtF transgender individuals that exceeds their interest in cisgender members of their non-preferred sex (Chapter 3, 4, 7; Hsu et al., 2016). For instance, Canadian heterosexual-identified men tend to bias their attention to nude images of MtF transgender individuals over nude images of cisgender men, and they report somewhat greater sexual attraction to the former than the later (Chapter 4, 7). Gynephilic and androphilic men who are not gynandromorphophilic tend to show greater sexual arousal to pornography of MtF transgender individuals than pornography of cisgender members of their non-preferred sex (Hsu et al., 2016). Additionally, in Samoa, gynephilic men who are not gynandromorphophilic have longer viewing times of images of MtF transgender individuals than images cisgender men (Chapter 3).

For their part, men who are sexually interested in MtF transgender individuals are more marked in their response to these individuals relative to men who are sexually interested in only cisgender individuals (Chapter 3, 7; Hsu et al., 2016). Canadian gynephilic men who have experienced some sexual attraction to transgender women allocate greater visual attention to nude images of MtF transgender individuals, and report greater sexual attraction to these images, than gynephilic men who have not experienced such sexual attraction (Chapter 7). Additionally, gynandromorphophilic men show comparable sexual arousal to pornography of MtF transgender individuals and cisgender women, whereas American gynephilic men who are not gynandromorphophilic do not exhibit this same pattern of arousal (Hsu et al., 2016). Similarly, Samoan gynandromorphophilic men have comparable viewing times for sexual images of

cisgender women and MtF transgender individuals, whereas their exclusively gynephilic counterparts do not (Chapter 3). Samoan gynandromorphophilic men also consider MtF transgender individuals to be sexually attractive, although less so than cisgender women; in contrast, gynephilic Samoan men who are not gynandromorphophilic do not consider sexual images of MtF transgender individuals to be sexually attractive (Chapter 3). In sum, although men who express gynandromorphophilia do not appear to be notably distinct from other men in terms of their sexual orientation to cisgender women and cisgender men, they are unique with respect to their elevated sexual interest in MtF transgender individuals.

### **Paraphilias**

The *DSM-5* defines paraphilic interests as “any intense and persistent sexual interest other than sexual interest in genital stimulation or preparatory fondling with phenotypically normal, physically mature, consenting human partners” (American Psychiatric Association, 2013, p. 685). Paraphilic sexual interests that exceed, or are equivalent to, normophilic sexual interests are considered to be intense and persistent (American Psychiatric Association, 2013). Normophilic sexual interests refer to sexual interest in genital stimulation or preparatory fondling with consenting adults of one’s preferred sex and gender who are phenotypically normal.

To meet the clinical criteria of a paraphilia, an individual must express intense and persistent sexual interest in an anomalous target or activity, as opposed to incidental sexual interest in such a target or activity (Blanchard, 2009). For example, if a man was sexually attracted to a woman who happened to have an amputated limb, then his interest would not be considered paraphilic. If, however, he was generally sexually attracted to

women with amputated limbs and this interest was intense and persistent, then his interest in amputees would be considered paraphilic (Blanchard, 2009).

Of particular importance, the *DSM-5* distinguishes between paraphilic interests and paraphilic disorders. To meet the clinical threshold for a paraphilic disorder, an individual must experience significant distress or functional impairment as a result of their paraphilic interest or cause harm to others (e.g., violate consent, physically harm) (American Psychiatric Association, 2013). An individual who experiences notable sexual interest in an anomalous target or sexual activity, but who is not distressed or impaired by this interest and does not harm others with their behavior, may have a paraphilic interest; they would not, however, meet the clinical threshold for a paraphilic disorder. Further, to meet the clinical criteria for a paraphilic disorder, an individual's distress or functional impairment must be caused by the paraphilic interest itself and not by extrinsic factors (e.g., guilt resulting from negative social response) (American Psychiatric Association, 2013).

The *DSM-5* includes the diagnostic criteria for eight paraphilias<sup>39</sup> but notes that this list is not exhaustive and, “[m]any dozens of distinct paraphilias have been identified and named, and almost any of them could, by virtue of its negative consequences for the individual or for others, rise to the level of paraphilic disorder” (American Psychiatric Association, 2013, p. 685). The diagnoses of *other specified paraphilic disorder* and *unspecified paraphilic disorder* are available in cases where an individual presents with a paraphilia that is not one of the eight that are specifically listed in the *DSM-5* (American

---

<sup>39</sup> (1) Voyeuristic disorder, (2) exhibitionistic disorder, (3) frotteuristic disorder, (4) sexual masochism disorder, (5) sexual sadism disorder, (6) pedophilic disorder, (7) fetishistic disorder, and (8) transvestic disorder (American Psychiatric Association, 2013).

Psychiatric Association, 2013). The former is used when a clinician chooses to provide a reason for the diagnosis (e.g., zoophilia, telephone scatologia, necrophilia), and the latter is used when a clinician chooses not to specify or when it is not possible to make a specific diagnosis (American Psychiatric Association, 2013).

Gynandromorphophilia has been considered a *paraphilia, not otherwise specified* (i.e., a category of paraphilia that was not specifically described within the *Diagnostic and Statistical Manual of Mental Disorders-IV* [the prior version of the *DSM*]; this category was replaced in the *DSM-5* by other *specific paraphilic disorder* and *unspecified paraphilic disorder*) (e.g., Milner, Dopke, & Crouch, 2008). It is unclear, however, whether gynandromorphophilia should be considered a paraphilia, as described in the *DSM-5* (American Psychiatric Association, 2013). Relative to most other paraphilias, gynandromorphophilia is unique in that it is characterized by normative sexual behavior<sup>40</sup> with consenting, physically mature, human partners. Therefore, whether or not gynandromorphophilia constitutes as paraphilic interest, rests on whether MtF transgender individuals are phenotypically normal. Additionally, because gynandromorphophilia does not intrinsically involve harm to others, it must be demonstrated that this sexual interest causes distress or functional impairment if it is to be considered a paraphilic disorder.

### **Phenotypically Normal: What Counts and What Does Not?**

---

<sup>40</sup> Non-paraphilic sexual activity includes kissing, fondling, mutual masturbation, oral sex (i.e., cunnilingus, fellatio, anilingus), intracural intercourse (i.e., placing one partner's penis between the other partners thighs and thrusting to stimulate the penis), anal penetration (using one's fingers, penis, or a sex toy), and penile/vaginal penetration (Blanchard, 2009).

It is important to note that the concept of phenotypic normality is not defined in the *DSM-5*. Because demarcations between phenotypical normality and abnormality are undefined, it is not clear what qualifies as phenotypically normal and, more critically, what does not qualify as phenotypically normal (for discussion, see Moser, 2019). For instance, should one's phenotype be taken to include their morphology, their gender role presentation, or their gender-neutral behavior? Does phenotypic normality refer to expressions that are normative for an individual, for each sex, or for the species? Does phenotypic normality mean within the range of naturally occurring expressions or an expression that is within two standard deviations of the average? This issue is not one of mere pedantry; what is, and what is not, a paraphilic interest varies considerably depending on one's interpretation of these terms.

For example, a man who prefers that his partners shave their legs or pubic mons—neither of which is phenotypically normal—could be said to have a paraphilic interest (Moser, 2019). Further, men can be said to have a paraphilic interest if they are as attracted to cisgender women who have modified their bodies (e.g., breasts, noses, cheeks, lips, eyes, fat distributions) using fillers and plastic surgery—such as the majority of more recent *Playboy* Playmates (i.e., models for *Playboy*) (e.g., Willett & Acuna, 2017)—as they are cisgender women who have not modified their bodies in such a manner. Thus, this definition could be used to argue that most men have paraphilic interests. Yet it is not generally considered to be paraphilic when men express sexual interest in individuals who have modified their bodies to exaggerate or accentuate sex-typical morphology. As such, some variation from phenotypic normality is apparently permissible, but how much is permissible seems to be fairly subjective.

*Phenotypically normal* may, instead, be taken to mean phenotypically normal for ones' birth sex. If so, individuals who modify their bodies to exaggerate or accentuate sex-typical expressions of sexually dimorphic traits may not be seen as violating phenotypic normality. However, many MtF transgender individuals enhance their bodies in a sex-atypical direction through the use of hormonal or surgical treatments including fillers (e.g., silicone) (Boellstorff, 2004; Howe et al., 2008; James et al., 2016; Kulick, 1997; Milan, 2017; Prieur, 1994; Puckett et al., 2018; Stief, 2017). When phenotypic normality is viewed in this way, sexual attraction to the MtF transgender individuals may meet the criteria for a paraphilic interest.

Based on these interpretations of *phenotypically normal*, MtF transgender individuals who have undergone gender affirming interventions (e.g., hormone treatments, breast augmentation, genital reconstructive surgery) may not be considered phenotypically normal. However, MtF transgender individuals who dress and behave in a feminine manner but have not modified their bodies using hormones, fillers, or plastic surgeries might be considered phenotypically normal. If so, a man might be considered to have a paraphilic interest if he experiences intense and persistent sexual attraction to the former, but not the latter. This distinction is counterintuitive and highlights the lack of rigor with respect to how phenotypic normality is defined.

*Phenotypical normal* may, however, be interpreted to mean a morphological or behavioral expression that is within two standard deviations from the average. MtF transgender individuals are much more feminine with respect to both their behavior and appearance than the average individual who is born male (e.g., Bailey, 2003; Bartlett & Vasey, 2006). As such, according to this perspective, MtF transgender individuals would not be considered phenotypically normal because they are outliers among individuals

born male, regardless of whether or not they have modified their bodies. That said, the underlying premise that normophilic sexual interests involve targets who are relatively average is incongruous with what we know of mate selection, namely, that men and women would ultimately prefer mates who are, in many respects, not average (e.g., Buss, 2016).

In sum, at present, there is no clearly articulated scientific basis for how to objectively demarcate normophilic and paraphilic sexual interests. If one accepts that MtF transgender individuals are not phenotypically normal, then gynandromorphophilia fits the definition of a paraphilic interest. It should be stressed, however that what qualifies as a paraphilia currently involves a fair amount of subjectivity owing to the relatively loose manner in which this concept is defined. Greater clarity with respect to the definition of paraphilia is essential if we hope to share a common understanding of what normophilic interests are, and what they are not.

#### ***Population Frequency: Atypical but Appreciable***

Instead of focusing on whether or not a sexual target is phenotypically normal, we could, instead ask whether it is uncommon for people to be sexually attracted to a particular sexual target. Accordingly, an anomalous target would be one to which few people are sexually attracted. As previously mentioned, men commonly experience some degree of sexual interest in MtF transgender individuals in laboratory settings (Chapter 3, 4, 7; Hsu et al., 2016). However, we do not know precisely how common it is for men to experience sexual interest, particularly appreciable sexual interest, in MtF transgender individuals. Further, we do not know how common it is for men to engage in sexual behavior with MtF transgender individuals. Population frequency studies would help address these gaps in our knowledge.

Nevertheless, it is clear that a sizable number of men view pornography featuring MtF transgender individuals (Herman, 2015; Ogas, 2011, May 05; Ogas & Goddam, 2011). For instance, of the 657,427 search histories compiled in The American Online Dataset, approximately half included a search for erotic content featuring MtF transgender individuals and, of these, 12% searched for this category more than once (Ogas, 2011, May 05). In an analysis of over 50 million sexual searches performed by approximately 2 million people, erotic content featuring MtF transgender individuals was the 17<sup>th</sup> most frequently searched category (Ogas & Goddam, 2011). And, in 2018, *trans* was the 23<sup>rd</sup> most commonly searched term, and *transgender* was the 13<sup>th</sup> most viewed porn category, on Pornhub, a popular free-streaming pornography website (PornHub Insights, December 11, 2018). It is not possible to determine, however, what proportion of men who view this pornography experience relatively low levels of sexual interest in MtF transgender individuals and what proportion experience sexual interest in MtF transgender individuals that is intense and persistent.

In a survey of 4,175 Americans, 20% of gynephilic men reported that they had sexually fantasized about a transgender individual at some point during their lifetime (Lehmiller, 2020, April 24). A smaller portion (the precise percentage was not reported) of these men regularly sexually fantasized about transgender individuals and, thus, could potentially meet the criteria of an intense and persistent interest. It is likely that these fantasies primarily involved MtF transgender individuals because gynephilic men are less likely to be interested in FtM (female-to-masculine) transgender individuals (e.g., Ogas & Goddam, 2011). It was not explicitly stated whether these fantasies involved MtF transgender individuals with penises or those who had genital reconstructive surgeries. Although not definitive, these results suggest that a considerable portion of men



experience some sexual interest in MtF transgender individuals whereas a smaller proportion of men experience intense sexual interest.

Another study of 214 Canadian men asked participants to report their favorite sexual fantasies. Overall, 4.2% reported fantasies that specifically involved a MtF transgender individual and 6.1% reported fantasies that involved receiving anal sex either from a cisgender woman with a strap-on or a MtF transgender individual (Joyal et al., 2015). If this sample was representative of the general Western population—which is, admittedly, unlikely—it would suggest that over 4% of men are intensely sexually interested in MtF transgender individuals. This is greater than the proportion of men in Western cultures estimated to be androphilic or ambiphilic (see Bailey et al., 2016), neither of which are perceived to be paraphilic.

Can one sexual interest, such as male androphilia, be rare and normophilic, while another sexual interest, such as gynandromorphophilia, be more common, but paraphilic? If a designation of a paraphilic interest is predicated on a sexual interest occurring at a low frequency within a population, then the answer is presumably “no.” If, however, a paraphilic designation is predicated on the phenotypic normality of a sexual target, then a somewhat elevated frequency of expression within a population would, presumably, not be a disqualifier.

### ***Normophilic Sources of Gynandromorphophilia***

It also is worth considering whether gynandromorphophilia is motivated by attraction to qualities that men, in general, find sexually appealing.

Gynandromorphophilic men are often attracted to MtF transgender individuals’ who are markedly feminine or “pass” as cisgender women (Gerico, 2015; Kulick, 1997; Mauk et al., 2013; Mitsuhashi, 2006; Operario et al., 2008; Reback & Larkins, 2006; Rosenthal et

al., 2017; Schifter & Madrigal, 1997; Weinberg & Williams, 2010). Many of these men enjoy interacting (either socially or sexually) with MtF transgender individuals because they tend to be more sexually assertive and sexually open than the average cisgender woman—qualities that these men find attractive when expressed by someone who is highly feminine (Gerico, 2015; Mauk et al., 2013; Operario et al., 2008; Reback & Larkins, 2006; Schifter & Madrigal, 1997; Weinberg & Williams, 2010). These men may avoid their partners' genitals to maintain the illusion that they are cisgender women (Reback & Larkins, 2006). Sexual attraction to feminine individuals, particularly those who are sexually receptive, is without question, consistent with gynephilic men's sexual interests.

Other gynandromorphophilic men, however, report that they are attracted to the combination of female- and male-typical physical attributes that characterizes MtF transgender individuals (e.g., a woman with a penis or a woman who can ejaculate in a male-typical manner) (Gerico, 2015; Operario et al., 2008; Reback & Larkins, 2006; Weinberg & Williams, 2010). The majority of men show substantial sexual arousal to one sex but minimal sexual arousal to the other (e.g., Chivers, 2017; Freund, 1963; Rieger et al., 2005; K. D. Suschinsky, Lalumiere, & Chivers, 2009). Consequently, it could be argued that gynandromorphophilic men are unique relative to other men who are sexually attracted to feminine individuals because they are relatively unconcerned with their partner's biological sex or are even sexually attracted to qualities of their non-preferred sex.

In a somewhat similar manner, however, ambiphilic men show notable sexual arousal to both sexes (e.g., Rosenthal et al., 2011). Men who are mostly, but not exclusively, gynephilic (i.e., Kinsey 1s) also show greater sexual arousal to their non-

preferred sex compared to men who are exclusively gynephilic (Jabbour, Hsu, & Bailey, 2020). They also view the genital regions of cisgender men longer than exclusively gynephilic men, indicating that they have some sexual interest in male-typical genitals or, at least, lack strong aversion to male-typical genitals (Morandini et al., 2019). Non-exclusive gynephilia and ambiphilia are thought of as normative sexual interests. As such, men who are sexually attracted to feminine individuals, but also lack strong aversion to male-typical physiology are not considered to have a paraphilic interest.

Gynandromorphophilia is distinct from these orientations, however, because it involves sexual attraction to male-typical and female-typical phenotypical characteristics within the same individual.

Further, it is much easier to observe signals of male sexual arousal (i.e., erections) and orgasm (i.e., ejaculation) than female sexual arousal and orgasm. Men are highly interested in conspicuous and authentic cues of sexual arousal and orgasm (Ogas & Goddam, 2011). It is possible that, for men who are sexually interested in feminine individuals, but who are attracted, or not averse, to penises, MtF transgender individuals may represent the “best of both worlds.” Once again, when taken *in isolation*, sexual attraction to these features (i.e. femininity and conspicuous arousal and orgasm) would be considered normophilic. However, *in combination* and within the same individual, these sexual interests could be considered paraphilic.

### **Extrinsic Distress**

As previously noted, to meet the clinical criteria for a paraphilic disorder, an individual must experience distress or functional impairment which is directly caused by a paraphilic interest and not by other extrinsic factors (American Psychiatric Association, 2013). To the best of my knowledge, distress associated with gynandromorphophilic

interest has not been empirically examined. It has been proposed that one of the reasons that gynandromorphophilic men did not come to the attention of science and medicine for so long, despite the vast clinical attention that has been given to the targets of their sexual attraction (i.e., MtF transgender individuals), is because they do not often complain about this attraction to clinicians (Blanchard & Collins, 1993). This could mean that, at least historically, few men were bothered by their gynandromorphophilia.

Some men do, however, have negative feelings about their sexual interest in MtF transgender individuals. For instance, some gynephilic men find their sexual attraction to MtF transgender individuals to be problematic because they believe this sexual interest to be incongruous with their sexual orientation identity and masculinity (e.g., Anonymous & Tourjée, 2020, April 07; Anonymous & Tourjée, 2020, March 17; Anonymous & Tourjée, 2020, May 12; Hsu et al., 2016; Joey & Tourjée, 2020, April 28; Kennedy & Tourjée, 2020, March 02; Savage, 2013, January 9; Whitt & Tourjée, 2020, March 10). Additionally, some men report that they experience shame regarding their sexual interest in MtF transgender individuals (Anonymous & Tourjée, 2020, April 21, 2020, February 04; Anonymous & Tourjée, 2020, March 17; Anonymous & Tourjée, 2020, May 12; Lehmler, 2020, April 24; Whitt & Tourjée, 2020, March 10). Many men who are sexually attracted to MtF transgender individuals feel as though they cannot openly discuss these feelings (Anonymous & Tourjée, 2020, April 07; May, 2020, January 17).

Sexual interactions involving MtF transgender individuals do not typically cause physical or psychological harm to ones' self or others, result in destruction of property, involve non-human or non-consenting partners, or involve criminal offenses. As such, it is difficult to imagine how intrinsic distress or impairment would arise from gynandromorphophilic interest and behavior itself. Instead, negative feelings about sexual

interest in MtF transgender individuals are more likely to be caused by extrinsic social factors, which in turn, influence individual factors. For example, if men are socialized to believe that heterosexual identity precludes attraction to anyone other than cisgender women, then gynandromorphophilic men may experience distress about their attraction to MtF individuals. Similarly, if gynandromorphophilic men are socialized to view sexual orientation and gender minorities in a negative light, then they may also experience distress about their attraction to MtF individuals.

Discomfort with one's sexual interests is not a basis for a diagnosis of a paraphilic disorder if the discomfort arises due to external factors such as social opprobrium (American Psychiatric Association, 2013). Following the removal of homosexuality from the *Diagnostic and Statistical Manual of Mental Disorders (DSM)*, individuals could be diagnosed with a mental disorder (initially sexual orientation disturbance<sup>41</sup> and, subsequent to that, ego-dystonic homosexuality) if they were distressed about their same-sex attractions and wanted to change them. These diagnoses were removed from the third revision of the *DSM* because being unhappy with one's sexual orientation did not fit with the criteria of a mental disorder if that unhappiness could be traced to an external conflict between the individual and a homophobic society, which was invariably the case (e.g., Bayer, 1987; Drescher, 2015). It seems that this precedent that was set by the removal of sexual orientation disturbance and subsequently, ego-dystonic homosexuality should apply to gynandromorphophilia as well.

### **Other Considerations: The Co-occurrence of Autogynephilia**

---

<sup>41</sup> Technically an individual could have been diagnosed with sexual orientation disturbance if they were unhappy about their opposite-sex attractions.

Autogynephilia refers to sexual arousal to the thought of being a woman (Blanchard, 1989). People who have autogynephilic interests may identify as women or men. Some autogynephilic individuals realize this fantasy by feminizing themselves, temporarily or permanently. Some gynandromorphophilic men, primarily in Western contexts, experience autogynephilia (Blanchard & Collins, 1993; Lawrence, 2013; Mauk et al., 2013; Rosenthal et al., 2017). Autogynephilic individuals show patterns of sexual arousal that mirror those of gynandromorphophilic men (i.e., minimal sexual arousal to cisgender men and elevated sexual arousal to both cisgender women and MtF transgender individuals) (Hsu et al., 2017). Autogynephilia is considered to be a paraphilic interest (e.g., Lawrence, 2011). Paraphilias often present concurrently (e.g., Abel & Osborn, 1992). The association between gynandromorphophilia and autogynephilia could lend credence to the idea that gynandromorphophilia is itself a paraphilia. Additionally, it has been suggested that many autogynephilic MtF transgender individuals enter relationships with each other because they feel accepted by these partners and are able to provide acceptance to them in return (Lawrence, 2013). Such inter-personal factors could also promote the co-occurrence of autogynephilia and gynandromorphophilia. Future research is needed to understand why, for some individuals, autogynephilia and gynandromorphophilia co-occur.

### **Is Gynandromorphophilia a Paraphilic Interest or Disorder?**

Although gynandromorphophilia may be a paraphilic interest, in most cases men who experience this interest would not meet the clinical threshold for a paraphilic disorder. Some of the men who experience gynandromorphophilia may feel bothered by this sexual interest. But it is difficult to imagine a scenario in which any distress or functional impairment is directly caused by gynandromorphophilia, as opposed to factors

such as negative social response, which in turn, promote feelings of incongruity with one's sexual orientation. As such, gynandromorphophilia does not easily fit into existing clinical conceptualization of a paraphilic disorder.

### **Is Gynandromorphophilia a Spandrel?**

Gynandromorphophilia has, most commonly, been conceptualized as a paraphilic interest. However, this sexual interest may be reconceptualizing under an evolutionary framework. Sexual interactions involving cisgender men and MtF transgender individuals are, *ipso facto*, non-conceptive. As such, gynandromorphophilia is seemingly not evolutionarily adaptive. It is possible, however, that the capacity to be sexually attracted to MtF transgender individuals is a by-product of an adaptive sexual interest, that is, sexual interest in females.

Some characteristics are not the products of direct selection but, instead, arise because they are coupled with other traits that are selected to serve a function (Gould, 1997; Gould & Lewontin, 1979). For example, when archways are built next to one another, there is necessarily a triangular space that is formed between the top of the arches, which is called a spandrel. These spaces can be filled with artwork, but spandrels are not intentionally designed for this purpose; instead, they are a structural constraint which arises due to the pairing of arched columns (Gould & Lewontin, 1979). Gould and Lewontin (1979) noted that, like spandrels which necessarily form with the construction of such arches, biological constraints are imposed on organisms over time as adaptations are selected and integrated into previous evolutionary design.

Owing to these biological constraints, some characteristics emerge that do not have an evolutionarily function. Gould and Lewontin (1979) referred to these by-products of adaptations as spandrels. Typically, discussions of spandrels revolve around the co-

opting of these by-products for an evolutionarily useful purpose. To avoid confusion, spandrels that have not been so co-opted can be referred to as functionless by-products.

These ideas are pertinent to acceptance threshold theory, which has been proposed to explain some of the same-sex behavior observed among non-human animals (Engel, Manner, Ayasse, & Steiger, 2015; Scharf & Martin, 2013). It has been suggested that when there are phenotypic similarities between males and females of a species, animals need to make decisions about who to accept and who to reject as partners. If, for example, a male's threshold for partner acceptance is relatively low, then he will accept some partners who are male. If, however, his threshold for partner acceptance is too high, he will reject many females with whom reproduction is possible.

MtF transgender individuals, particularly those that are androphilic, share physical and behavioral characteristics (e.g., feminine traits) with cisgender women. Even without hormonal or surgical interventions, the facial features of biologically male androphiles are, on average, relatively feminine (Skorska, Geniole, Vrysen, McCormick, & Bogaert, 2015; Valentova, Kleisner, Havlíček, & Neustupa, 2014; Wang & Kosinski, 2018). Selection for men's propensity to experience sexual attraction and arousal to a range of cisgender women may have produced a functionless by-product, namely, the concomitant capacity to experience sexual attraction and arousal to some MtF transgender individuals. If men's capacity to be sexually attracted to MtF transgender individuals was inhibited, their sexual attraction to cisgender women might also be restricted to a degree that would be evolutionarily costly.

It could be argued that because some individuals present in a feminine manner but are not biologically female, sexual selection should favor males who reject information garnered from gender cues in favor of information from primary sex characteristics.



Primary sex characteristics are more reliable indicators of sex than markers of gender. Nevertheless, the overwhelming majority of individuals who present in a feminine manner are female and, as such, markers of sex are not appreciably more reliable than markers of gender. Additionally, because sexual responsiveness to gender cues facilitates sexual activity with females, it is unlikely that there would be strong pressure selecting against such responsiveness.

Further, primary sex characteristics are not consistently visible, and they provide relatively weak cues of an individual's health and reproductive viability, although they do provide some indication of reproductive maturity, particularly in males. In contrast, stronger cues of health and female fecundity are provided by other physical characteristics, such as the size and shape of sexually dimorphic facial features, particularly those which change with age and sexual maturity (e.g., eyes, noses, and chin size; angle of cheeks and jawline; fat deposits in the upper cheeks and lower lips), skin coloration and topography, and relative bilateral symmetry (Barber, 1995; Cunningham, 1986; Cunningham et al., 1995; Møller & Thornhill, 1998; Perrett, May, & Yoshikawa, 1994; Pflüger et al., 2012; Samson, Fink, & Matts, 2010; Symons, 1995; Thornhill & Gangestad, 1999; van den Berghe & Frost, 1986). Consequently, from a reproductive standpoint, it is beneficial for men to be attentive to multiple morphological and behavioral characteristics associated with prospective reproductive partners.

It is worth noting, however, that the acceptance threshold hypothesis alone cannot account for the aforementioned finding that some men are sexually aroused by the combination of female- and male-typical characteristics (e.g., a markedly feminine individual with a penis) (Gerico, 2015; Operario et al., 2008; Reback & Larkins, 2006; Weinberg & Williams, 2010). Additional factors, such as relative bisexuality, may

interact with sexual interest in MtF transgender individuals to produce variability in expressions of gynandromorphophilia. Gynephilic men's sexual interest may be primarily motivated by features that MtF transgender individual's share with cisgender women whereas ambiphilic men's sexual interest may be motivated by both female- and male-typical characteristics. Additional research is needed to explore the potential interplay between gynandromorphophilia and sexual orientation.

### **Variability in Sexual Interest in MtF Transgender Individuals**

If the factors underlying attraction to MtF transgender individuals are common to men, why do only a subset of men express this sexual interest? The answer to this question is largely outstanding and further research is needed. But there is reason to suspect that multiple social and individual factors contribute to greater sexual interest in MtF transgender individuals.

For instance, men who hold positive attitudes toward sexual relationships involving members of the same sex may be more likely to express some interest in MtF transgender individuals. Relative to men from Canada, men from Samoa report less sexual aversion to MtF transgender individuals, specifically those who have not surgically augmented their bodies in a female-typical manner (e.g., augmented their breasts) (Chapter 6). In Samoa, sexual relationships between men and MtF transgender individuals are not highly stigmatized (United Nations Development Programme et al., 2016). Additionally, among heterosexual-identified Canadian men, greater interest in MtF transgender individuals is associated with lower homonegativity (Chapter 7). However, it is also possible that men who are sexually interested in MtF transgender hold more positive attitudes toward sexual interactions involving members of the same sex because they are attracted to individuals of the same birth sex, but a different gender. In light of

the aforementioned acceptance threshold hypothesis, it would be worth examining whether men who hold positive attitudes toward sexual relationships involving members of the same sex are also accepting of a greater variety of female partners.

Additionally, Western men with paraphilic hypersexuality frequently report some degree of gynandromorphophilia (Cantor et al., 2013; Sutton, Stratton, Pytyck, Kolla, & Cantor, 2015). However, two previous studies have failed to find an association between interest in MtF transgender individuals and less restricted sociosexual orientation, which is characterized by an interest in obtaining a higher number of sexual partners (Chapter 4, 7). As such, interest in MtF transgender individuals does not appear to be associated with men's motivation to engage in sexual activity with a greater number of sexual partners, *per se*, but, instead, with men's motivation to engage in sexual activity with a greater diversity of sexual partners. The direction of this relationship has not been investigated. It is possible that interest in a greater diversity in sexual partners may motivate men with hypersexuality to view pornography featuring MtF transgender individuals or to seek sexual relationships with them. Alternatively, because hypersexual men have a wider range of sexual partners, they may be more likely to develop a sexual interest in MtF transgender individuals compared to men who are sexually conservative. If so, this would be consistent with the acceptance threshold hypothesis for men's capacity to experience gynandromorphophilia.

These factors, along with other individual and cultural factors that have yet to be investigated (e.g., cultural beliefs that female virginity should be preserved, early sexual experiences, close relationships with MtF transgender individuals), may contribute to the expression of gynandromorphophilia in some men, but not others. Minimal academic attention has been granted to understanding why some men exhibit

gynandromorphophilia, whereas others do not. Additional research exploring factors associated with greater sexual interest in MtF transgender individuals would help fill in this gap in our understanding.

### **Discussion and Future Directions**

It is not especially uncommon for men to experience gynandromorphophilia. Men who are sexually interested in cisgender women may generally possess the capacity to experience some degree of gynandromorphophilia. Cultural and individual factors may either amplify this sexual interest or inhibit it. For most men, if they express this sexual interest, it is not intense and persistent. A smaller subset of men appears to show much greater sexual interest in MtF transgender individuals.

Greater clarity regarding whether gynandromorphophilia is a paraphilia would be valuable for clinicians working with clients who express this interest. More generally however, the ambiguities regarding what constitutes a paraphilic interest versus a normative interest should be of concern to clinicians who see clients regarding these interests. As a result of this ambiguity, what expressions of sexuality are normophilic and paraphilic are, in some respects, open to interpretation, which introduces a high degree of subjectivity and inconsistency into clinical decision making (for discussion, see Moser, 2019).

The idea that individuals enter sexual relationships with transgender people primarily because of a paraphilic or fetishistic interest has shaped our understanding of these relationships and cast the partners of transgender individuals in a stereotypically negative light (Tompkins, 2014). Further, negative attitudes toward relationships between cisgender men and MtF transgender individuals reinforce the marginalization and social isolation felt by Western transgender individuals (for discussion, see Blair & Hoskin,

2019; Kennedy & Tourjée, 2020, March 02; Markham & Tourjée, 2020, February 25; May, 2020, January 17). A greater understanding of gynandromorphophilia in men may help destigmatize these relationships. Research on gynandromorphophilia may also have clinical value for therapists working with individuals who are struggling with stigma associated with this attraction.

Further, a greater understanding of this sexual interest may help men (and their partners) make sense of their attraction to individuals who have genitalia typical of their non-preferred sex. It is likely that the confusion regarding their sexual orientation and shame that some gynandromorphophilic men experience would be somewhat assuage if they were aware that gynandromorphophilia is not uncommon and is primarily associated with gynephilia. For example, one man reported that just the awareness that other men shared his sexual interests was of comfort to him,

I've never had trans amorous role models. Men like me are oddly absent from popular culture. I don't really understand why, because it's clear there are people who are attracted to trans women in the world [...] There's no short supply of trans porn, and supply does meet demand. Coming of age, I think some part of me was assured that I wasn't alone in the way I felt because of that simple fact (Anonymous & Tourjée, 2020, May 12, para. 7).

It would obviously be beneficial for gynandromorphophilic men to find reassurance that they were not alone from other popular media outlets and members of their peer group as well. Additionally, in certain cultures, such as Western ones, men who disclose their sexual interest in MtF transgender individuals may be ridiculed and may have their sexual orientation questioned (e.g., May, 2020, January 17; Shawn & Tourjée, 2020, April 14). A greater awareness that these men are predominantly gynephilic may also help reduce these sorts of negative social responses. Recently *Vice* magazine took a step to increase the visibility of these men by producing a series of articles featuring their narratives

(Vice, 2020). It has yet to be seen whether this is a sign of coming change in lay attitudes toward and understandings of gynandromorphophilia.

## References

- Abel, G. G., & Osborn, C. (1992). The paraphilias: The extent and nature of sexually deviant and criminal behavior. *Psychiatric Clinics*, *15*(3), 675–687. doi:10.1016/S0193-953X(18)30231-4
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th edition)*. Washington, DC: Author.
- Anonymous, & Tourjée, D. (2020, April 07). Men who love trans women: The finance guy. *Vice*. Retrieved from [https://www.vice.com/en\\_uk/article/5dm8qn/men-who-love-trans-women-the-finance-guy](https://www.vice.com/en_uk/article/5dm8qn/men-who-love-trans-women-the-finance-guy)
- Anonymous, & Tourjée, D. (2020, April 21). Men who love trans women: The cop. *Vice*. Retrieved from [https://www.vice.com/en\\_uk/article/v74wad/men-who-love-trans-women-the-cop-transamorous-police](https://www.vice.com/en_uk/article/v74wad/men-who-love-trans-women-the-cop-transamorous-police)
- Anonymous, & Tourjée, D. (2020, February 04). Men who love trans women: The scientist. *Vice*. Retrieved from [https://www.vice.com/en\\_uk/article/y3m3dm/men-who-love-trans-women-the-scientist](https://www.vice.com/en_uk/article/y3m3dm/men-who-love-trans-women-the-scientist)
- Anonymous, & Tourjée, D. (2020, March 17). Men who love trans women: The guy in the army. *Vice*. Retrieved from [https://www.vice.com/en\\_uk/article/qjdngb/men-who-love-trans-women-the-guy-in-the-army](https://www.vice.com/en_uk/article/qjdngb/men-who-love-trans-women-the-guy-in-the-army)
- Anonymous, & Tourjée, D. (2020, May 12). Men who love love trans women: The funeral director. *Vice*. Retrieved from [https://www.vice.com/en\\_uk/article/k7qemz/men-who-love-trans-women-the-funeral-director](https://www.vice.com/en_uk/article/k7qemz/men-who-love-trans-women-the-funeral-director)
- Asthana, S., & Oostvogels, R. (2001). The social construction of male ‘homosexuality’ in India: Implications for HIV transmission and prevention. *Social Science & Medicine* *52*(5), 707–721. doi:10.1016/S0277-9536(00)00167-2
- Bailey, J. M. (2003). *The man who would be queen: The science of gender-bending and transsexualism*. Washington, D.C.: Joseph Henry Press.
- Bailey, J. M., Vasey, P. L., Diamond, L. M., Breedlove, S. M., Vilain, E., & Epprecht, M. (2016). Sexual orientation, controversy, and science. *Psychological Science in the Public Interest*, *17*(2), 45–101. doi:10.1177/1529100616637616
- Barber, N. (1995). The evolutionary psychology of physical attractiveness: Sexual selection and human morphology. *Ethology and Sociobiology*, *16*(5), 395–424. doi:10.1016/0162-3095(95)00068-2

- Bartlett, N. H., & Vasey, P. L. (2006). A retrospective study of childhood gender-atypical behavior in Samoan fa'afafine. *Archives of Sexual Behavior, 35*(6), 659–666. doi:10.1007/s10508-006-9055-1
- Bayer, R. (1987). *Homosexuality and American psychiatry: The politics of diagnosis*. Princeton, NJ: Princeton University Press.
- Besnier, N. (1997). Sluts and superwomen: The politics of gender liminality in urban Tonga. *Ethnos, 62*(1-2), 5–31. doi:10.1080/00141844.1997.9981542
- Blair, K. L., & Hoskin, R. A. (2019). Transgender exclusion from the world of dating: Patterns of acceptance and rejection of hypothetical trans dating partners as a function of sexual and gender identity. *Journal of Social and Personal Relationships, 36*(7), 2074–2095. doi:10.1177/0265407518779139
- Blanchard, R. (1989). The classification and labeling of nonhomosexual gender dysphorias. *Archives of Sexual Behavior, 18*(4), 315–334. doi:10.1007/BF01541951
- Blanchard, R. (2009). *Paraphilias and the DSM-V: General diagnostic issues and options exemplified with pedohebephilic disorder*. Paper presented at the WAS World Congress for Sexual Health, Göteborg, Sweden.
- Blanchard, R., & Collins, P. I. (1993). Men with sexual interest in transvestites, transsexuals, and she-males. *Journal of Nervous and Mental Disease, 181*(9), 570–575. doi:10.1097/00005053-199309000-00008
- Bockting, W., Miner, M., & Rosser, B. R. (2007). Latino men's sexual behavior with transgender persons. *Archives of Sexual Behavior, 36*(6), 778–786. doi:10.1007/s10508-006-9133-4
- Boellstorff, T. (2004). Playing back the nation: Waria, Indonesian transvestites. *Cultural Anthropology, 19*(2), 159–195. doi:10.1525/can.2004.19.2.159
- Buss, D. M. (2016). *The evolution of desire: Strategies of human mating*. New York, NY: Basic Books.
- Cai, Y., Wang, Z., Lau, J. T., Li, J., Ma, T., & Liu, Y. (2016). Prevalence and associated factors of condomless receptive anal intercourse with male clients among transgender women sex workers in Shenyang, China. *Journal of the International AIDS Society, 19*, 20800. doi:10.7448/IAS.19.3.20800
- Cantor, J. M., Klein, C., Lykins, A., Rullo, J. E., Thaler, L., & Walling, B. R. (2013). A treatment-oriented typology of self-identified hypersexuality referrals. *Archives of Sexual Behavior, 42*(5), 883–893. doi:10.1007/s10508-013-0085-1



- Chivers, M. L. (2017). The specificity of women's sexual response and its relationship with sexual orientations: A review and ten hypotheses. *Archives of Sexual Behavior, 46*(5), 1161–1179. doi:10.1007/s10508-016-0897-x
- Coan, D. L., Schrage, W., & Packer, T. (2005). The role of male sexual partners in HIV infection among male-to-female transgendered individuals. *International Journal of Transgenderism, 8*(2-3), 21–30. doi:10.1300/J485v08n02\_03
- Cunningham, M. R. (1986). Measuring the physical in physical attractiveness: Quasi-experiments on the sociobiology of female facial beauty. *Journal of Personality and Social Psychology, 50*(5), 925–935.
- Cunningham, M. R., Roberts, A. R., Barbee, A. P., Druen, P. B., & Wu, C.-H. (1995). "Their ideas of beauty are, on the whole, the same as ours": Consistency and variability in the cross-cultural perception of female physical attractiveness. *Journal of Personality and Social Psychology, 68*(2), 261–279.
- Devereux, G. (1937). Institutionalized homosexuality of the Mohave Indians. *Human Biology, 9*, 498–527.
- Drescher, J. (2015). Out of DSM: Depathologizing homosexuality. *Behavioral Sciences, 5*(4), 565–575. doi:10.3390/bs5040565
- Drückler, S., van Rooijen, M. S., & de Vries, H. J. C. (2020). Substance use and sexual risk behavior among male and transgender women sex workers at the prostitution outreach center in Amsterdam, the Netherlands. *Sexually Transmitted Diseases, 47*(2), 114–121. doi:10.1097/OLQ.0000000000001096
- Engel, K. C., Manner, L., Ayasse, M., & Steiger, S. (2015). Acceptance threshold theory can explain occurrence of homosexual behaviour. *Biology Letters, 11*(1), 20140603. doi:10.1098/rsbl.2014.0603
- Freund, K. (1963). A laboratory method for diagnosing predominance of homo- or hetero-erotic interest in male. *Behaviour Research and Therapy, 1*, 85–93. doi:10.1016/0005-7967(63)90012-3
- Gerico, H. (2015). *Looking for that "special" lady: Exploring hegemonic masculinity in online dating profiles of trans-attracted men.* (Master of Arts Masters). Central European University, Budapest, Hungary.
- Gould, S. J. (1997). The exaptive excellence of spandrels as a term and prototype. *Proceedings of the National Academy of Sciences, 94*(20), 10750–10755. doi:10.1073/pnas.94.20.10750
- Gould, S. J., & Lewontin, R. C. (1979). The spandrels of San Marco and the Panglossian paradigm: A critique of the adaptationist programme. *Proceedings of the Royal*

*Society of London. Series B. Biological Sciences*, 205(1161), 581–598.  
doi:10.1098/rspb.1979.0086

- Greenberg, D. F. (1988). *The construction of homosexuality*. Chicago, IL: The University of Chicago Press.
- Hall, G., Young, A., Krakauer, C., Watson, C. C., Cummings, V., Mayer, K., & Koblin, B. (2017). Sexual risk behaviors among black men who have sex with men who also report having sex with transgender partners: analysis of HIV Prevention Trials Network (HPTN) 061 study. *AIDS Education and Prevention*, 29(5), 418–431.
- Haller, D. (1992). Homosexuality in Seville. *Solgan*, 14, 27–35.  
doi:10.1525/sol.1992.14.3.27
- Herman, B. (2015). Transgender porn is a best-seller, but is it good for trans people? *International Business Times*. Retrieved from <http://www.ibtimes.com/transgender-porn-best-seller-it-good-trans-people-2028219>
- Hill, W. W. (1935). The status of the hermaphrodite and transvestite in Navaho culture. *American Anthropologist*, 37(2), 273–279
- Howe, C., Zaraysky, S., & Lorentzen, L. (2008). Transgender sex workers and sexual transmigration between Guadalajara and San Francisco. *Latin American Perspectives*, 35(1), 31–50. doi:10.1177/0094582X07310956
- Hsu, K. J., Rosenthal, A. M., Miller, D. I., & Bailey, J. M. (2016). Who are gynandromorphophilic men? Characterizing men with sexual interest in transgender women. *Psychological Medicine*, 46(4), 819–827.  
doi:10.1017/S0033291715002317
- Hsu, K. J., Rosenthal, A. M., Miller, D. I., & Bailey, J. M. (2017). Sexual arousal patterns of autogynephilic male cross-dressers. *Archives of Sexual Behavior*, 46(1), 247–253. doi:10.1007/s10508-016-0826-z
- Jabbour, J. T., Hsu, K. J., & Bailey, J. M. (2020). Sexual arousal patterns of mostly heterosexual men. *Archives of Sexual Behavior*. doi:10.1007/s10508-020-01720-z
- James, S., Herman, J., Rankin, S., Keisling, M., Mottet, L., & Anafi, M. (2016). *The report of the 2015 U.S. Transgender Survey*. Retrieved from <https://transequality.org/sites/default/files/docs/usts/USTS-Full-Report-Dec17.pdf>
- Joey, & Tourjée, D. (2020, April 28). Men who love trans women: The online troll. *Vice*. Retrieved from [https://www.vice.com/en\\_uk/article/5dm77a/men-who-love-trans-women-the-online-troll](https://www.vice.com/en_uk/article/5dm77a/men-who-love-trans-women-the-online-troll)

- Joyal, C. C., Cossette, A., & Lapierre, V. (2015). What exactly is an unusual sexual fantasy? *Journal of Sexual Medicine*, *12*(2), 328–340. doi:10.1111/jsm.12734
- Kennedy, T., & Tourjée, D. (2020, March 02). Men who love trans women: The grandfather. *Vice*. Retrieved from [https://www.vice.com/en\\_uk/article/n7jq3d/men-who-love-trans-women-the-grandfather](https://www.vice.com/en_uk/article/n7jq3d/men-who-love-trans-women-the-grandfather)
- King, R., Nanteza, J., Sebyala, Z., Bbaale, J., Sande, E., Poteat, T., . . . Hladik, W. (2019). HIV and transgender women in Kampala, Uganda – double jeopardy. *Culture, Health & Sexuality*, *21*(6), 727–740. doi:10.1080/13691058.2018.1506155
- Kulick, D. (1997). The gender of Brazilian transgendered prostitutes. *American Anthropologist*, *99*(3), 574–585. doi:10.1525/aa.1997.99.3.574
- Lancaster, R. N. (1988). Subject honor and object shame: The construction of male homosexuality and stigma in Nicaragua. *Ethnology*, *27*(2), 111–125. doi:10.2307/3773623
- Lawrence, A. A. (2011). Autogynephilia: An underappreciated paraphilia. In *Sexual Dysfunction: Beyond the Brain-Body Connection* (Vol. 31, pp. 135–148): Karger Publishers.
- Lawrence, A. A. (2013). *Men trapped in men's bodies: Narratives of autogynephilic transsexualism*. New York, NY: Springer.
- Lehmiller, J. (2020, April 24). I'm a cisgender woman and my husband watches trans porn: Does that mean he's not into me? Retrieved from <https://www.lehmiller.com/blog/2020/4/24/im-a-cisgender-woman-and-my-husband-watches-trans-porn-does-that-mean-hes-not-into-me>
- Lim, D. C. L. (2015). Visualizing the invisible: Social constructions of straight identified men who have sex with transsexuals and feminized gay men on/off Malaysian film. *Studies in Gender and Sexuality*, *16*(3), 183–203. doi:10.1080/15240657.2015.1073047
- Long, J. E., Ulrich, A., White, E., Dasgupta, S., Cabello, R., Sanchez, H., . . . Duerr, A. (2020). Characterizing men who have sex with transgender women in Lima, Peru: Sexual behavior and partnership profiles. *AIDS and Behavior*, *24*(3), 914–924. doi:10.1007/s10461-019-02590-w
- Mariella Bacigalupo, A. (2004). The struggle for Mapuche shamans' masculinity: Colonial politics of gender, sexuality, and power in Southern Chile. *Ethnohistory*, *51*(3), 489–533. doi:10.1215/00141801-51-3-489
- Markham, A., & Tourjée, D. (2020, February 25). Men who love trans women: The software guy. *Vice*. Retrieved from

[https://www.vice.com/en\\_uk/article/epg5a4/men-who-love-trans-women-the-software-guy](https://www.vice.com/en_uk/article/epg5a4/men-who-love-trans-women-the-software-guy)

- Mauk, D., Perry, A., & Munoz-Laboy, M. (2013). Exploring the desires and sexual culture of men who have sex with male-to-female transgender women. *Archives of Sexual Behavior, 42*(5), 793–803. doi:10.1007/s10508-013-0079-z
- May, K. (2020, January 17). Trans women deserve to be loved proudly. Straight guys, I'm looking at you. *Huffington Post*. Retrieved from [https://www.huffingtonpost.ca/entry/transgender-dating\\_ca\\_5de12effe4b0d50f32a106a4](https://www.huffingtonpost.ca/entry/transgender-dating_ca_5de12effe4b0d50f32a106a4)
- McLelland, M. J. (2000). Male homosexuality and popular culture in modern Japan. *Intersections, 1*(3), 1–14.
- Milan, K. (2017). In this Mexican city trans people are celebrated, so why do they feel so left out? *Narratively*. Retrieved from <https://narratively.com/in-this-mexican-city-trans-people-are-celebrated-so-why-do-they-feel-so-left-out/>
- Milner, J. S., Dopke, C. A., & Crouch, J. L. (2008). Paraphilia not otherwise specified. In R. D. Laws & W. T. O'Donohue (Eds.), *Sexual deviance: Theory, assessment, and treatment* (pp. 384–418). New York, NY: The Guilford Press.
- Mirandé, A. (2016). Hombres mujeres: An indigenous third gender. *Men and Masculinities, 19*(4), 384–409. doi:10.1177/1097184X15602746
- Mitsuhashi, J. (2006). The transgender world in contemporary Japan: The male to female cross-dressers' community in Shinjuku. *Inter-Asia cultural studies, 7*(2), 202–227. doi:10.1080/14649370600673847
- Møller, A. P., & Thornhill, R. (1998). Bilateral symmetry and sexual selection: a meta-analysis. *The American Naturalist, 151*(2), 174–192. doi:10.1086/286110
- Money, J., & Lamacz, M. (1984). Gynemimesis and gynemimetophilia: Individual and cross-cultural manifestations of a gender-coping strategy hitherto unnamed. *Comprehensive Psychiatry, 25*(4), 392–403.
- Morandini, J. S., Veldre, A., Holcombe, A. O., Hsu, K., Lykins, A., Bailey, J. M., & Darnimrod, I. (2019). Visual attention to sexual stimuli in mostly heterosexuals. *Archives of Sexual Behavior, 48*(5), 1371–1385. doi:10.1007/s10508-019-1419-4
- Moser, C. (2019). DSM-5, paraphilias, and the paraphilic disorders: Confusion reigns. *Archives of Sexual Behavior, 48*(3), 681–689. doi:10.1007/s10508-018-1356-7
- Murray, S. O. (2000). *Homosexualities*. Chicago, IL: The University of Chicago Press.

- Nadel, S. F. (1947). *The Nuba: An anthropological study of the hill tribes in Kordofan*. London, England: Oxford University Press.
- Nichols, A. (2010). Dance ponnaya, dance! Police abuses against transgender sex workers in Sri Lanka. *Feminist Criminology*, 5(2), 195–222. doi:10.1177/1557085110366226
- Ocha, W., & Earth, B. (2013). Identity diversification among transgender sex workers in Thailand's sex tourism industry. *Sexualities*, 16(1-2), 195–216. doi:10.1177/1363460712471117
- Ogas, O. (2011, May 05). Shemales, bestiality, and granny porn: Mere curiosity or genuine sexual interest: An analysis of unorthodox sexual searches. *A Billion Wicked Thoughts*. Retrieved from <https://www.psychologytoday.com/blog/billion-wicked-thoughts/201105/shemales-bestiality-and-granny-porn-mere-curiosity-or-genuine>
- Ogas, O., & Goddam, S. (2011). *A Billion wicked thoughts: What the internet tells us about sexual relationships*. New York, NY: Penguin Group.
- Operario, D., Burton, J., Underhill, K., & Sevelius, J. (2008). Men who have sex with transgender women: Challenges to category-based HIV prevention. *AIDS and Behavior*, 12(1), 18–26. doi:10.1007/s10461-007-9303-y
- Perrett, D. I., May, K. A., & Yoshikawa, S. (1994). Facial shape and judgements of female attractiveness. *Nature*, 368(6468), 239–242. doi:10.1038/368239a0
- Pflüger, L. S., Oberzaucher, E., Katina, S., Holzleitner, I. J., & Grammer, K. (2012). Cues to fertility: Perceived attractiveness and facial shape predict reproductive success. *Evolution and Human Behavior*, 33(6), 708–714. doi:10.1016/j.evolhumbehav.2012.05.005
- Priour, A. (1994). 'I am my own special creation': Mexican homosexual transvestites' construction of femininity. *Young*, 2(3), 3–17.
- Puckett, J. A., Cleary, P., Rossman, K., Mustanski, B., & Newcomb, M. E. (2018). Barriers to gender-affirming care for transgender and gender nonconforming individuals. *Sexuality Research and Social Policy*, 15(1), 48–59. doi:10.1007/s13178-017-0295-8
- Reback, C. J., & Larkins, S. (2006). *Once in a blue moon: Toward a better understanding of heterosexually identified men who have sex with men and/or preoperative transgender women*. Los Angeles, CA: City of Los Angeles, AIDS Coordinator.
- Rieger, G., Chivers, M. L., & Bailey, J. M. (2005). Sexual arousal patterns of bisexual men. *Psychological Science*, 16(8), 579–584. doi:10.1111/j.1467-9280.2005.01578.x

- Rosenthal, A. M., Hsu, K. J., & Bailey, J. M. (2017). Who are gynandromorphophilic men? An internet survey of men with sexual interest in transgender women. *Archives of Sexual Behavior, 46*(1), 255–264. doi:10.1007/s10508-016-0872-6
- Rosenthal, A. M., Sylva, D., Safron, A., & Bailey, J. M. (2011). Sexual arousal patterns of bisexual men revisited. *Biological Psychology, 88*(1), 112–115. doi:10.1016/j.biopsycho.2011.06.015
- Samson, N., Fink, B., & Matts, P. J. (2010). Visible skin condition and perception of human facial appearance. *International Journal of Cosmetic Science, 32*(3), 167–184. doi:10.1111/j.1468-2494.2009.00535.x
- Savage, D. (2013, January 9). Does sex with a trans woman make me gay? *Georgia Straight*. Retrieved from <https://www.straight.com/life/340796/does-sex-trans-woman-make-me-gay>
- Scharf, I., & Martin, O. Y. (2013). Same-sex sexual behavior in insects and arachnids: Prevalence, causes, and consequences. *Behavioral Ecology and Sociobiology, 67*(11), 1719–1730. doi:10.1007/s00265-013-1610-x
- Schein, A. I., Lyons, C., Ezouatchi, R., Liestman, B., Drame, F., Diouf, D., . . . Baral, S. (2019). Sexual behavior stigma and depression among transgender women and cisgender men who have sex with men in Côte d'Ivoire. *Annals of Epidemiology, 33*, 79–83. e71. doi:10.1016/j.annepidem.2019.03.002
- Schifter, J., & Madrigal, J. (1997). The transvestite's lover: Identity and behavior. In V. L. Bullough & J. Elias (Eds.), *Gender blending*. New York, NY: Prometheus Books
- Shawn, & Tourjée, D. (2020, April 14). Men who love trans women: The guy in the ballroom scene. *Vice*. Retrieved from [https://www.vice.com/en\\_uk/article/3a89e8/men-who-love-trans-women-the-guy-in-the-ballroom-scene](https://www.vice.com/en_uk/article/3a89e8/men-who-love-trans-women-the-guy-in-the-ballroom-scene)
- Skorska, M. N., Geniole, S. N., Vrysen, B. M., McCormick, C. M., & Bogaert, A. F. (2015). Facial structure predicts sexual orientation in both men and women. *Archives of Sexual Behavior, 44*(5), 1377–1394. doi:10.1007/s10508-014-0454-4
- Stief, M. (2017). The sexual orientation and gender presentation of hijra, kothi, and panthi in Mumbai, India. *Archives of Sexual Behavior, 46*(1), 73–85. doi:10.1007/s10508-016-0886-0
- Sullivan, C. T. (2018). Majesty in the city: Experiences of an Aboriginal transgender sex worker in Sydney, Australia. *Gender, Place & Culture, 25*(12), 1681–1702. doi:10.1080/0966369X.2018.1553853

- Suschinsky, K. D., Lalumiere, M. L., & Chivers, M. L. (2009). Sex differences in patterns of genital sexual arousal: Measurement artifacts or true phenomena? *Archives of Sexual Behavior*, 38(4), 559–573. doi:10.1007/s10508-008-9339-8
- Sutton, K. S., Stratton, N., Pytyck, J., Kolla, N. J., & Cantor, J. M. (2015). Patient characteristics by type of hypersexuality referral: A quantitative chart review of 115 consecutive male cases. *Journal of Sex & Marital Therapy*, 41(6), 563–580. doi:10.1080/0092623X.2014.935539
- Sweet, M. J., & Zwilling, L. (1993). The first medicalization: The taxonomy and etiology of queerness in classical Indian medicine. *Journal of the History of Sexuality*, 3(4), 590–607.
- Symons, D. (1995). Beauty is in the adaptations of the beholder: The evolutionary psychology of human female sexual attractiveness. In P. R. Abramson & S. D. Pinkerton (Eds.), *Sexual nature, sexual culture* (pp. 80–118). Chicago, IL: The University of Chicago Press.
- Thornhill, R., & Gangestad, S. W. (1999). Facial attractiveness. *Trends in Cognitive Sciences*, 3(12), 452–460. doi:10.1016/S1364-6613(99)01403-5
- Thornton, B. S. (1997). *Eros: The myth of ancient Greek sexuality*. New York, NY: Routledge.
- Tompkins, A. B. (2014). "There's no chasing involved": Cis/trans relationships, "tranny chasers," and the future of a sex-positive trans politics. *Journal of Homosexuality*, 61(5), 766–780. doi:10.1080/00918369.2014.870448
- United Nations Development Programme, United Nations Children's Fund, & The University of New South Wales. (2016). Pacific multi-country mapping and behavioural study: HIV and STI Risk vulnerability among key populations – Samoa. Retrieved from <http://www.pacific.undp.org/content/pacific/en/home/library/DG/pacific-multicountry-mapping-behavioural-study-key-findings.html>
- Valentova, J. V., Kleisner, K., Havlíček, J., & Neustupa, J. (2014). Shape differences between the faces of homosexual and heterosexual men. *Archives of Sexual Behavior*, 43(2), 353–361. doi:10.1007/s10508-013-0194-x
- van den Berghe, P. L., & Frost, P. (1986). Skin color preference, sexual dimorphism and sexual selection: A case of gene culture co-evolution? *Ethnic and Racial Studies*, 9(1), 87–113. doi:10.1080/01419870.1986.9993516
- Vice. (2020). Men who love trans women. Retrieved from [https://www.vice.com/en\\_uk/topic/men-who-love-trans-women](https://www.vice.com/en_uk/topic/men-who-love-trans-women)

- Wang, Y., & Kosinski, M. (2018). Deep neural networks are more accurate than humans at detecting sexual orientation from facial images. *Journal of Personality and Social Psychology, 114*(2), 246–257. doi:10.1037/pspa0000098
- Weinberg, M. S., & Williams, C. J. (2010). Men sexually interested in transwomen (MSTW): Gendered embodiment and the construction of sexual desire. *Journal of Sex Research, 47*(4), 374–383. doi:10.1080/00224490903050568
- Whitam, F. L. (1992). Bayot and callboy in the Philippines. In S. O. Murray (Ed.), *Oceanic homosexualities*. New York, NY: Garland.
- Whitt, D., & Tourjée, D. (2020, March 10). Men who love trans women: The small town musician. *Vice*. Retrieved from [https://www.vice.com/en\\_uk/article/akwy8g/men-who-love-trans-women-the-small-town-musician](https://www.vice.com/en_uk/article/akwy8g/men-who-love-trans-women-the-small-town-musician)
- Wikan, U. (1977). Man becomes woman: Transsexualism in Oman as a key to gender roles. *Man, 12*, 304–319.
- Willett, M., & Acuna, K. (2017). The evolution of the Playboy woman's body type from the 1950s to now. *Insider*. Retrieved from <https://www.insider.com/how-playboy-bunnies-have-changed-2017-9>



## **Chapter 9: Thesis Summary and General Discussion**

Men's sexual interest in MtF (male-to-feminine) transgender individuals—*gynandromorphophilia*—is culturally and historically widespread (e.g., Greenberg, 1988; Murray, 2000; Whitam, 1992). However, men's sexual in these individuals has not been well studied, particularly outside of the USA. The studies comprising my thesis have contributed to our understanding of this interest and the men who express it.

### **Chapter 1**

Chapter 1 reviewed the existing research pertaining to men who are sexually interested in MtF transgender individuals across a diverse range of societies. Further, this review brings together what is known from disciplines that do not consistently communicate with one another (e.g., psychology, anthropology, public health). I reviewed what is known about the sexual orientation and sexual behavior of these men and discussed the qualities that are reported to motivate men's gynandromorphophilia. To the best of my knowledge, this is the first review of this topic. Due to the current state of the literature, it was not possible to review these studies in a systematic manner or to complete a meta-analysis. However, my review furnishes a more comprehensive understanding of gynandromorphophilic men than had previously been available.

### **Chapter 2**

In Chapter 2, I examined the sexual orientations of men who are sexually interested MtF transgender individuals in Samoa using measures of self-reported sexual attraction and viewing time. In Samoa, MtF transgender individuals are locally known as *fa'afafine*. I examined whether Samoan men who have sex with *fa'afafine* are heterogeneous in terms of their sexual orientations and whether this variation is associated with patterns of sexual behavior. Chapter 2 provided evidence that, in Samoa,

a portion of men who had sex with *fa'afafine* are relatively ambiphilic, namely those who had sex with both men and women in addition to *fa'afafine* and, potentially, those who engaged in both receptive and insertive anal sex with *fa'afafine*. But most of the men who had sex with *fa'afafine* were primarily interested in the opposite sex (gynephilic) and a small portion were primarily interested in the same sex (androphilic). As such, Samoan gynandromorphophilic men's viewing time patterns are, by and large, consistent with self-report measures of sexual orientation and suggest that the majority of gynandromorphophilic men are predominantly gynephilic, although exceptions exist.

I had predicted that gynandromorphophilic men would show greater ambiphilia than males who were sexually interested in only cisgender individuals. I had predicted that the degree of ambiphilia would vary with gynandromorphophilic men's sexual behavior but would, nonetheless, be observed across sexual behavioral groups. The idea that ambiphilia facilitates sexual interest in MtF transgender individuals was not fully supported.

### **Chapter 3**

Further support for the idea that, in Samoa, men who are sexually interested in *fa'afafine* are primarily gynephilic was evinced in Chapter 3. Men who were sexually interested in *fa'afafine*, and men who were exclusively sexually interested in cisgender women, both showed longer viewing times of cisgender women than cisgender men, and they rated cisgender women as being more sexually attractive than cisgender men. Both groups considered the cisgender men depicted in the stimuli to be very sexually unattractive and did not differ in this respect, nor did they differ in terms of their brief viewing times of cisgender men.

Unlike men who were sexually interested in only cisgender women, men who were sexually interested in *fa'afafine* considered the MtF transgender individuals depicted in the stimuli to be sexually attractive. Samoan men who were sexually interested in *fa'afafine* viewed images of cisgender women and MtF transgender individuals for a comparable length of time. In contrast, Samoan men who were sexually interested in only cisgender women viewed images of cisgender women longer than images of MtF transgender individuals. These findings are consistent with studies conducted in the USA which suggest that, a subset of men show appreciable, but not exclusive, sexual interest in MtF transgender individuals, whereas non-gynandromorphophilic men do not show such interest (Hsu et al., 2016; Rosenthal et al., 2017). As such, sexual interest in MtF transgender individuals appears to be a variable component of male sexuality.

#### **Chapter 4**

Although men's interest in MtF transgender individual appears to be variable, the capacity to have some sexual interest in MtF transgender individuals may be common to men. This possibility was assessed in Chapter 4 and 7 (Aim 1). Consistent with this idea, Canadian gynephilic men reported greater sexual attraction to MtF transgender individuals, particularly those with surgically augmented breasts, than to cisgender men and non-sexual stimuli. They also allocated greater visual attention to MtF transgender individuals than to cisgender men and non-sexual stimuli—suggesting that a target's gender presentation is important to men's sexual interest. However, participants were less sexually attracted to MtF transgender individuals than cisgender women and allocated less visual attention to MtF transgender individuals than cisgender women—suggesting that a target's primary sexual characteristics are also important to men's sexual interest.

#### **Chapter 5**

In Chapter 5, I assessed whether men's categorization of MtF transgender individuals varies based on culture and their relative sexual interest in MtF transgender individuals. Support was garnered for the idea that men's perception of MtF transgender individuals varies based on culture. In Canada, men who were sexually attracted to cisgender women identified the majority of cisgender women and MtF transgender individuals as women. In contrast, their counterparts from Samoa and the Istmo Zapotec identified most MtF transgender individuals as transgender (i.e., as being like *fa'afafine* or *muxes*) and most cisgender women as women. No support was garnered in Samoa for the idea that men who are sexually interested in MtF transgender individuals perceive them differently than men who are not sexually attracted to MtF transgender individuals.

## **Chapter 6**

In Chapter 6, I examined whether men's sexual interest in MtF transgender individuals varies across cultures. To do so, I compared Canadian, Samoan, and Istmo Zapotec men's sexual attraction ratings and viewing times of images depicting MtF transgender individuals as well as those depicting cisgender women and men. Findings from the self-report measure suggested that men's sexual interest in MtF transgender individuals is culturally variable: MtF transgender individuals were given higher sexual attraction ratings by men from Samoa than men from Canada, and there was suggestive evidence that MtF transgender individuals were given higher sexual attraction ratings by men from the Istmo Zapotec than men from Canada. However, findings from the viewing time measure suggested that men's sexual interest in MtF transgender individuals is consistent across cultures: men in all cultures viewed MtF transgender individuals and cisgender women for a similar length of time and longer than they viewed men, although there was suggestive evidence that Istmo Zapotec viewed MtF transgender individuals for

less time than cisgender women. However, it is possible that men's sexual interest in MtF transgender individuals varies across cultures, but their viewing time latencies are affected by multiple factors. Thus, men's subjective sexual attraction to MtF transgender individuals varies across cultures, but further research is needed to resolve whether similar cross-cultural differences can be observed using more objective measures.

## **Chapter 7**

In Chapter 7, I examined whether exposure to MtF transgender individuals or other individual factors, including sociosexuality, homonegativity, interest in visual sexual stimuli, and socially desirable response bias, were associated with self-reported sexual attraction and visual attention to MtF transgender individuals. Homonegativity was negatively associated with visual attention to MtF transgender individuals and there was suggestive evidence that homonegativity was negatively associated with self-reported sexual attraction. No other scale measure was associated with self-reported sexual attraction or visual attention to MtF transgender individuals. Additionally, exposure did not have an effect on men's visual response to MtF transgender individuals. These results indicate that social attitudes to same-sex sexual attraction are relevant to men's sexual interest in MtF transgender individuals, which is something that should be explored further in future research (e.g. using qualitative measures). Although the findings were inconsistent with the idea that exposure to MtF transgender individuals fosters sexual interest, it is possible that the experimental time period was too short and the exposure occurred too late in life (e.g., it is possible that early sexual experience and exposure to sexual content may play a role in canalizing men's sexual interests, but later sexual experience and exposure to sexual content does not). It is important to note that the

factors investigated here cannot be considered an exhaustive; it is likely that other factors are relevant to men's sexual interest in MtF transgender individuals.

## **Chapter 8**

Lastly, in Chapter 8, I considered whether gynandromorphophilia qualifies as a paraphilia based on the *Diagnostic and Statistical Manual of Mental Disorders-5 (DSM-5)* (American Psychiatric Association, 2013). It was not possible to resolve this issue, however, given the ambiguity associated with the APA's definition of paraphilic interests. Instead, this discussion highlights that the current framing of paraphilias in the *DSM-5* leaves multiple interpretations open. The task of parsing apart paraphilic interests and normophilic interests remains a fairly subjective one. Consequently, it cannot be said conclusively that sexual interest in MtF transgender individuals is, or is not, a paraphilic interest. It is unlikely, however, that gynandromorphophilia is a paraphilic disorder.

## **Future Directions**

In many societies, such as the USA and Canada, relationships between MtF transgender individuals and cisgender men are stigmatized (Bauer & Hammond, 2015; Gamarel, Reisner, Laurenceau, Nemoto, & Operario, 2014). Western men are often reluctant to disclose their sexual interest in trans women out of concern for the negative social response that men who are "outed" commonly endure. Because of this, it is not unusual for men to have only clandestine relationships with trans women or to refrain from forming relationships with them altogether (e.g., Gerico, 2015; May, 2020, January 17; Mock, 2013, September 12; Tourjée, 2019, July 18).<sup>42</sup> In many other societies where sexual relationships between MtF transgender individuals are viewed with some degree of

---

<sup>42</sup> It is not unusual for men to exclusively view pornography of MtF transgender individuals to avoid negative social response.

animosity, men also tend to keep their relationships with MtF transgender individuals hidden (e.g., Asthana & Oostvogels, 2001; Lim, 2015; Mirandé, 2017).

The lack of visibility of men who are sexually interested in MtF transgender individuals has cascading effects on MtF transgender individuals themselves. For instance, although MtF transgender individuals have are disproportionately affected by HIV, public health strategies aimed at their partners are challenging to implement because these men are often not involved in LGBT communities and, as such, these sexual networks are difficult to elucidate (Asthana & Oostvogels, 2001; Long et al., 2020; Operario et al., 2008). Consequently, the social invisibility of these men has real world health consequences for the men, themselves, and all the members of their sexual networks, transgender and cisgender alike. Because of this, it is critical that men's sexual interest in MtF transgender individuals continues to be a topic of empirical investigation and academic discourse.

Our understanding of men's sexual interest in MtF transgender individuals would benefit greatly from more qualitative and quantitative studies in which these men are interviewed about topics such as (1) their sexual histories with cisgender and MtF transgender partners, (2) their willingness to form romantic relationships with MtF transgender individuals, (3) the qualities that motivate their sexual and romantic interest, (4) their interpretation or understanding of their sexual interest in MtF transgender partners relative to their sexual interest in cisgender partners, (5) the experience of realizing and debuting this sexual interest, and (6) the process of "coming out" as a man who is attracted to transgender individuals.

Additional studies employing non-subjective measures of sexual interest (e.g., viewing time, eye-tracking, pupil change, genital arousal) would be valuable for cross-

cultural research of gynandromorphophilia. Specifically, it would be valuable to replicate existing research in new cultural settings. Non-subjective measures permit comparisons of individuals who do not share common subjective understandings of sexual orientation, interests, or behavior (see Stief, 2017). Consequently, such work would permit a more accurate characterization of gynandromorphophilic men across cultures. Additionally, because the use of multiple measures can yield less biased and more robust findings (Munafò & Davey, 2018), it would be beneficial to seek to replicate and expand on the existing research using measures that have not been previously employed.

It is not presently known how commonly men experience gynandromorphophilia. Likewise, it is not presently known how commonly men engage in sexual interactions with MtF transgender individuals. Population frequency studies would help address these gaps in our knowledge. It would be beneficial to complete population frequency studies in multiple cultural settings. However, these studies would be difficult to implement because, as noted, men do not consistently disclose their interest in transgender individuals.

Finally, we have little understanding of why some men express an interest in MtF transgender individuals whereas others do not. One of the next steps in this line of work is to examine what factors are likely to be associated with greater sexual interest in MtF transgender individuals. This can include factors that lead to within-culture differences in men's sexual interest in MtF transgender individuals, as well as, between-culture differences in men's apparent willingness to engage in sexual activity with MtF transgender individuals. Chapter 7 represents an early step in this direction, but further research is needed.



## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th edition)*. Washington, DC: Author.
- Asthana, S., & Oostvogels, R. (2001). The social construction of male 'homosexuality' in India: Implications for HIV transmission and prevention. *Social Science & Medicine* 52(5), 707–721. doi:10.1016/S0277-9536(00)00167-2
- Bauer, G. R., & Hammond, R. (2015). Toward a broader conceptualization of trans women's sexual health. In: University of Toronto Press Incorporated.
- Gamarel, K. E., Reisner, S. L., Laurenceau, J.-P., Nemoto, T., & Operario, D. (2014). Gender minority stress, mental health, and relationship quality: A dyadic investigation of transgender women and their cisgender male partners. *Journal of Family Psychology*, 28(4), 437–447. doi:10.1037/a0037171
- Gerico, H. (2015). *Looking for that "special" lady: Exploring hegemonic masculinity in online dating profiles of trans-attracted men*. (Master of Arts Masters). Central European University, Budapest, Hungary.
- Greenberg, D. F. (1988). *The construction of homosexuality*. Chicago, IL: The University of Chicago Press.
- Hsu, K. J., Rosenthal, A. M., Miller, D. I., & Bailey, J. M. (2016). Who are gynandromorphophilic men? Characterizing men with sexual interest in transgender women. *Psychological Medicine*, 46(4), 819–827. doi:10.1017/S0033291715002317
- Lim, D. C. L. (2015). Visualizing the invisible: Social constructions of straight identified men who have sex with transsexuals and feminized gay men on/off Malaysian film. *Studies in Gender and Sexuality*, 16(3), 183–203. doi:10.1080/15240657.2015.1073047
- Long, J. E., Ulrich, A., White, E., Dasgupta, S., Cabello, R., Sanchez, H., . . . Duerr, A. (2020). Characterizing men who have sex with transgender women in Lima, Peru: Sexual behavior and partnership profiles. *AIDS and Behavior*, 24(3), 914–924. doi:10.1007/s10461-019-02590-w
- May, K. (2020, January 17). Trans women deserve to be loved proudly. Straight guys, I'm looking at you. *Huffington Post*. Retrieved from [https://www.huffingtonpost.ca/entry/transgender-dating\\_ca\\_5de12effe4b0d50f32a106a4](https://www.huffingtonpost.ca/entry/transgender-dating_ca_5de12effe4b0d50f32a106a4)
- Mirandé, A. (2017). *Behind the mask: Gender hybridity in a Zapotec community*. Tucson, AZ: The University of Arizona Press.

- Mock, J. (2013, September 12). *How society shames men dating trans women & How this affects our lives*. Retrieved from <https://janetmock.com/2013/09/12/men-who-date-attracted-to-trans-women-stigma/>
- Munafò, M. R., & Davey, S. G. (2018). Repeating experiments is not enough. *Nature*, 553, 399–403.
- Murray, S. O. (2000). *Homosexualities*. Chicago, IL: The University of Chicago Press.
- Operario, D., Burton, J., Underhill, K., & Sevelius, J. (2008). Men who have sex with transgender women: Challenges to category-based HIV prevention. *AIDS and Behavior*, 12(1), 18–26. doi:10.1007/s10461-007-9303-y
- Rosenthal, A. M., Hsu, K. J., & Bailey, J. M. (2017). Who are gynandromorphophilic men? An internet survey of men with sexual interest in transgender women. *Archives of Sexual Behavior*, 46(1), 255–264. doi:10.1007/s10508-016-0872-6
- Stief, M. (2017). The sexual orientation and gender presentation of hijra, kothi, and panthi in Mumbai, India. *Archives of Sexual Behavior*, 46(1), 73–85. doi:10.1007/s10508-016-0886-0
- Tourjée, D. (2019, July 18). Straight men recall the first time they were attracted to a trans woman. *Vice*. Retrieved from [https://www.vice.com/en\\_ca/article/43jzvb/straight-men-recall-the-first-time-they-were-attracted-to-a-trans-woman](https://www.vice.com/en_ca/article/43jzvb/straight-men-recall-the-first-time-they-were-attracted-to-a-trans-woman)
- Whitam, F. L. (1992). Bayot and callboy in the Philippines. In S. O. Murray (Ed.), *Oceanic homosexualities*. New York, NY: Garland.