

DEDICATION

I want to dedicate this final project to my former chronic illness group co-facilitators, Mary Nanniga and Sierra Bruining. During my own diagnostic experience, you provided a safe place where I felt validated, heard, and seen. I appreciate your dedication to supporting the mental well-being of individuals with chronic illness.

I also want to dedicate this final project to the group members in the chronic illness support group. Thank you all for your vulnerability in sharing your own experiences and challenges navigating a chronic illness. As flawlessly stated by Brené Brown (2021), *“Vulnerability is not weakness; it’s our greatest measure of courage” (p.14).*

Finally, I want to thank my family and friends who supported me throughout this master’s program. I am grateful for my support network, the new friends I have made through this journey, and all the experiences that have come out of this program, including this final project.

ABSTRACT

The current approach to treating and managing Polycystic Ovary Syndrome (PCOS) focuses on physical symptom management, with little attention to the psychological implications of PCOS. This is problematic given that individuals with PCOS are known to experience higher rates of psychological distress, depression, anxiety, self-harm, and suicidal behaviour. In this project, an interdisciplinary approach is proposed to adequately manage and treat PCOS. This manuscript presents a review of current literature regarding the psychological and physical symptoms of PCOS, the diagnostic process, the current treatment approach, patient healthcare experiences, and emerging interdisciplinary approaches for the treatment of PCOS. This information is then synthesized into two digital manuals for physicians and counsellors, respectfully. The manuals encapsulate information, resources, and recommendations to aid physicians and counsellors in taking an interdisciplinary approach to treating and managing PCOS.

Keywords: Healthcare, Interdisciplinary Approach, Mental Health, PCOS, Counsellor, Psychiatric Disorders, Self-Harm, Suicide

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KEY TERMINOLOGY

Acne Vulgaris

“An eruption, predominantly of the face, upper back, and chest, composed of comedones, cysts, papules, and pustules on an inflammatory base; the condition usually develops during puberty and adolescence, due to androgenic stimulation of sebum secretion, with plugging of follicles by keratinization, associated with proliferation of *Propionibacterium acnes*” (Stedman, 2012, p.20).

Amenorrhea

“Absence or abnormal cessation of the menses” (Stedman, 2012, p. 73).

Androgen

“Generic term for an agent, usually a hormone (e.g., androsterone, testosterone), which stimulates activity of the accessory male sex organs, promotes development of male sex characteristics, or prevents changes in the latter that follow castration; natural androgens are steroids, derivatives of androstane” (Stedman, 2012, p. 89).

Anovular Menstruation

“Menstrual bleeding without recent ovulation” (Stedman, 2012, p.102).

Antidepressant

“Any drug administered in the treatment of depression. Most antidepressants work by increasing the availability of monoamine neurotransmitters such as norepinephrine, serotonin, or dopamine, although they do so by different routes” (American Psychological Association, n.d.).

Cardiovascular

“Relating to the heart and the blood vessels or circulation” (Stedman, 2012, p. 281).

Clomiphene

A nonsteroidal fertility agent used to induce ovulation in infrequently ovulating or anovulatory women, including patients with polycystic ovary syndrome (PCOS)” (Merk Manual, 2024).

Cognitive Behavior Therapy

“A form of psychotherapy that integrates theories of cognition and learning with treatment techniques derived from cognitive therapy and behaviour therapy. CBT assumes that cognitive, emotional, and behavioural variables are functionally interrelated. Treatment is aimed at identifying and modifying the client’s maladaptive thought processes and problematic behaviors through cognitive restructuring and behavioral techniques to achieve change” (American Psychological Association, n.d.).

Cyst

“An abnormal sac containing gas, fluid, or a semisolid material, with a membranous lining” (Stedman, 2012, p. 430).

Cystic Acne

“Severe acne in which the predominant lesions are follicular cysts that rupture and scar” (Stedman, 2012, p. 431).

Dyslipidemia

“Any biochemical disorder characterized by one or more abnormal levels of blood lipids” (Stedman, 2012, p. 517).

Electrolysis

“Destruction of certain hair follicles by means of galvanic electricity” (Stedman, 2012, p. 535).

Emotion Regulation

“The ability of an individual to modulate an emotion or set of emotions” (American Psychological Association, n.d.).

Empathy

“Understanding a person from their frame of reference rather than one’s own, or vicariously experiencing that person’s feelings, perceptions, and thoughts.” (American Psychological Association, n.d.).

Estrogen

“Generic term for any substance, natural or synthetic, which exerts biologic effects characteristic of estrogenic hormones; formed by the ovary, placenta, testes, and possibly the cortex of the suprarenal gland, as well as by some plants; stimulates secondary sexual characteristics and exerts systemic effects, such as growth and maturation of long bones” (Stedman, 2012, p. 587).

Follicle

“1. A more or less spheric mass of cells usually containing a cavity. 2. A crypt or minute cul-de-sac or lacuna, such as the depression in the skin from which the hair emerges” (Stedman, 2012, p. 651).

Follicle-Stimulating Hormone

“A decapeptide of hypothalamic origin capable of accelerating pituitary secretion of follitropin” (Stedman, 2012, p. 651).

Gynecology

“The medical specialty concerned with diseases of the female genital tract, as well as endocrinology and reproductive physiology of the female” (Stedman, 2012, p. 730).

Hirsutism

“Presence of excessive bodily and facial terminal hair, in a male pattern, especially in women; may present in normal adults as an expression of an ethnic characteristic or may develop in children or adults as the result of androgen excess due to tumours or drugs (e.g., nonandrogenetic drugs)” (Stedman, 2012, p. 786).

Identity

“An individual’s sense of self defined by (a) a set of physical, psychological, and interpersonal characteristics that is not wholly shared with any other person and (b) a range of affiliations (e.g., ethnicity) and social roles.” (American Psychological Association, n.d.).

Insulin

“A polypeptide hormone, secreted by beta cells in the islets of Langerhans, which promotes glucose use, protein synthesis, and the formation and storage of neutral lipids; available in a variety of preparations including genetically engineered human insulin, which is currently favored, insulin is used parenterally in the treatment of diabetes mellitus” (Stedman, 2012, p. 872).

Insulin Resistance

“Diminished effectiveness of insulin in lowering blood sugar levels; arbitrarily defined as requiring 200 units or more of insulin per day to prevent hyperglycemia or ketosis; usually due to insulin binding by antibodies, but abnormalities in insulin receptors on cell surfaces also occur; associated with obesity, ketoacidosis, infection, and some less common conditions” (Stedman, 2012, p. 873).

Interdisciplinary

“Denoting the overlapping interests of different fields of medicine and science” (Stedman, 2012, p.876).

Isotretinoin

“An oral retinoid indicated for the treatment of severe recalcitrant nodular acne in non-pregnant patients 12 years and older with multiple inflammatory nodules with a diameter of at least 5 mm.” (Merk Manual, 2024).

Lifestyle

“Habits and customs influenced by the lifelong process of socialization, including social use of alcohol and tobacco, dietary habits, and exercise, all of which have important implications for health” (Stedman, 2012, p. 969).

Linea Alba

“A fibrous band running vertically the entire length of the center of the anterior abdominal wall, receiving the attachments of the oblique and transverse abdominal muscles” (Stedman, 2012, p. 973).

Luteinizing Hormone

“A glycoprotein hormone that stimulates the final ripening of an ovarian follicle, its secretion of progesterone, its rupture to release the egg, and the conversion of the ruptured follicle into the corpus luteum” (Stedman, 2012, p. 995).

Menorrhea

“The monthly flow of blood from a woman’s uterus” (Stedman, 2012, p. 1045).

Menorrhagia

“Excessively prolonged or profuse menses” (Stedman, 2012, p. 815).

Menses

“A periodic physiologic hemorrhage, which occurs at approximately 4-week intervals; its source is the uterine mucous membrane; usually the bleeding is preceded by ovulation and predecidual changes in the endometrium” (Stedman, 2012, p. 1045).

Menstrual Cycle

“The period in which an oocyte or ovum matures, is ovulated, and enters the uterine lumen through the uterine tube; ovarian hormonal secretions effect endometrial changes such that, if fertilization occurs, nidation will be possible; in the absence of fertilization, ovulation secretions wane, the endometrium sloughs, and menstruation begins; this cycle lasts an average of 28 days, with day 1 of the cycle designated as that day on which menstrual flow begins” (Stedman, 2012, p. 1046).

Metabolic

“Relating to metabolism” (Stedman, 2012, p. 1054).

Metabolic Disease

“Generic term for disease caused by an abnormal metabolic process; can be congenital, due to inherited enzyme abnormality, or acquired, due to disease of an endocrine organ or failure of function of a metabolic important organ” (Stedman, 2012, p. 1054).

Multidisciplinary

“Collective; involving health care providers from more than one discipline” (Stedman, 2012, p. 1096-1097).

Obesity

“An excessive accumulation of fat in the body” (Stedman, 2012, p. 1178).

Oligomenorrhea

“Scanty menstruation” (Stedman, 2012, p. 1191).

Ovarian Cyst

“A cystic tumour of the ovary, either non-neoplastic (follicle, lutein, germinal inclusion, or endometrial) or neoplastic” (Stedman, 2012, p. 1222).

Ovary

“One of the paired female reproductive glands containing oocytes (ova) or germ cells” (Stedman, 2012, p.1222).

Ovulatory Dysfunction

“Abnormal, irregular (with less than ≤ 9 menses/year), or absent ovulation” (Merk Manual, 2024).

Perimenopause

“The 3– to 5- year period before menopause during which estrogen and progesterone levels decline and symptoms of hormone deprivation begin” (Stedman, 2012, p. 1275).

Person-Centered Planning

“A process that, in the planning of services for an individual, focuses on their particular strengths, preferences, achievements, and unique circumstances” (American Psychological Association, n.d.).

Phenotype

“Manifestation of a genotype or the combined manifestation of several different genotypes” (Stedman, 2012, p. 1292).

Polycystic Ovary

“An enlarged pearl-white, cystic ovary, with thickened tunica albuginea” (Stedman, 2012, p. 1332).

Polycystic Ovary Morphology

“Either 12 or more follicles measuring 2-9 mm in diameter, or increased ovarian volume ($>10 \text{ cm}^3$)” (Balen et al., 2003).

Polycystic Ovary Syndrome

“A condition commonly characterized by signs of masculinization such as hirsutism, as well as obesity, menstrual abnormalities, infertility and enlarged ovaries; thought to reflect excessive androgen secretion of ovarian origin” (Stedman, 2012, p. 1332).

Psychosocial

“Describing the intersection and interaction of social, cultural, and environmental influences on the mind and behavior” (American Psychological Association, n.d.).

Psychosexual

“Relating to or denoting any aspects of human sexuality that are based on or influenced by psychological factors, as opposed to genetic, chemical, and other biological based (organic) aspects (American Psychological Association, n.d.).

Self-Harm

“Self-harm or self-injury means hurting yourself on purpose. One common method is cutting with a sharp object. But any time someone deliberately hurts themselves is classified as self-harm. Some people feel an impulse to cause burns, pull out hair or pick at wounds to prevent healing. Extreme injuries can result in broken bones.” (National Alliance on Mental Illness, 2024).

Self-Regulation

“The control of one’s behavior through the use of self-monitoring (keeping a record of behavior), self-evaluation (assessing the information obtained during self-monitoring), and self-reinforcement (rewarding oneself for appropriate behavior or for attaining a goal)” (American Psychological Association, n.d.).

Spironolactone

“Diuretic that blocks aldosterone’s renal tubular actions and increases urinary excretion of sodium and chloride” (Stedman, 2012, p. 1574).

Suicide

“the act of killing oneself. Frequently, suicide occurs in the context of a major depressive episode, but it may also occur as a result of a substance use or other disorder. It sometimes occurs in the absence of any psychiatric disorder, especially in untenable situations, such as extreme or prolonged bereavement or declining health” (American Psychological Association, n.d.).

Suicidal Ideation

“Thoughts about or a preoccupation with killing oneself, often as a symptom of a major depressive episode” (American Psychological Association, n.d.)

Terminal Hair

“A mature, pigmented, coarse hair” (Stedman, 2012, p. 1662).

Testosterone

“The most potent naturally occurring androgen, formed in greatest quantities by the interstitial cells of the testes and possibly secreted also by the ovary and adrenal cortex of the suprarenal gland” (Stedman, 2012, p. 1664-1665).

Type 2 Diabetes

“A condition characterized by high blood glucose levels caused by either a lack of insulin or the body’s inability to use insulin efficiently” (Stedman, 2012, p. 1736).

LIST OF ABBREVIATIONS

5F-Wel	Five Factor Wellness Inventory
AE-PCOS	Androgen Excess and PCOS Society
BATHE technique	Background, Affect, Trouble, Handling, and Empathy
CAMH	Centre for Addiction and Mental Health
CSM	The Common-Sense Model of Self-Regulation
HADS	Hospital Anxiety and Depression Scale
HRQOL	Health-Related Quality of Life
IS-WEL	Indivisible Self Model
MSBR	Mindfulness-Based Stress Reduction therapy
NIH	National Institutes of Health
PCOS	Polycystic Ovary Syndrome
PCOSQ	Polycystic Ovary Syndrome Questionnaire
SMART-EST model	Goals are Specific, Measurable, Achievable, Relevant, Time-Bound, Evidence-Based, Strategic, and Tailored
WEL	Wellness Evaluation of Lifestyle
Wel-BII	Wellness-Based Integrative Intervention

CHAPTER I: INTRODUCTION

Overview

The purpose of this project is twofold: (a) to highlight the need for an interdisciplinary approach in the diagnosis and treatment of PCOS, and (b) to provide healthcare professionals with the tools to implement this approach in their practice. Included within the manuscript are two separate manuals, one for physicians and one for counsellors. Both manuals highlight the importance of mental health support in PCOS treatment. The *Physician's Manual* (see Appendix A) supplements physicians' medical expertise with information regarding the psychological manifestations of PCOS, current patient healthcare experiences, and the importance of addressing patients' psychological concerns in their practice. The manual provides physicians with a toolbox of time-efficient resources to integrate a mental health focus into their practice.

The *Counsellor's Manual* (see Appendix B) expands on the *Physician's Manual*, informing counsellors of the medical components of PCOS, including foundational medical terminology and descriptions of the physical symptoms associated with PCOS. Counsellors are also provided with a toolbox to guide their practice while working with individuals with PCOS. The overarching objective of the manuals is to promote positive healthcare experiences and a greater sense of well-being for individuals with PCOS by encouraging an interdisciplinary approach to the PCOS diagnosis and treatment process.

Rationale

Comorbid Psychological Implications of PCOS

The promotion of a mental health focus in the treatment and management of PCOS is crucial as individuals with PCOS are at a greater risk for numerous psychological concerns. Evidence indicates that individuals with PCOS are more than five times as likely to experience symptoms

of anxiety and more than four times as likely to experience symptoms of depression (Cooney et al., 2017). Additionally, individuals with PCOS are two times more likely to have bipolar disorder (Shahraki et al., 2024) and over three times more likely to have an eating disorder (Lee et al., 2019) than individuals without PCOS.

Further, individuals with PCOS frequently have lower levels of self-esteem, often due to feelings of unattractiveness (Scaruffi et al., 2019). The physical symptoms of PCOS, such as hirsutism (Sioma-Markowska & Milena, 2021), obesity (Panico et al., 2017), infertility (Deeks et al., 2010), acne (Chaudhari et al., 2018; Jirawattanadon et al., 2023), and androgenic alopecia (Jirawattanadon et al., 2023) are linked to impairments in individuals' psychological functioning. Individuals with PCOS frequently report feeling masculine, abnormal, and unfeminine (Pfister & Rømer, 2017; Sioma-Markowska & Milena, 2021). These issues frequently lead to a greater degree of introversion and social withdrawal, in turn creating difficulties in individuals' professional, social, and intimate relationships (Scaruffi et al., 2019).

Individuals with PCOS are at a greater risk of experiencing emotional dysregulation, engaging more often in dysfunctional emotion regulation strategies (Williams et al., 2022). For instance, individuals with PCOS are more likely to engage in rumination (consistent negative thoughts; Williams et al., 2022). Notably, individuals with PCOS experience higher incidents of hospitalization for self-harm (Hart & Doherty, 2015) and are seven times more likely to attempt suicide than individuals without PCOS (Månsson et al., 2008). Given these findings, there is a need for physicians and counsellors to be equipped with knowledge and tools (e.g., clinical risk assessments) to address patients' psychological manifestations of PCOS.

Current Approach to Treating and Managing PCOS

The first line of treatment for PCOS often focuses on addressing patients' physical symptoms. To this end, physicians commonly prescribe pharmacotherapy and lifestyle interventions (Pfieffer, 2019). However, management of physical symptoms alone does not mitigate patients' psychological distress (Damone et al., 2019). Lifestyle changes only benefit patients' physical and psychological well-being when patients are informed, prepared, and supported in carrying out these interventions (Avery et al., 2020).

Currently, information and support for patients to engage in lifestyle interventions are lacking in PCOS treatment (Ismayilova & Yaya, 2022). Studies indicate that many patients with PCOS express concerns regarding their physicians' knowledge of PCOS and a lack of empathy throughout the diagnosis and treatment process (Hillman et al., 2020; Ismayilova & Yaya, 2022; Jones et al., 2011; Presswala & De Souza, 2023). In multiple studies, patients expressed feeling as though their physicians dismissed their symptoms and offered little in terms of mental health support or resources to inform their understanding of PCOS (Gibson-Helm et al., 2017; Hillman et al., 2020; Ismayilova & Yaya, 2022; Jones et al., 2011; Presswala & De Souza, 2023). These findings are concerning given the long-term implications of psychological symptoms and patients' well-being (e.g., depression, self-harm, suicide).

Benefits of Supporting Psychological Health

Treating patients' physical symptoms is not enough to deter the psychological effects of PCOS (Damone et al., 2019). Evidence indicates that after controlling for symptoms related to weight, infertility, and sociodemographics, individuals with PCOS are significantly more stressed than individuals without PCOS (Damone et al., 2019). Notably, greater perceived consequences and number of symptoms, lower perceived control, and a lack of understanding of

an illness, are linked to greater psychological distress (Light et al., 2021). Teede et al. (2023) note the importance of managing psychological distress to optimize patient adherence to treatment and management of PCOS.

An Interdisciplinary Approach to Treatment

Given the significant risk of mental health concerns for individuals with PCOS and the proven benefits of concurrently treating the psychological and physical symptoms of PCOS, an interdisciplinary approach to treating PCOS is warranted. The interdisciplinary approach described in this manuscript is based in Teede et al.'s (2023) International Evidence-Based Guideline, which calls for increased education among healthcare professionals. In this current manuscript, Teede et al.'s (2023) guideline is addressed by developing manuals that offer educational information on PCOS for physicians and counsellors.

To support the development of an interdisciplinary approach to the treatment of PCOS, the *Physician's Manual* provided in this manuscript includes a detailed explanation of psychological symptoms associated with PCOS, including symptoms of psychological distress, various mental health disorders, self-harm, and suicide. The manual is intended to provide physicians with an understanding of how physical symptoms of PCOS impact patients' psychological well-being. Likewise, the manual for counsellors outlines medical information about PCOS (i.e., physical symptoms and diagnostic process). Both manuals include risk assessment tools that physicians and counsellors can use to screen patients for mental health concerns related to PCOS (e.g., anxiety, depression, suicidality).

This work offers physicians tools to provide ongoing psychological support throughout the PCOS treatment process. It also provides counsellors with medical knowledge about PCOS

and tools for individual and group therapy. Thus, counsellors can work alongside physicians in supporting patients' diagnoses and treatment experiences.

Significance of Project

There is a crucial need for physicians to implement a mental health focus when treating PCOS (Copp et al., 2022; Damone et al., 2019; Deeks et al., 2011; Dokras et al., 2017; Gibson-Helm et al., 2017; Hillman et al., 2020; Ismayilova & Yaya, 2022; Jones et al., 2011; Presswala & De Souza, 2023; Soucie et al., 2023; Teede et al., 2023). As previously mentioned, current resources for physicians are dominantly focused on treating the physical symptoms of PCOS rather than attending to the associated psychological concerns. The manuals created within this manuscript extend Lathia et al.'s (2022) work by providing professionals with information and tools to use in practice. The manuals included within this project can be accessed online on Open ULeth Scholarship (OPUS), the University of Lethbridge's open-access research repository.

Statement of Personal Interest

My interest in this topic arose from my own diagnostic experience navigating PCOS. Receiving a diagnosis of PCOS in my 20s, I have experienced both the psychological and physical symptoms of PCOS. After being formally diagnosed, I sought out support to help me navigate this unfamiliar condition. I remember the day I walked into the gynecologist's office, awaiting the support I had been seeking. In a matter of minutes, a healthcare professional walked out and asked me if I was in any pain. I said "No," and that was it. She told me to come back if I had any physical trouble having children in the future. I may not have been in physical pain, but I was in my early 20s and had only recently learned that I had over 20 cysts on my ovaries and could potentially never have children. After leaving the appointment, I felt lost and alone, unsure of how to navigate my diagnosis.

Fortunately, I was able to find support in the Chronic Illness Support Group at the University of Lethbridge. I heard stories from other individuals with chronic illnesses, empathized with their harrowing experiences navigating their condition, feeling for the first time that my concerns were valid. When allowed to research any topic of interest, I realized I could be a part of the change needed in PCOS treatment. From that moment on, I have delved into current literature, gained insight into the most significant physical, psychological, and healthcare delivery challenges of PCOS, and have made it my mission to create a project that brings the discussion of mental health to the forefront.

My struggles with a PCOS diagnosis have led to the creation of this project. Using the manuals as a resource, I hope that professionals can work across disciplines to address patients' physical and psychological symptoms, promoting more positive diagnosis and treatment experiences among individuals with PCOS.

Note to the Reader

In the development of this manuscript, it became apparent that PCOS is dominantly defined as a disorder associated with cisgender women. Research consistently discusses psychological symptoms 'women' may experience or ways to support 'women' with PCOS. However, PCOS is an endocrine disorder that transgender, gender-diverse, and cis women can experience. Increasing awareness of what PCOS is and the individuals whom PCOS impacts is an integral part of this project. Therefore, this manuscript will describe PCOS as an endocrine disorder among individuals rather than among cisgender women specifically. I hope that future research will inquire into the lived experiences of transgender and gender-diverse individuals with PCOS and add to the current conceptualization of this condition.

CHAPTER II: LITERATURE REVIEW

Polycystic Ovary Syndrome (PCOS) is a complex endocrine disorder that influences an individual's physical and psychological functioning. This chapter provides a comprehensive review of the current literature on PCOS, inclusive of the diagnostic process, the physical and psychological implications of PCOS, and current treatment approaches. Within the diagnostic process, challenges related to diagnosis are discussed, including difficulties associated with diagnosing adolescents, variations in PCOS presentation over the lifespan, and the lack of a universal diagnostic criteria. When discussing physical and psychological implications, increased physical health risks are outlined, along with the relationship between psychological distress and physical symptoms. Current approaches to the treatment and management of PCOS are also mentioned. In particular, the impact of a unidimensional approach to the treatment of PCOS is scrutinized by examining current patient healthcare experiences and barriers to positive patient diagnosis and treatment experiences. This chapter concludes with a comprehensive exploration of how physicians and counsellors can integrate an interdisciplinary approach into their practice, including tools they can use to simultaneously promote the physical and psychological well-being of individuals with PCOS.

Polycystic Ovary Syndrome (PCOS)

PCOS is the most prevalent endocrine disorder in reproductive-aged individuals (Sioma-Markowska & Milena, 2021). Individuals with PCOS experience reproductive, metabolic, and psychological symptomatology (Teede et al., 2010). The exact cause(s) of PCOS is unknown. However, current research suggests that genetics and a combination of increased androgen levels and insulin resistance may influence the development of PCOS (Wood et al., 2004).

Physical Manifestations of PCOS

Individuals with PCOS experience metabolic and reproductive concerns, with an increased risk for various health conditions and physical complications. The following section explores reproductive and metabolic health risks, as well as physical symptoms of PCOS.

Reproductive and Metabolic Health Risks

Individuals with a diagnosis of PCOS are at an elevated risk for long-term health concerns, including endometrial cancer (Haoula et al., 2012), metabolic disturbances (Wild et al., 2000), irritable bowel syndrome (Mathur et al., 2010), and thyroid disorders (Kachuei et al., 2012). Metabolic disturbances include dyslipidemia, cardiovascular disease, and insulin resistance (Wild et al., 2000). Reproductive implications include infertility (Deeks et al., 2010), pregnancy complications (de Wilde et al., 2017), oligomenorrhea, dysfunctional uterine bleeding, and secondary amenorrhea (Foster et al., 2018). Given the disruptive and varied nature of these side effects, an accurate diagnosis of PCOS prompts necessary screening measures and aids in preventing adverse health outcomes (Goodman et al., 2015).

Physical Symptoms of PCOS

In addition to physical health risks, the following five symptoms are often prevalent among individuals with PCOS: hirsutism, acne, obesity, menstrual irregularities, and infertility (Bazarganipour et al., 2014). While less understood in literature, androgenic alopecia has also been deemed as an influential symptom among individuals with PCOS. The following section describes these PCOS symptoms in depth (Goodman et al., 2015; Quinn et al., 2014).

Hirsutism. Hirsutism, the presence of excess body hair in a male-patterned presentation, occurs in up to 80% of individuals with PCOS (Tewary et al., 2021). Hirsutism is the most common symptom of hyperandrogenism, known as an excess of “male” hormones, most

commonly testosterone (Martin et al., 2008). Individuals who exhibit hyperandrogenism often display terminal hair, defined as coarse, pigmented, thickened, and long hair, compared to soft, unpigmented, fine, vellus hair (Goodman et al., 2015). Terminal hairs found in considerable amounts on the neck, sideburns, chin, and lower face are signs of androgen excess (Goodman et al., 2015). Hirsutism most often appears after menarche, however some adolescents develop premature pubic hair growth and a measure of hirsutism (Goodman et al., 2015).

Conducting a physical examination, the Hatch-Modified Ferriman-Gallwey visual scale is the most used scale to grade hirsutism (Hatch et al., 1981, as cited in Goodman et al., 2015). The Ferriman-Gallwey examines the degree of terminal hair in nine androgen-sensitive body areas: upper and lower back, upper arm, thighs, upper and lower abdomen, upper lip, chest, and chin (Tewary et al., 2021). When examined, each body region is graded from 0 (absence of hair) to 4 (extensive hair). Mild hirsutism reflects a complete score (total score of all body regions combined) of 8-15, reflecting a low likelihood of an underlying condition. Moderate to severe hirsutism is reflected in a score over 15 (Tewary et al., 2021). Although helpful, the Hatch-Modified Ferriman-Gallwey visual scale does not grade hair present in perineal, buttock, or sideburn regions (Hatch et al., 1981, as cited in Goodman et al., 2015).

Acne. Common amongst individuals with PCOS, acne is often a result of hyperandrogenemia when it continues after adolescence or increases during individuals' mid-20s or 30s (Goodman et al., 2015). Acne vulgaris, a chronic inflammatory disease, is generally present on the neck, upper trunk, upper arms, and face (Maluki et al., 2010). In a study evaluating the frequency of PCOS amongst participants with resistant acne vulgaris, findings revealed that 51.2% of individuals with resistant acne had PCOS compared to 6.2% of controls (Maluki et al., 2010). Individuals with PCOS often experience acne comprised of severe cystic

lesions, with treatment resistance indicating a more substantial relation to PCOS (Goodman et al., 2015; Pfeiffer, 2019).

Androgenic Alopecia. Defined as the reduction in hair at the central area of the scalp, androgenic alopecia, a manifestation of hyperandrogenism, is a symptom present in individuals with PCOS (Quinn et al., 2014). However, limited research has examined the prevalence of androgenic alopecia, resulting in an unclear understanding of the presence and influence of this symptom among individuals with PCOS (Azziz et al., 2009; Quinn et al., 2014). Notably, Quinn et al. (2014) found 22% of individuals with PCOS have androgenic alopecia, while others (Elsheikh & Murphy, 2018, as cited in Pfeiffer, 2019) assert 10% of individuals with PCOS present with male pattern baldness. Regardless of the prevalence, all symptoms of PCOS should be considered in the diagnosis and treatment process.

Obesity and Insulin Resistance. A significant weight increase from ages 20-24 that persists through the years of 32-41 may be a sign of PCOS (Glueck et al., 2005). In a study of 401 individuals with PCOS, 91% of participants experienced weight gain and were either overweight, obese or extremely obese (Glueck et al., 2005). Others (Balen et al., 1995; Legro, 2000) note between 38-88% of individuals with PCOS are overweight or obese. Individuals with PCOS may also experience insulin resistance, with some (Lord et al., 2006) finding that more visceral/abdominal body fat is related to increased insulin resistance, which may heighten metabolic and reproductive irregularities in PCOS. Compared to weight-matched individuals without PCOS, individuals with PCOS are more likely to have greater central abdominal fat (Carmina et al., 2007). Additionally, PCOS patients who are overweight but have normal central abdominal fat have shown higher insulin levels and lower insulin sensitivity compared to overweight controls (Carmina et al., 2007).

Menstrual Irregularities and Infertility. Another key symptom of PCOS is the presence of menstrual dysfunction, with most individuals with PCOS experiencing menstrual irregularities (Azziz et al., 2009). In a study of 494 individuals with PCOS and 138 non-hirsute, eumenorrheic controls, 70% of individuals with PCOS experienced irregular menstruation, with vaginal bleeding occurring in intervals of greater than 35 days. Only 10% of participants in the former study were ovulatory (Brower et al., 2013). Corroborating these findings, a report conducted by the Androgen Excess and PCOS Society (AE-PCOS) found that 60-85% of individuals with PCOS and oligoovulation (irregular ovulation) present with menstrual dysfunction (dominantly oligomenorrhea) while the rest present eumenorrhea (Azziz et al., 2009).

PCOS is the most frequent source of anovulatory infertility, with 90-95% of individuals at infertility clinics experiencing anovulation (Teede et al., 2010). In the United States, infertility treatment is eight times greater for individuals with PCOS than for those without PCOS (Simon et al., 2021). However, infertility amongst individuals with PCOS is often not evaluated until the individual is trying to conceive (Pfeffer, 2019).

Diagnosis Process

Diagnosing PCOS is challenging due to the unclear diagnostic process for adolescents, the variation in PCOS presentation, and the lack of a universal diagnostic criteria (Bonny et al., 2012; Hoeger et al., 2021; Goodman et al., 2015). Notably, as many as 70% of individuals with PCOS are undiagnosed (World Health Organization, 2023). The following section discusses each of these diagnostic challenges.

Challenges in Diagnosing PCOS

Diagnostic Process for Adolescents. Detecting the presence of PCOS during adolescence can be beneficial, as proactive measures can be taken to treat its cardiovascular, metabolic, dermatologic, and psychologic implications (Goodman et al., 2015). However, many symptoms of PCOS overlap with normal symptoms of puberty, making it possible for physicians to misdiagnose adolescents (Williams et al., 2013). Specifically, adolescents can experience symptoms such as acne or menstrual irregularities that point toward typical signs of puberty, but also reflect potential symptoms of PCOS (Goodman et al., 2015). Further complicating the diagnostic process, many measures used to evaluate PCOS are unsuited for the adolescent demographic. For example, pelvic ultrasounds cannot be used until eight years post menarche (Meczekalski et al., 2023; Peña et al., 2020) for detecting PCOS among adolescents, as polycystic ovary morphology is present in as many as 40% of adolescents two years after menarche (Codner et al., 2011). This means physicians must depend on biochemically finding oligomenorrhea or anovulation to attempt to determine if a PCOS diagnosis is warranted (Goodman et al., 2015; Hoeger et al., 2021). However, it can take about two years post-menses to obtain consistent menstrual cycles, so this, too, is challenging (Goodman et al., 2015).

Determining a diagnosis of PCOS during adolescence can be a preventative measure. Unfortunately, given these findings, it is evident that it can be difficult for physicians to verify the presence of PCOS among this demographic.

Variations in PCOS Presentation Across the Lifespan. PCOS is a heterogeneous condition, meaning that individuals with PCOS can present an array of physical symptoms, which may vary across the lifespan (Bouchard & Fauser, 2014). During the earlier years of life PCOS is primarily viewed as a reproductive disorder, however, across the lifespan, it is

increasingly understood as a more metabolic condition (Louwers & Laven, 2020). The following section will explore the variations in PCOS presentation across adolescence, reproductive years, and menopause.

Adolescence: PCOS Physical Symptoms. During adolescence, an individual's menstrual cycle is a crucial indicator of the potential presence of PCOS, with 51% of 15-year-old adolescents who are oligo-amenorrheic still having this symptom during adulthood (van Hoof et al., 2004). In addition, acne is common among as many as 80% of adolescents, regardless of PCOS. Still, hyperandrogenism may be present when acne is averse to topical treatment (Friedlander et al., 2010. as cited in Louwers & Laven, 2020).

Reproductive Years: PCOS Physical Symptoms. During reproductive years, pregnancy impediments and infertility issues become more commonly discussed symptoms of PCOS. For example, individuals with PCOS are four times more likely to develop gestational diabetes in comparison to individuals pregnant without PCOS (de Wilde et al., 2017). Additionally, a meta-analysis of 30 studies reveals dyslipidemia to be common in individuals with PCOS (Wild et al., 2011). Specifically, individuals with PCOS in the former study presented greater non-HDL-cholesterol and higher LDL-cholesterol, regardless of BMI compared to age-matched controls without PCOS (Wild et al., 2011).

Menopause: PCOS Physical Symptoms. During menopause, occurring most often around 51 years old, symptoms of PCOS become less known (Louwers & Laven, 2020). With a lack of research among this demographic, diagnosis of PCOS at this stage of life is challenging. What is known is that with age, PCOS phenotype and ovarian dysfunction improve with decreased serum androgen levels, a reduction in insulin resistance, and an increased number of consistent menstrual cycles (Brown et al., 2011). Individuals with PCOS experience decreased

menstrual cycle length with time, and a significant degree of these individuals are eumenorrheic. Notably, individuals with PCOS may experience menopause later than individuals without PCOS (Elting et al., 2000). In addition, a meta-analysis highlights the increased risk of type two diabetes during perimenopause and afterward, among individuals with PCOS (Cooney & Dokras, 2018).

Taken together, an individual's metabolic and reproductive symptoms vary over time. Given the changes in how PCOS presents, it can be challenging for physicians to adequately diagnose during all stages of life.

Inconsistency in Clinical Approaches to Diagnosing PCOS. As mentioned, there is no universal approach to diagnosing PCOS. Given this, a diagnosis of PCOS is determined from the presence of three symptoms, including clinical/chemical hyperandrogenism, polycystic ovary morphology, and oligo-anovulation (Hoeger et al., 2021). The required presence of the three symptoms differs based on which diagnostic criteria is used. Currently, the following three standard criteria are used to diagnose PCOS: The National Institutes of Health (NIH, 1990) criteria, the Rotterdam criteria (2003), and the AE-PCOS (2006) criteria. As a result of multiple diagnostic criteria, the proportion of individuals diagnosed with PCOS depends on the criteria used. The prevalence of PCOS is twofold when using the Rotterdam or AE-PCOS criteria, compared to the NIH criteria (Bozdag et al., 2016). Notably, the 2023 guideline (Teede et al., 2023) recommends the use of the Rotterdam criteria, which may pave the way toward a universal use of this criteria in the future. The following section discusses the components of each diagnostic criterion and the variation in PCOS prevalence across criteria (see Table 1).

Table 1

Polycystic Ovary Syndrome Diagnostic Criteria

Criteria	Physical Symptoms		
National Institutes of Health criteria (NIH; 1990)*	Clinical and/or biochemical evidence of hyperandrogenism	Menstrual dysfunction	
European Society for Human Reproduction and Embryology and American Society for Reproductive Medicine Rotterdam criteria**	Clinical and/or biochemical evidence of hyperandrogenism	Oligoovulation/ anovulation	Polycystic ovaries
Androgen Excess Society criteria*	Clinical and/or biochemical evidence of hyperandrogenism	Ovarian dysfunction/polycystic ovaries	

*Note: * Must meet both criteria, **Must meet two of three criteria*

The National Institutes of Health Criteria. In 1990, the National Institutes of Health (NIH) conference on PCOS initiated the first internationally approved diagnostic criteria for PCOS (Havelock, 2018). The NIH (1990) criteria, established by expert opinion, requires two components to be met: clinical and/or biochemical evidence of hyperandrogenism and ovulatory dysfunction, excluding secondary origins (Zawadzki et al., 1992, as cited in Chang & Dunaif, 2021). Using the NIH criteria among 728 individuals 27-34 years old, the prevalence of PCOS accounts for $8.7 \pm 2.0\%$ (March et al., 2010). By way of a systematic review and meta-analysis,

Bozdag et al. (2016) report the prevalence of PCOS as 6% (5-8%, 18 trials), reflective of the former findings. Unlike later criteria, the NIH (1990) criteria do not initially consider the presence of polycystic ovary morphology (Zawadzki et al., 1992, as cited by Murphy et al., 2006). However, in an evidence-based methodology workshop on PCOS, the NIH recommended the use of the Rotterdam (2003) criteria with distinct recognition of phenotype (NIH, 2012).

The Rotterdam Criteria. Developed by the European Society for Human Reproduction and Embryology and the American Society for Reproductive Medicine, the Rotterdam (2003) criteria maintain the inclusion of polycystic ovary morphology in the diagnostic criteria of PCOS (Havelock, 2018). The purpose of the Rotterdam (2003) criteria was to expand the NIH (1990) criteria and widen the definition of PCOS (Chang & Dunaif, 2021). The Rotterdam (2003) criteria require at least two of the three following symptoms in the absence of other conditions: clinical/biochemical hyperandrogenism, polycystic ovary morphology, and anovulation (Chang & Dunaif, 2021; The Rotterdam ESHRE/ASRM-Sponsored PCOS Consensus Workshop, 2004).

Within the Rotterdam (2003) criteria, there are four PCOS phenotypes (Chang & Dunaif, 2021). Individuals with PCOS *Phenotype A* present hyperandrogenism and ovulatory dysfunction with polycystic ovary morphology. Individuals with *Phenotype B* present hyperandrogenism and ovulatory dysfunction but do not present polycystic ovary morphology. Individuals with *Phenotype C*, known as the ovulatory phenotype, ovulate normally. Individuals with *Phenotype D*, the non-hyperandrogenic phenotype, experience ovulatory dysfunction and polycystic ovary morphology and show an absence of overt hyperandrogenism (Spritzer et al., 2014). With the allowance of various phenotypes, the Rotterdam (2003) criteria is the most common diagnostic criteria used to diagnose PCOS (Havelock, 2018). Using the Rotterdam (2003) criteria among 728 individuals between the ages of 27-34, the prevalence of PCOS

reflects $11.9 \pm 2.4\%$ of individuals, with an increase to $17.8 \pm 2.8\%$ when imputed data were included (March et al., 2010). Using a systematic review and meta-analysis, Bozdag et al. (2016) reported the prevalence of PCOS as 10% (8-13%, 15 trials), similar to the former findings.

AE-PCOS Criteria. The most recent diagnosis criteria, AE-PCOS (2006), assert that PCOS is dominantly due to androgen excess (Azziz et al., 2009). A diagnosis of PCOS requires the presence of clinical and/or biochemical hyperandrogenism in addition to either polycystic ovary morphology or ovary dysfunction, excluding corresponding disorders from other origins (Azziz et al., 2009). Notably, the AE-PCOS (2006) criteria reject the non-hyperandrogenism phenotype D, as put forth by the Rotterdam (2003) criteria (Azziz et al., 2009; Lizneva et al., 2016). Using the AES (2006) criteria among 728 individuals 27-34 years old, PCOS prevalence reflects $10.2 \pm 2.2\%$ with a rise to $12.0 \pm 2.4\%$ with imputed data (March et al., 2010). Others (Bozdag et al., 2016), using a systemic review and meta-analysis, state a prevalence of PCOS as 10% (7-13%, 10 trials), reflective of the former findings. However, AE-PCOS has not been broadly embraced.

Summary of Diagnostic Challenges

Diagnosing PCOS is challenging due to varying diagnostic criteria and tools, as well as the potential overdiagnosis and underdiagnosis of adolescents. Knowing that symptoms vary across the lifespan emphasizes the difficulty in determining if a patient's symptoms are reflective of a PCOS diagnosis, with this difficulty further complicated by a lack of a singular diagnostic criterion.

In addition to the prevalent physical symptoms of PCOS, individuals with this condition are at increased risk for various psychological concerns. Given this, the following section

explores the psychological implications among individuals with PCOS, with emphasis on the influence of PCOS on an individual's health-related quality of life (HRQOL).

Health-Related Quality of Life

How an individual's illness and treatment affect their quality of life is known as HRQOL (Cella, 1995; Schipper et al., 1996, as cited in Bazarganipour et al., 2014). The quality of life for individuals with PCOS is strongly associated with the PCOS symptoms they experience (Castelo-Branco & Naumova, 2020). Studies indicate that PCOS symptoms have a significant impact on an individual's body image, self-esteem, and overall quality of life (Bazargainpour et al., 2014; Castelo-Branco & Naumova, 2020; Scaruffi et al., 2019; Sioma-Markowska & Milena, 2021). The following section examines the psychological implications related to the symptoms of PCOS.

Psychological Implications of PCOS

In addition to physical health risks, individuals with PCOS are more likely to present various psychological concerns. These include anxiety and mood disorders, including depression and bipolar disorder, which can lead to suicidality and self-harm behaviours; and body-image disturbances including eating disorders, low self-esteem linked to physical symptoms, and social phobia (Alur-Gupta et al., 2019; Cooney et al., 2017; Damone et al., 2019; Jones et al., 2011; Lee et al., 2019; Malik & Ahmed, 2021; Månsson et al., 2008; Rassi et al., 2010; Scaruffi et al., 2019; Williams et al., 2022).

Anxiety and Mood Disorders

Structural and functional brain differences are evident in the prefrontal cortex of individuals with PCOS and mood disorders (Marsh et al., 2013). For example, throughout emotional processing, regional activation of the anterior cingulate and prefrontal cortex is

dissimilar between individuals with insulin-resistant PCOS and individuals without PCOS (Marsh et al., 2013). Individuals with PCOS are more likely to engage in dysfunctional emotion regulation strategies (Williams et al., 2022).

Rassi et al. (2010) examined the prevalence of psychiatric disorders amongst individuals with PCOS, finding that 56.9% of participants with PCOS showed at least one psychiatric illness. The most common diagnoses among individuals with PCOS were major depression (26.4%) and bipolar disorder (11.1%; Rassi et al., 2010). In a systematic review and meta-analysis, Cooney et al. (2017) note a worldwide increased risk of depressive and anxiety symptoms in individuals with PCOS. Specifically, individuals with PCOS have more than five times the risk of anxiety symptoms and over three times the risk of depressive symptoms (Cooney et al., 2017). In a meta-analysis consisting of 73,102 women with PCOS and 340,724 controls, Shahraki et al. (2024) found individuals with PCOS are two times as likely to have bipolar disorder.

Suicidality amongst individuals with PCOS is also an area of significant concern. Individuals with PCOS are more likely to have recent suicidal ideation, non-suicidal self-injury, and future suicidal intentions, and are hospitalized more often for self-harm than individuals without PCOS (Williams et al., 2022). Additionally, individuals with PCOS are seven times more likely to attempt suicide in comparison to individuals without PCOS (Månsson et al., 2008). Given these findings, there is a crucial need for suicide intention and self-harm behaviour screening during the PCOS diagnostic process, not only at initial diagnosis but across an individual's lifetime.

Body Image Disturbances

There is an association between certain symptoms of PCOS and body image concerns (Lee & Dokras, 2022), negatively influencing individuals' overall quality of life (Bazarganipour et al., 2014). For example, Jones et al. (2011) found fertility concerns, hirsutism, and menstrual issues to have negative impacts among individuals 17-21 years old with PCOS, with lower expressed self-esteem, high self-consciousness, and poor body image. Scaruffi et al. (2019) assert that individuals with PCOS have shown diminished levels of self-esteem, with common reports of feeling unattractive. Specifically, the presence of obesity (Panico et al., 2017), hirsutism (Chaudhari et al., 2018; Sioma-Markowska & Milena, 2021), infertility (Chaudhari et al., 2018; Deeks et al., 2010), androgenic alopecia (Chaudhari et al., 2018; Jirawattanadon et al., 2023), and acne (Chaudhari et al., 2018), have shown to diminish the quality of life among individuals with PCOS. This impact has been linked to one's appearance, including a diminished sense of femininity, attractiveness, and greater felt masculinity (Keegan et al., 2003; Sioma-Markowska & Milena, 2021). The recommendation of weight-loss interventions (often to improve fertility) in treatment plans and being consistently told one is overweight or obese can increase body dissatisfaction (Lee et al., 2019). Notably, individuals with PCOS have more than three times the chance of having an eating disorder (Lee et al., 2019).

Obesity. Decreased psychosocial functioning is prevalent in individuals with PCOS regardless of weight, however, struggling with obesity can further heighten physical and emotional symptoms (Panico et al., 2017). Excess body weight has a significantly negative influence on one's HRQL (Barnard et al., 2007; Guyatt et al., 2004; Panico et al., 2017; Jones et al., 2011). When comparing individuals with overweight PCOS to those with lean PCOS, the former have significantly greater BDI-II scores than the latter (Stefanaki et al., 2023).

Additionally, individuals affected by obesity and PCOS are at an increased risk of depression (Cinar et al., 2011; Greenwood et al., 2019; Wang & Li., 2021).

Menstrual Irregularities and Infertility. Whether trying to conceive or thinking about the future, individuals with PCOS express significant concern about their fertility (Holton et al., 2018). Most individuals with PCOS who have multiple births express feeling more attractive than those who have not given birth (Sioma-Markowska & Milena, 2021). Deeks et al. (2010) found that infertile individuals with PCOS have a greater chance of exhibiting depression (67.7%) in comparison to individuals who did not report infertility (43.2%). Similarly, Naumova et al. (2021) report a relationship between the number of medically assisted reproduction attempts and the severity of anxiety symptoms.

Hyperandrogenism. Hirsutism, acne, and androgenic alopecia are all manifestations of hyperandrogenism, a condition known to increase psychological concerns with adverse effects on individuals' quality of life (Guidi et al., 2015). For example, Stefanaki et al. (2023) note a relationship between hyperandrogenism and increased prevalence of depression among individuals with PCOS. The following sections explore each of the three manifestations of hyperandrogenism.

Hirsutism. In various studies, individuals with hirsutism report feeling unfeminine and having a reduced quality of life (Bazarganipour et al., 2015; Sioma-Markowska & Milena, 2021). In a study examining individuals' perceptual experiences of hirsutism in the United Kingdom, 41.2% of participants reported feeling worried about their hair growth, and 60% expressed that unwanted hair growth impacts their self-perceptions (Keegan et al., 2003). Specifically, individuals with hirsutism expressed feeling masculine, unattractive, and

unfeminine (Keegan et al., 2003). Many of these individuals avoid activities requiring skin exposure (e.g., swimming and sexual activities) due to hirsutism (Keegan et al., 2003).

Acne. The dermatological condition known as acne is linked to more significant symptoms of depression, decreased self-worth, low body satisfaction, and lack of pride compared to individuals without acne (Dalgard et al., 2008). In a study interviewing adolescents with PCOS, participants expressed the presence of PCOS symptoms, including acne, to be debilitating, confusing, and dehumanizing (Soucie et al., 2021). Stress and acne have a pathophysiological relationship, influencing acne severity and susceptibility (Dreno et al., 2018). Individuals with acne are also more likely to exhibit symptoms of depression (Chaudhari et al., 2018; Yazici et al., 2004) and anxiety (Yazici et al., 2004).

Androgenic Alopecia. Another manifestation of hyperandrogenism, androgenic alopecia, has been associated with psychosocial implications (Moura et al., 2011). Individuals with both androgenic alopecia and acne experience a considerable reduction in their HRQL (Chaudhari et al., 2018). These individuals report significant difficulty coping with their appearance and sexual concerns (Jirawattanadon et al., 2023). Individuals with androgenic alopecia are also more likely to experience anxiety (Chaudhari et al., 2018).

Summary of Psychological Implications

Individuals' HRQL is impacted within their social domain, with anxiety, mood disorders, and body image disturbances resulting in increased social withdrawal/avoidance, introversion, and challenges in intimate, professional, and social relationships (Scaruffi et al., 2019). The above findings highlight the importance of including assessments for individuals when given a diagnosis of PCOS, as well as administering mental health screening measures and support throughout treatment.

Research indicates that individuals with PCOS experience increased physical health risks, common physical symptoms, and debilitating psychological manifestations. While the literature has shown that all health concerns – physical and psychological – disrupt individuals’ HRQL, treatment practices fall short when it comes to managing individuals’ psychological manifestations of PCOS. The following section will outline current treatment approaches for PCOS, with an exploration of pharmacotherapy, lifestyle interventions, and mental health treatment.

Common PCOS Treatment Approaches

The following section outlines common treatments, including pharmaceuticals, lifestyle changes, and cosmetic treatments. Awareness of current approaches to treating PCOS builds the foundation for understanding the need for greater mental health focus and an interdisciplinary approach to treating and managing PCOS. I am not a medical practitioner, and the information presented in this section should not be taken as medical advice. Readers should refer to medical practitioners to determine the most appropriate treatment for PCOS.

Pharmacotherapy Treatment

Current medical research suggests that the first line of treatment for PCOS often includes pharmacotherapy and lifestyle changes (Pfieffer, 2019). Pharmaceutical options include oral contraceptive pills, spironolactone, isotretinoin, and clomiphene, among others (Fauser et al., 2012; Goodman et al., 2015). According to medical literature, the use of these medical treatments can ease patients’ physical symptoms of PCOS. For example, oral contraceptives can help patients regulate hormones; reduce hyperandrogenism, acne, and hirsutism; and promote regular withdrawal bleeds (Fauser et al., 2012; Vrbiková & Cibula, 2005). It is important to note that while oral contraceptives promote regular menstruation, they do not improve the underlying

cause of menstrual irregularity. Information on the use of the former pharmaceuticals, including the risks and benefits of the medication, should be sought by a medical professional before administration.

Lifestyle Interventions

Lifestyle management, a first-line treatment, is essential for decreasing PCOS symptoms and increasing an individual's HRQL (Pfieffer et al., 2019). Lifestyle recommendations include behavioural strategies (e.g., healthy lifestyle and self-monitoring) and exercise/physical activity (Teede et al., 2023). Weight loss interventions are known to strengthen ovarian function and stimulate ovulation (Pfieffer, 2019). Exercise is encouraged for all individuals with PCOS, regardless of BMI (Teede et al., 2023). While beneficial, lifestyle management depends on individuals being informed, prepared, and supported to undertake interventions (Avery et al., 2020). Therefore, patients with PCOS benefit when they are provided with lifestyle education and have opportunities to discuss long-term health implications and ways to strengthen their HRQL.

Psychological Treatment

Although some physicians have noted the use of annual mental health assessments, the use of screenings (i.e., depression and anxiety) is sparse (Roberge et al., 2016). As such, current approaches to PCOS diagnosis and treatment fail to adequately address patients' psychological concerns. Notably, physicians mention giving greater attention to treating physical symptoms of PCOS, than they do attending to associated mental health concerns (Ismayilova & Yaya, 2022; Roberge et al., 2016). Research (Coventry et al., 2011) indicates that psychological distress is often normalized as part of chronic illness, resulting in a lack of detection from physicians and

deficient awareness from patients. However, as mentioned, treating psychological concerns can potentially strengthen individuals' adherence to treatment (Teede et al., 2023).

Cosmetic Treatment

In addition to pharmaceutical therapy, cosmetic treatment has been suggested for managing features of PCOS. For example, research (Pasquali & Gambineri, 2014) has suggested managing mild hirsutism with epilation or depilation, and others (Pfieffer, 2019) note the use of laser hair removal and electrolysis for more permanent treatment.

Summary of Current PCOS Treatment Practices

An overview of current treatment approaches for PCOS indicates that treatment plans are dominantly centered on individuals' physical symptoms. With the increased prevalence of psychological distress among individuals with PCOS, consideration of patients' psychological symptoms in addition to physical symptoms is necessary. While treatment of physical symptoms is important, psychological concerns can significantly diminish individuals' well-being, and in some cases, be life-threatening. Although it is promising that clinicians are beginning to use mental health screening tools as part of the treatment process, growth needs to occur in this area.

The following section discusses current healthcare experiences of individuals with PCOS, including positive and negative attributes of healthcare experiences, and barriers faced in obtaining a positive healthcare experience.

PCOS Healthcare Delivery Experience

Positive Diagnosis and Treatment Experiences

In Ismayilova and Yaya's (2022) study, participants reported a positive PCOS diagnostic experience when they received a prompt diagnosis and viewed their physician as knowledgeable of PCOS. Participants also appreciated physicians who were proactive, empathic, attentive, and

non-judgemental regarding their concerns. For many, receiving a diagnosis of PCOS provides a sense of relief, agency, an explanation for their health experiences, and a means to find support (Ismayilova & Yaya, 2022; Jones et al., 2011).

Barriers to a Positive Diagnosis and Treatment Experience

While some patients report positive diagnostic experiences, most individuals with PCOS mention having negative experiences when receiving a diagnosis. Research reveals many barriers to a positive diagnosis and treatment experience among individuals with PCOS (Copp et al., 2022; Gibson-Helm et al., 2017; Ismayilova & Yaya, 2022; Presswala & De Souza, 2023; Simona-Markowska & Milena, 2021; Soucie et al., 2023). For instance, at the time of diagnosis, individuals with PCOS commonly experience feelings of disbelief, panic, worry, disturbance, and shock (Jones et al., 2011). When receiving a diagnosis, individuals feel anxious about potential future health concerns after being given limited information from their physician (Jones et al., 2011). A diagnosis process where patients' symptoms are disregarded, physicians are less knowledgeable about PCOS, there is a lack of focus on mental health concerns, and patients themselves are not aware of their condition, all build a significant barrier to a positive diagnosis and treatment process for individuals with PCOS. The following section explores each of these barriers.

Physicians' Lack of Empathy and Dismissal of Symptoms. Many patients report a lack of empathy from physicians, feeling their concerns are often dismissed and their condition trivialized (Hillman et al., 2020; Ismayilova & Yaya, 2022; Jones et al., 2011). Reviewing seven studies, Presswala and De Souza (2023) find many patients experience an absence of empathy from physicians upon receiving their diagnosis of PCOS. Study participants mentioned that their physicians spent minimal time and attention discussing their diagnosis with them. When

physicians did talk through the diagnosis, many patients found their concerns were not fully considered. For example, patients who are overweight and present additional PCOS symptoms are frequently not tested for PCOS. Instead, their physicians attributed their symptoms to weight and lifestyle choices (Ismayilova & Yaya, 2022). Most patients reported feeling rushed and overwhelmed throughout the diagnostic process and perceived their physician as impersonal and cold (Presswala & De Souza, 2023; Soucie et al., 2021).

Physicians' Lack of Knowledge. Some physicians lack knowledge of PCOS which impedes their ability to adequately diagnose and support patients (Ismayilova & Yaya, 2022). This lack of knowledge impacts the patient-practitioner relationship, where individuals with PCOS report greater distrust in primary care physician's ability to treat PCOS (Lin et al., 2018).

Several physicians may be unaware of the extent of psychological implications experienced by patients with PCOS. For example, fewer than half of the physicians in Dokras et al.'s (2017) study were conscious of the increased risk of anxiety symptoms among individuals with PCOS. In addition, most physicians reported they were not aware of the associations between pregnancy issues and psychosocial concerns, or comorbidities related to physical symptoms of PCOS (Dokras et al., 2017). It is not surprising that many individuals with PCOS report the potential psychological factors of their condition are missing from their discussions with physicians, with the sole focus on the physical factors of PCOS (Jones et al., 2011). Moreover, Ismayilova and Yaya (2022) note that 65.9% of participants with a diagnosis of PCOS in their study reported feeling unhappy with the degree and type of information they received at the time of their diagnosis. Specifically, 42.9% of participants reported not receiving any information about lifestyle management, and 33.5% were dissatisfied or very dissatisfied with the information they received regarding lifestyle interventions (Ismayilova & Yaya, 2022).

As stated, an early diagnosis is critical to reducing the risk of various physical consequences of PCOS and enhancing one's psychological well-being (Deeks et al., 2011; Gibson-Helm et al., 2017). Notably, Deeks et al. (2011) found that greater time to receive a diagnosis is related to increased symptoms of depression and anxiety. Physicians are encouraged to develop a comprehensive understanding of both the physical and psychological symptoms of PCOS.

Lack of Mental Health Focus. As noted, individuals with PCOS experience increased psychological distress, including more significant levels of anxiety and depression (Alur-Gupta et al., 2019; Barry et al., 2011; Cooney et al., 2017; Damone et al., 2019; Deeks et al., 2010; Dokras et al., 2017). Most individuals with PCOS are not provided with any queries about their mental health or information regarding the mental health effects of PCOS during the diagnostic process (Ismayilova & Yaya, 2022).

A mental health focus in the treatment and management of PCOS is important since the treatment of physical symptoms of PCOS alone is not enough to mitigate the psychological effects of PCOS (Damone et al., 2019). Individuals with PCOS are found to be more stressed, even after controlling for infertility, sociodemographic factors, and one's weight, than those without PCOS. Therefore, there is a need to emphasize an interdisciplinary approach within the diagnostic process. An approach in which the physician is attuned to patients' physical and psychological concerns and can offer various services (e.g., counselling) to decrease patient uncertainty (Copp et al., 2022).

Lack of Knowledge Amongst Patients. As mentioned, many patients receive minimal or no information about PCOS from their physicians. Patients are faced with a scarcity of accessible and evidence-based information, often resulting in discontentment and a reliance on

information from the internet that is commonly incorrect, restricted, low quality, and not evidence-based (Chiu et al., 2018; Htet et al., 2018, as cited by Garad & Teede, 2020). Lacking medical support, individuals with PCOS often spend an extensive duration of time and effort trying to control their symptoms (Kitzinger & Willmott, 2002; Pfister & Rømer, 2017). To this end, individuals self-experiment with different management strategies such as food supplements, dieting, workout programs, and natural medicines, taken from online sources such as Reddit posts – interventions that may not be in their best interest (Chopra et al., 2021).

Summary of PCOS Healthcare Delivery Experiences

Individuals with PCOS who express a positive healthcare experience have access to knowledgeable physicians who take proactive measures to address their patients' concerns, are empathetic and attentive toward their patients, and provide them with resources to alleviate both their physical and psychological distress. However, most patients experience a multitude of barriers as they seek to secure a diagnosis and treatment. Research indicates that there is a significant shortfall in a mental health focus within the diagnosis and treatment of PCOS, often leaving patients feeling dismissed, overwhelmed, and unsure how to navigate their condition.

Interdisciplinary Approach

Across the literature, there is an emphasis on the importance of a mental health focus in the treatment and management of PCOS (Hillman et al., 2020; Ismayilova & Yaya, 2022; Jones et al., 2011). As mentioned, treating physical symptoms of PCOS is not sufficient; treatment also needs to include the psychological concerns patients express. While some physicians have mentioned the utilization of mental health assessment tools, a mental health focus should not end after screening procedures. The following section will introduce Teede et al.'s. (2018)

International Evidence-Based Guideline to better understand how physicians can implement an interdisciplinary approach to treat PCOS.

International Evidence-Based Guidelines (Teede et al., 2018; Teede et al., 2023)

The 2018 International Evidence-Based Guideline has been put forth by Teede et al. (2018) to supply physicians with evidence-based recommendations for treating and managing PCOS. The guideline was developed by multidisciplinary experts (e.g., psychiatrists, primary care workers, endocrinologists), comprising 166 suggestions and clinical elements to address the gaps in current PCOS treatment. The guideline, which expands on the Rotterdam (2003) criteria, emphasizes the importance of components such as the patient's emotional well-being and quality of life, a greater focus on education, and accuracy of diagnosis. It advocates for a person-centered approach to treatment, whereby psychological and physical patient concerns are addressed and integrated into the treatment process (Teede et al., 2018).

To elaborate on Teede et al.'s (2018) guideline, a 2023 International Evidence-Based Guideline was proposed (Teede et al., 2023). This recent guideline builds upon and improves clinical inquiries, focusing on supporting healthcare physicians and patients in diagnosing, assessing, and managing PCOS. The 2023 guideline consists of 224 recommendations to promote further education and understanding of PCOS amongst healthcare physicians, empower patients with PCOS, and tout the value of collaborative care (Teede et al., 2023). The guideline considers individuals' culture, values, preferences, personal attributes, and resource availability across settings (Teede et al., 2023). Importantly, across the 2018 and 2023 guidelines, there is an emphasis on attending to patients' psychological concerns in treating and managing PCOS.

The following section examines how Teede et al.'s (2023) recommendations can address the barriers to favourable diagnosis treatment, including the increased mental health focus in

PCOS care. It is recommended that readers review the complete list of recommendations from Teede et al. (2023) to comprehend the guideline thoroughly.

Psychosocial Consequences of Physical Symptoms. To increase the mental health focus in the treatment and management of PCOS, Section 1 of Teede et al.'s (2023) guideline recommends that healthcare professionals take into consideration the possible negative psychosocial consequences of symptoms, such as clinical hyperandrogenism. Under Section 2.0, Teede et al. (2023) recommend that professionals be aware that psychological symptoms are critical and frequent among individuals with PCOS. Under 2.1, Teede et al. (2023) emphasize the importance of patients' and healthcare professionals' understanding of the influences of PCOS on quality of life. It is recommended that physicians ask individuals with PCOS about their perception of PCOS-related symptoms, key concerns, impact on quality of life, and goals for management. Further, physicians are encouraged to pay attention to any patient-reported psychosocial problems, such as unwanted excess hair growth, regardless of clinical intensity (Teede et al., 2023). Teede et al. (2023) assert that by implementing the above recommendations, individuals with PCOS will be given evidence-based care that fulfills their healthcare needs and strengthens their health outcomes.

Implementation of Risk Assessment Tools. Sections 2.2 to 2.5 include recommendations for treating patients' psychological concerns, including depression and anxiety, psychosexual function, body image, and eating disorders (Teede et al., 2023). Physicians are encouraged to be aware of the prevalence of various psychological concerns related to PCOS, develop an understanding of screening tools for psychological health, and remain open to referring patients for specialized care (e.g., counselling). To support physicians in this regard, Teede et al. (2023) outlined a practical approach to screening for anxiety and depression,

including screening patients using regionally validated screening tools at the time of diagnosis and then readministering screening measures, depending on comorbidities, life events, risk factors, perinatal period, and clinical opinion (Teede et al., 2023).

Physicians often have limited time to discuss mental health concerns with patients (Roberge et al., 2016). To help mitigate constraints on physicians' time, an interdisciplinary approach is recommended (e.g., physicians can refer patients experiencing psychological distress to counselling, a first-line recommendation in Teede et al.'s [2023] guideline).

Knowledge Acquisition Amongst Physicians and Patients. To further address physicians' and patients' need for knowledge about PCOS, Section 2.6 of Teede et al.'s (2023) guideline suggests resources and models of care for culturally appropriate, high-quality information and education about PCOS. Within the guideline, there is an emphasis on PCOS education and training among healthcare professionals at all healthcare system levels to deepen healthcare providers' knowledge of interdisciplinary, evidence-based primary care (Teede et al., 2023).

To address patients' psychological concerns effectively, physicians must be knowledgeable about PCOS, use evidence-based interventions when discussing diagnoses, health concerns, and treatment, and ensure that patients' concerns and priorities are acknowledged and valued. Currently, an absence of adequate resources exists for physicians to implement a mental health focus in their treatment of PCOS. Therefore, following Teede et al.'s recommendations (2018; Teede et al., 2023), the next section provides various tools physicians can use to foster a patient's psychological well-being and overall treatment experience.

Assessment Tools for Physicians

While physicians are encouraged to utilize other services (e.g., counselling) to support patients' psychological well-being, time-efficient psychological screening tools are recommended during the initial diagnostic process. It is understood that physicians work in a time-constrained profession, so it is not feasible for physicians to implement all the recommended tools in this manuscript.

The following section outlines various tools physicians can use in a time-efficient, person-centered manner, to help simultaneously support the physical and psychological well-being of individuals with PCOS. Physicians can also refer to the *Physician's Manual* (see Appendix A) for information on how to implement these tools in practice. Tools for physicians to detect symptoms of depression and anxiety include The Hospital Anxiety Depression Scale (HADS; Zigmond & Snaith, 1983), and ways for physicians to detect and assess suicide risk are outlined using recommendations from the Centre for Addiction and Health (CAMH, 2024). The Polycystic Ovary Syndrome Questionnaire (PCOSQ; Cronin et al., 1998) outlines ways for physicians to assess the impact of physical symptoms on individuals' quality of life. Various treatment planning resources physicians can implement into their practice, including the BATHE technique (Lieberman & Stuart, 1999) and SMART-EST goals (White et al., 2020) will also be discussed.

Risk-Assessments

Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983). The HADS is a self-report measure that assesses psychological distress amongst non-psychiatric patients. With the focus on non-physical symptoms, the HADS questionnaire can be utilized by physicians to assess for depression in individuals with significant physical health conditions

(Stern, 2014). The questionnaire is time-efficient, taking between 2-5 minutes to administer. However, HADS does not contain all diagnostic criteria for depression, so additional questions regarding self-harm/suicidal thoughts and sleep need to be inquired. A risk assessment for self-harm and suicide is recommended when deemed appropriate (Stern, 2014).

The *HADS* consists of 14 questions, divided into two domains: HADS-A, containing seven items that examine symptoms of anxiety, and HADS-D, composed of 7 items that assess for symptoms of depression. Physicians can have patients respond to each item on a 4-point Likert scale from 0 (*i.e., not at all*) to 3 (*i.e., most of the time*), with each subscale containing a maximum score of 21. The HADS instructs individuals not to think too long about their answer and that their immediate answer is preferred. HADS is a suggested method for anxiety and depression diagnosis by the National Institute for Health and Care Excellence (Stern, 2014). HADS has been validated in various settings (e.g., community and general practice) and languages (Bjelland et al., 2002; Snaith, 2003). The HADS has acceptable internal consistency with an ordinal Cronbach's alpha ($\alpha = 0.89$ [Anxiety]; $\alpha = 0.86$ [Depression]; Fernández-de-las-Peña et al., 2022).

Physicians can gain an understanding of a patient's symptoms of anxiety and depression by totalling the number of items for each dimension (anxiety and depression) and individually adding them up. The total number is then compared to a set of scores that correspond with the following level of anxiety or depression: 0-7 (non-cases), 8-10 (mild), 11-14 (moderate), and 15-21 (severe; Stern, 2014).

Centre for Addiction and Health (CAMH, 2024) Suicide Risk Detection and Assessment. Suicidal intent can shift quickly, so it is not feasible for physicians to predict which patient will attempt suicide at any moment (CAMH, 2024). Therefore, the professional's job is to

identify which patients are at a greater risk of suicide and take measures to reduce that risk (CAMH, 2024). As noted, individuals with PCOS are seven times more likely to attempt suicide (Månsson et al., 2008). Given this, physicians can take measures to implement suicide risk assessments for individuals with PCOS.

Asking direct questions about suicide is the most effective way to assess an individual's suicidal intention. On the CAMH website, countless resources help understand how to ask about suicide. CAMH provides a list of various questions to determine individuals' risk of suicide, with additional recommendations to evaluate the risk of self-harm (see References). Example questions in the manual are “*How long have you been having these thoughts?*” and “*What kinds of thoughts have you been having?*” (CAMH, 2024).

Assessing Health-Related Quality of Life

Polycystic Ovary Syndrome Questionnaire (PCOSQ). The Polycystic Ovary Syndrome Questionnaire (PCOSQ; Cronin et al., 1998) consists of 26-item disease-specific questions that measure five domains: body hair (five items, e.g., growth of hair on upper lip?), weight (five items, e.g., trouble dealing with weight?), infertility issues (four items, e.g., fear of not having children?), menstrual issues (four, e.g., heavy menstrual bleeding?), and emotions (eight, e.g. get upset easily?). Physicians can use the PCOSQ to monitor patient progress in healthcare contexts (McMaster University Research and Innovation, 2024). Physicians can give patients the questionnaire as a self-administered assessment (McMaster University Research and Innovation, 2024). The questionnaire is time-efficient, taking only 10-15 minutes to complete (McMaster University Research and Innovation, 2024). Patients will answer the questionnaire using a 7-point Likert scale, with 1 representing the poorest function (i.e., a severe problem) and 7 representing the optimal function (i.e., no problem). The PCOSQ holds acceptable internal

consistency and has been deemed a reliable measure ($\alpha = 0.70-0.97$; Jones et al., 2004). Some (e.g., Jones et al., 2004) noted that the validity of the PCOSQ could be improved with the additional dimension of acne. However, after an exhaustive search utilizing the University of Lethbridge Library Database, EBSCOhost, and Google Scholar, this instrument is a recommended tool within this manuscript as it is currently the only PCOS-specific HRQOL measure available.

To understand individuals' quality of life, physicians can score each of the five domains (body hair, weight, infertility issues, menstrual issues, and emotions) by dividing by the number of items in the corresponding domain. The average score for each domain is then compared across all domains. Lower scores reflect a decreased quality of life.

Treatment Planning Resources for Physicians

BATHE Technique. The BATHE technique, created by Lieberman and Stuart (1999), is a brief psychosocial intervention to aid physicians in patient consultation (Thomas et al., 2019). BATHE is an acronym that stands for five attributes: (B) background, (A) affect, (T) trouble, (H) handling, and (E) empathy. The first four attributes each contain a corresponding question, with the last attribute consisting of an empathic statement. Using the BATHE intervention, physicians can provide person-centered care, creating connections with patients, empowering autonomy, and addressing mental health concerns.

In post-intervention interviews, physicians expressed four main benefits of the BATHE intervention: supports person-centered consultation, challenges assumptions, provides new insights about patients' primary concerns, and validates patients' experiences and feelings (Thomas et al., 2019). Some challenges were expressed by physicians, including changing current consultation procedures, identifying when to use BATHE, and organizational restrictions.

Overall, the BATHE intervention is a beneficial tool in time-restricted contexts, such as physician consultations, where physicians can understand patients' health concerns and unmet needs, and provide relevant treatment that promotes self-management, all within minutes (Thomas et al., 2019).

SMART-EST Goals. The SMART-EST goals framework, developed by White et al. (2020), assists in prescribing lifestyle management through a patient-centered action plan for change in health-related behaviour (White et al., 2020). The SMART-EST framework builds on the initial SMART goals developed by Doran (1981). To expand the SMART goals (specific, measurable, achievable, relevant, and time-bound), the SMART-EST model also adds that goals are Evidence-based, Strategic, and Tailored to the patient. When physicians notice a patient is interested in lifestyle modification, they can collaboratively use the SMART-EST goal-setting tool to create a patient's written action plan. The following section will discuss the specific components of each acronym.

Specific. When creating an action plan, words and phrases must define the patient's behaviour. Additionally, the style and quantity of the behaviour should be clearly articulated. For example, if the client aims to engage in exercise, the specific duration in minutes and the type of exercise should be outlined (White et al., 2020).

Measurable. To ensure the patient's goals can be tracked, it is essential that the measure used can reflect progress over time. Continuing the exercise example, the specific duration of minutes of exercise for repeated days/weeks should be specified (White et al., 2020).

Attainable. Goals that are created with patients need to be realistic. When creating goals, the patient's support, resources, and current barriers should be considered. For example, a patient

with an early morning job may not be able to go for a run every morning. Going for a run in the afternoon or evening may be more realistic and, therefore, more attainable (White et al., 2020).

Relevant. When creating an action plan, it is essential to inquire if the targeted behaviour will make the desired change. To understand if the goal is relevant, physicians can help clients increase awareness of the relationship between their chosen behaviour and the desired outcome (White et al., 2020).

Time-bound. The goals patients create have a timeline or an anticipated start date for follow-up. They should be re-examined if the behaviour needs to be completed or has not started when anticipated (White et al., 2020).

Evidence-Based. Physicians should take lifestyle prescriptions with the same seriousness as pharmacotherapy. This means lifestyle prescriptions must be supported by evidence. The evidence-based components of the lifestyle prescription should be evident in the goal's specificity, measurability, and relevance (White et al., 2020).

Strategic. Theory is an essential component of goal setting to promote foundational behavioural change. Behavioural change theories examine patients' notions of the risks and benefits, self-affection, motivation, and environmental factors that can erode the physician's healthcare recommendations without effort (White et al., 2020). Two theoretical concepts applicable to the treatment of PCOS are Leventhal's common-sense model of self-regulation (CSM; Leventhal et al., 2003; Leventhal et al., 1980, as cited in Light et al., 2021) and Oris et al.'s (2016) Illness Identity States (see section *Models of Illness Identity*).

Tailored. Goals are not one-size-fits-all. They must reflect the patient's social, physical, spiritual, cultural, economic, and personal needs (White et al., 2020).

Summary of Resources for Physicians

With short time constraints, physicians are encouraged to choose screening measures that fit within the frameworks and contexts in which they work. The models discussed above are not exhaustive, nor is it expected that they will be utilized as a whole. Rather, the tools provide physicians with insight into available mental health resources.

The treatment and management of the physical and psychological manifestations of PCOS is an interdisciplinary process. Physicians are encouraged to work with other disciplines to help mitigate time constraints in their delivery of treatment. As noted throughout this paper, without the provision of adequate services to address all patients' concerns (e.g., physical, and psychological), the consequences can be detrimental (e.g., suicide). The following section describes resources counsellors can incorporate in their practice to promote the well-being of individuals with PCOS.

Resources for Counsellors

The following section provides counsellors with a list of models of illness identity, counselling interventions, an assessment tool, and therapeutic modalities that can be utilized to promote the psychological and physical well-being of individuals with PCOS. Counsellors can refer to the *Counsellor's Manual* (see Appendix B) for information on how to implement these tools, along with the HADS (Zigmond & Snaith, 1983), PCOSQ (Cronin, 1998) and suicide risk detection and assessment recommendations (CAMH, 2024) into practice. While not exhaustive, the list of resources in this section includes, *The Common-Sense Model of Self-Regulation* (CSM; Leventhal et al., 2003; Leventhal et al., 1980, as cited in Light et al., 2021), *Illness Identity States* (Oris et al., 2016), Mindfulness-Based Stress Reduction (MSBR) Therapy, the *Wellness-Based Integrative Intervention* (Callender, 2018), the Wheel of Wellness Model (Sweeney & Witmer

1991; Witmer & Sweeney, 1992), 5F-Wel (Myers & Sweeney, 2004a), an exploration of the group therapy modality, examining the utility of chronic illness support groups, and the *Tripartite Model of Coping* (Folkman & Greer, 2000).

Models of Illness Identity

The following two models provide counsellors with insight into psychological concerns individuals with PCOS may have and how these can impact the treatment process if not addressed.

The Common-Sense Model of Self-Regulation. In treating and managing chronic illness, creating an adaptive illness identity can foster psychological well-being, whereby individuals form a new sense of self (Oris et al., 2018). When defining identity, Oris et al. (2018) relate to Erikson's (1968) lifespan ego development, whereby identity is seen as the extent to which an individual can integrate various self-strengths into a coherent sense of self. Leventhal's common-sense model of self-regulation (CSM; Leventhal et al., 2003; Leventhal et al., 1980, as cited in Light et al., 2021) explains ways individuals cope with a health diagnosis or health concerns based on the dual functions of emotional and cognitive processes. The emotional pathways reflect how individuals cope with, regulate, and assess their health concerns (Light et al., 2021). Illness perceptions – individuals' beliefs about an illness or the somatic symptoms – fall in the cognitive pathway (Light et al., 2021).

The CSM highlights five important illness perceptions: perceived symptoms related to illness (illness identity), perceived chronicity and cyclicity of illness (timeline), perceived impact of illness (consequences), perceived personal and treatment control over illness (control), and perceived cause of illness (cause; Light et al., 2021). An individual's illness perception can change when new information is presented. Illness outcomes are viewed as adaptive when a

stable and consistent self-regulatory system exists between the individual's cognitive pathway (illness perceptions), emotional pathway (emotional response), coping, and assessment perceptions (Leventhal et al., 1992, as cited in Light et al., 2021).

There has been a connection between psychological distress, including depression and anxiety, and illness perceptions. For example, when examining psychological distress amongst individuals with PCOS, illness perceptions attributed to 18.6% of the variance after adjusting for clinical factors and demographics (Light et al., 2021). Specifically, more symptoms (illness identity), less perceived control, more significant perceived consequences, and less understanding of illness (illness coherence) are significantly related to more substantial distress (Light et al., 2021).

Therefore, using Leventhal's five CSM illness perceptions, counsellors can work with clients to examine the influence of their illness perceptions (e.g., perceived control) on their well-being. With an understanding of client's illness perceptions, counsellors and their client can work together to develop counselling goals and a treatment plan that fosters the client's cognitive and emotional pathways.

Illness Identity States (Oris et al., 2016; Oris et al., 2018). In addition to the CSM model, counsellors can use Oris et al.'s (2016) illness identity states framework to understand clients' psychological well-being. This framework encompasses four illness identity states: rejection, engulfment, acceptance, and enrichment (Oris et al., 2016). The first two identity states, rejection and engulfment, are considered deficient in illness integration. The remaining two identity states, acceptance and enrichment, are seen as more adaptive in illness integration (Oris et al., 2016). The following section describes each of the four illness identity states.

Engulfment. The first illness identity state, *engulfment*, can be defined as an individual's inability to integrate their illness identity as part of their sense of self (Oris et al., 2016). In this state, the chronic condition overrides an individual's identity, where their self-concept is entirely defined by their condition, negatively impacting all life domains (Morea et al., 2008). Individuals with an engulfment identity state are more likely to present maladaptive physical and psychological functioning, with increased anxiety and depressive symptoms, as well as increased pain and illness symptoms (Oris et al., 2018).

Rejection. The second illness identity state, *rejection*, is understood as the rejection of one's health condition as part of their identity (Oris et al., 2018). Rather than integrating, the individual perceives their health condition as a threat and intolerable to their sense of self. In turn, individuals may avoid self-management behaviour that could impact their treatment (Oris et al., 2016). Individuals with a rejection illness identity state are more likely to hold heightened illness symptoms and avoid acknowledging their illness as part of their identity (Oris et al., 2018). Rejection is not associated with symptoms of anxiety or depression, which may be due to the limited emotional engagement and impact due to their avoidance behaviour (Oris et al., 2018).

Acceptance. The third identity state, *acceptance*, is the extent to which individuals can accept their health condition as a piece of their identity (Oris et al., 2018). Individuals with an acceptance identity do not feel overloaded by their condition, can engage in self-management behaviours, and live a life as normally as possible (Adams et al., 1997). They are less likely to present symptoms of anxiety and depression, as well as fewer pain and illness symptoms (Oris et al., 2018).

Enrichment. The final illness identity state, *enrichment*, occurs when an individual's health condition strengthens their identity, increases self-growth, and creates positive changes in their life (Helgeson et al., 2006, as cited by Oris et al., 2016). Posttraumatic growth, the experience of positive changes due to various stressors, can include a greater appreciation for life, a more positive self-view, and alterations in life priorities (Tedeschi & Calhoun, 2004). Individuals with an enriched identity state are more likely to experience more illness symptoms, which may be due to the degree of influence symptoms have on an individual's growth (Oris et al., 2018). With enrichment being positively associated with engulfment, individuals may oscillate between enrichment and engulfment in response to their shift in perception (Oris et al., 2018).

Therapeutic Interventions

Mindfulness-Based Stress Reduction (MBSR) Program. MBSR is a meditation therapy created by Dr. Jon Kabat-Zinn in 1979, originally for stress reduction (Niazi & Niazi, 2011). It has now been used to treat numerous health conditions (Niazi & Niazi, 2011), and is the most supported empirical mindfulness method to reduce stress (Baer et al., 2012). The eight-week MBSR program is often delivered in a group modality, with 2.5-hour weekly sessions (Baer et al., 2012). For groups with as many as 30 members, week six is an all-day session. Within each session, members engage in three mindfulness-based meditation activities (e.g., sitting meditation, gentle yoga, and body scan), all promoting nonjudgmental observations and acceptance of bodily sensations, emotions, thoughts, and environmental stimuli. Using guided recordings, group members are suggested to engage in the mindful exercises for about 45 minutes a day, six days a week (Baer et al., 2012). In addition, members are encouraged to implement mindfulness skills into everyday activities (e.g., walking; Baer et al., 2012).

Mindfulness interventions can be beneficial to the mental and physical well-being of individuals with PCOS, whereby stress, anxiety, quality of life, and depression scales all show improved results after mindfulness interventions (Stefanaki et al., 2015). Through a systematic literature search, Niazi & Niazi (2011) assert the benefits of MBSR in reducing depression, anxiety, and stress, as well as improving the quality of life among individuals with chronic illness. Therefore, using MBSR, counsellors can work with clients to increase their health-related coping strategies and improve their overall well-being.

The Wellness-Based Integrative Intervention (Wel-BII). The Wellness-Based Integrative Intervention (Wel-BII; Callender, 2018) is a psychoeducation program for individuals diagnosed with PCOS. This approach draws on principles of cognitive behavior therapy, dialectical behavioral therapy, mindfulness, and wellness counselling. The program aims to target physical and psychological symptom management. Specifically, there is a focus on features of PCOS, where counsellors work with clients to examine and alter their emotions and thoughts related to their lived experience with PCOS (Callender, 2018). The program consists of 12 weekly sessions, 60 minutes each in duration, as well as a virtual follow-up session. This intervention focuses on behaviour modification and acceptance through assessment, cognitive restructuring, education, evaluation, planning, and follow-up. Callender (2018) provides details of the structure of each session.

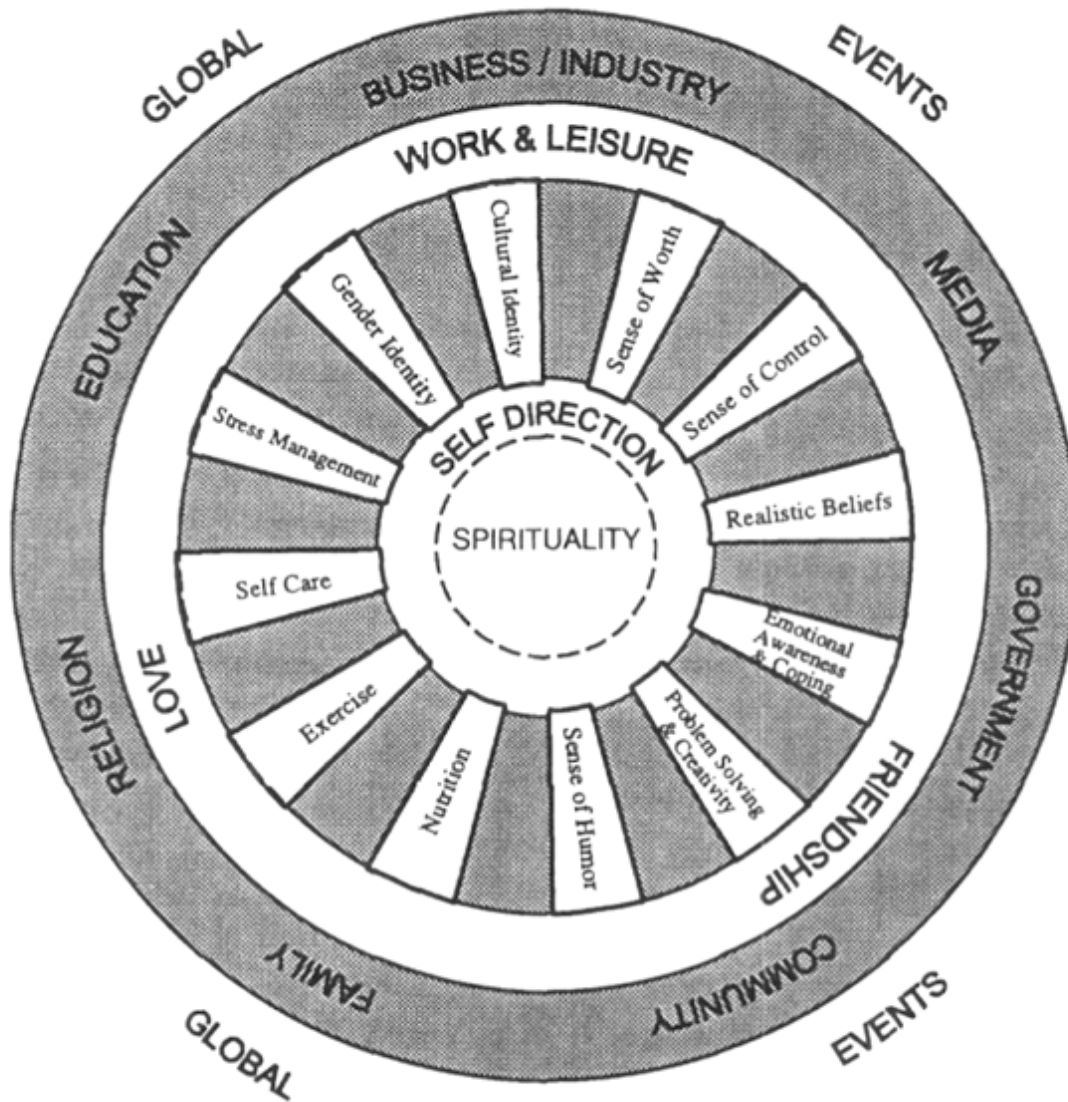
Within the Wel-BII 12-week intervention, Callender (2018) implements the PCOSQ (see *Assessment Resources for Physicians and Counsellors*), and the Wellness Inventory (5F-Wel; Myers & Sweeney, 2004a). In addition, in the first session, Callender (2018) utilizes Myers et al.'s (2000) updated version of the original Wheel of Wellness (WoW) model (Sweeney &

Witmer, 1991; Witmer & Sweeney, 1992). The following briefly describes the development of The WoW model and its utility for counsellors.

Wheel of Wellness Theoretical Model. The WoW model (Sweeney & Witmer, 1991; Witmer & Sweeney, 1992) is premised on Alfred Adler's Individual Psychology, specifically regarding Adler's three essential life tasks (work, love, and friendship) in addition to spirituality and self, two important concepts Mosak and Dreikurs (1967, as cited in Myers & Sweeney, 2004b) note as fundamental to Adlerian theory (Myers & Sweeney, 2004b). The wheel is depicted as a circumplex, with spirituality (one's sense of purpose, meaning, and hopefulness), at its core, and hierarchically the most important component of wellness (Myers & Sweeney, 2004b). Surrounding spirituality is self-direction, which originally contained seven subtasks. Myers et al.'s (2000) revision added five subtasks of self-direction, bringing the total to 12 subtasks, depicted as spokes on the wheel (see Figure 1). The subtasks of self-direction function as components for self-management, crucial to attaining Adler's three central life tasks (Myers & Sweeney, 2004b). Moving further from the core of the circumplex, the model emphasizes the influence of life forces on individuals' wellness, including the community, media, government, family, business/industry, education, and religion (Myers & Sweeney, 2004b). Finally, in the most peripheral position of the circumplex, global forces are deemed influential to individuals' wellness (Myers & Sweeney, 2004b). Through a lifespan focus, individuals' wellness decisions have a collective impact over time, influencing their wellness across all dimensions, both positively and negatively (Myers et al., 2000).

Figure 1

The Wheel of Wellness



Note: © J. M. Witmer, T. J. Sweeney, and J. E. Myers (1998). Reprinted with permission; see Appendix C.

Important Considerations. While Callender (2018) utilizes the WoW in the Wel-BII, counsellors should be mindful of current considerations of this model. Firstly, to assess the elements of the WoW, the Wellness Evaluation of Lifestyle (WEL; Myers, 1998; Myers,

Witmer, & Sweeney, 1996, as cited in Myers & Sweeney, 2004b) was developed. While psychometric components of the model were approved, the hypothesized interconnections between the elements of the wheel were not supported (Myers & Sweeney, 2004b). Rather, using an exploratory factor analysis, 17 discrete elements of the wheel (instead of the total of self-direction tasks) were supported and integrated into Myers & Sweeney's (2004b) evidence-based Indivisible Self Model (IS-WEL). The IS-WEL depicts wellness as a higher-order and indivisible construct comprised of the previously hypothesized 17 subcomponents (Myers et al., 2000; Sweeney & Witmer, 1991). In addition, a revision of the WEL has been established, termed the Five Factor Wellness Inventory (5F-Wel; Myers & Sweeney, 2004a), that reflects the IS-WEL Model (see *5F-Wel*).

Importantly, both models (WoW and the IS-WEL) have been used within group and individual counselling interventions (Myers & Sweeney, 2007). For assessment, Myers & Sweeney (2007) assert that during clinical interviews, either the 5F-Wel or the WEL can be used to gain insight on a client's baseline in preparation for wellness interventions. As stated by Sweeney (2019):

Whether using the empirically derived Indivisible Self wellness model (ISWEL) or the theoretically based Wheel of Wellness model, practitioners have a client-centered tool with 17 discrete factors plus overall wellness scores to facilitate exploration of what if this attribute (e.g., sense of humor) or their life task of friendship was more life-enriching than presently? (pg. 341).

Given the use of the WoW and the 5F-Wel in Callender's (2018) intervention, the present manuscript does not explore the WEL or the IS-Wel, however counsellors are welcome to extend their professional development and learn more about the utility of other wellness interventions (see References).

Counsellor Use of the *WoW*. When implementing wellness interventions into practice, Myers et al. (2000) encourage counsellors to engage in the following four steps: (1) introduce the *WoW* model to clients, emphasizing the lifespan focus, (2) conduct a formal/informal assessment reflective of the model, (3) use relevant interventions that promote wellness in the identified areas of concern in the model, and (4) evaluate and follow-up with client's progress, continuing to use steps two to four as applicable. Myers and Sweeney (2007) emphasize a client-centered approach, where clients can determine areas of wellness that are most significant to them, that they seek to change and improve. Wellness counselling is thus depicted as a strength-based approach, which includes the facilitation of personal choice and decision-making, with the optimal goal of strengthening clients' lifestyle (Myers & Sweeney, 2007).

5F-Wel. The Five Factor Wellness Inventory (5F-Wel; Myers & Sweeney, 2004a), used in Callender's (2018) intervention, is the updated version of the WEL (Myers, 1998; Myers, Witmer, & Sweeney, 1996, as cited in Myers & Sweeney, 2004b). The 5F-Wel is a 91-item measure, consisting of 73 scored items depicting behavioural and attitudinal statements, as well as 18 experimental items (Myers et al., 2004). As a self-report measure, participants respond using a 5-point Likert scale from *strongly agree* to *strongly disagree* (Myers et al., 2004). The 5F-Wel reflects the IS-Wel model, with the following five second-order wellness factors: creative self, coping self, essential self, physical self, and social self, each of which have their own subcomponents comprised of the 17 discrete dimensions of the *WoW* (refer to Myers & Sweeney, 2004b).

Scoring. The 5F-Wel uses reverse scoring, where high scores indicate greater wellness. The average of item-level scores from each scale is collected and multiplied by 25. Therefore, all

scores fall between 25-100. Scores are given for the higher-order wellness factor (total overall score) and the 17 third-order factors.

Therapeutic Modalities

Chronic Illness Support Groups. Group therapy aims to supply members with psychoeducation, information, support, and chances for self-expression (Leszcz, 2020). Cognitive behavioral group therapy amongst individuals with chronic illness has shown significant improvements in HRQOL, fear avoidance, and pain self-efficacy scores (Lamb et al., 2010). Through a systematic review and narrative synthesis, Jackson et al. (2019) found benefits of group therapy among individuals with chronic illness, including increased self-efficacy, self-care, improved psychological distress and quality of life, and decreased pain.

Folkman and Greer's Tripartite Model of Coping. The facilitation of group therapy for chronic illness can be understood through Folkman and Greer's (2000) tripartite model of coping. This model comprises three forms of coping: emotion-based, problem-based, and meaning-based. According to Leszcz (2020), almost all medical illness therapy groups highlight at least one of these coping paradigms. Emotion-focused coping increases the client's social integration and social support, emphasizing emotional expression and decreasing suppression of feelings (Leszcz, 2020). In problem-focused coping, psychoeducation, information, and learning about the meaning of the client's symptoms are emphasized, whereby members know how to increase self-care and advocate for themselves (Leszcz, 2020). Coping may center on a member's current functioning (e.g., diet, sleep, exercise) and mindfulness techniques to reduce stress (Leszcz, 2020). If problem-focused and emotion-focused coping do not produce adequate results, meaning-based coping can be implemented (Leszcz, 2020). Meaning-based coping, often used after an unfortunate outcome, aims to help the individual reframe unattainable goals into

new attainable goals (Folkman & Greer, 2000). During this, individuals gain insight of their current situation, and find positives where feasible (Folkman & Greer, 2000). Meaning-based coping creates positive affect, offering individuals a mental break and encouraging continued coping (Folkman & Greer, 2000). Through an interdisciplinary approach, physicians can work alongside counsellors in creating a treatment plan (i.e., SMART-EST goals) that aligns with patients' emotions and meaning-based coping.

Summary of Resources for Counsellors

As emphasized throughout this manuscript, the provision of a mental health focus is essential for the well-being of individuals with PCOS. Using the various resources listed above, counsellors can work with clients to navigate illness-specific concerns (e.g., illness perception, illness identity state), and create counselling goals and a treatment plan that optimize clients' HRQOL.

Chapter Summary

This chapter has provided a rigorous composite of the literature for PCOS, including physical and psychological symptoms, the diagnostic process, psychological comorbidity, current treatment approaches, patient healthcare experiences, and interdisciplinary approaches to treating and managing PCOS. PCOS is the most common endocrine disorder among reproductive-aged individuals, with increased physical health risks, including endometrial cancer and cardiovascular disease, as well as increased chance of psychological concerns from anxiety and depression to suicidal behaviour to body image concerns. Individuals with PCOS are likely to experience one or more of the prevalent symptoms (hirsutism, obesity, acne, androgenic alopecia, and menstrual irregularities and infertility). These symptoms are related to psychological distress and decreased overall well-being.

The current approach to treating and managing PCOS heavily focuses on physical symptoms, where patients' psychological concerns are often dismissed or absent in diagnostic conversations. This one-sided, medicalized approach to PCOS warrants a call to action, given the short-term effects and continued psychological distress individuals with PCOS experience. Physicians are encouraged to enact interdisciplinary measures, bringing a mental health focus to their work with patients. Evidence-based recommendations assert the need for ongoing mental health screening measures, person-centered care, increased knowledge acquisition of PCOS among physicians, and collaboration with other disciplines to provide patients with effective treatment.

Given the recommendation to implement an interdisciplinary approach to treating and managing PCOS, I have created two manuals, the *Physician's Manual*, and the *Counsellor's Manual*. Providing manuals for counsellors and physicians aims to increase professionals' understanding of PCOS across disciplines. Each manual contains information about PCOS and recommendations and tools to provide physicians and counsellors with a "go-to" guide for interdisciplinary care. The following chapter discusses the creation of the manuals, including the literature review process, methodologies used, and central themes addressed in each manual.

CHAPTER III: METHODOLOGY

Method

The development of the physician and counsellor manuals, each with the same overarching title, *Incorporating Mental Health Support in the Treatment and Management of Polycystic Ovary Syndrome (PCOS)*, involved an in-depth exploration of current literature, the results of which are discussed in Chapter II. Articles contained in this literature review have been gathered using multiple methods:

1. University of Lethbridge's Library database and Google Scholar have been thoroughly utilized using various terms, including *PCOS*, *psychological distress*, *health-related quality of life*, *hirsutism*, *healthcare*, *suicide*, *interdisciplinary*, *diagnosis*, *depression*, *anxiety*, *counselling*, *mindfulness*, and *fertility*.
2. Medical and psychological journals (e.g., *The Journal of Clinical Endocrinology and Metabolism*, *Psychological Medicine*, *British Journal of General Practice*, *American Journal of Psychotherapy*, *Fertility and Sterility*, and *Journal of Endocrine Society*).

The literature review integrates evidence-based PCOS-related literature. It provides insight into PCOS's psychological and physical symptoms, the diagnostic process, health-related quality of life, comorbid psychological implications, current treatment approaches, patients' healthcare experiences, and the benefits of an interdisciplinary treatment approach for PCOS.

The literature review has been synthesized into two online manuals, one for physicians and another for counsellors. Both manuals aim to provide professionals with an accessible, user-friendly resource to incorporate an interdisciplinary approach to treating and managing PCOS.

The Physician's Manual includes the following topics:

- Psychological manifestations of PCOS

- The relationship between physical symptoms and psychological implications
- Barriers to the current treatment approach
- Tools to implement an interdisciplinary approach for PCOS

The *Counsellor's Manual* includes the following topics:

- Key terminology about PCOS
- Physical symptoms of PCOS
- Psychological manifestations of PCOS
- The relationship between physical symptoms and psychological implications
- Barriers to the current treatment approach
- Tools to implement an interdisciplinary approach for PCOS

CHAPTER IV: MANUAL DEVELOPMENT

Overview

The manuals were created using Canva software to provide users with clean, thorough, and guided manuals. The manuals include various uses of colour, imagery, and font. The aesthetic approach in the visual creation of the manuals aims to provide a friendly invite to physicians and counsellors who may feel indifferent or unsure of an interdisciplinary approach. The American Psychological Association's *Publication Manual: Seventh Edition* guidelines were not thoroughly followed in the manuals, as the presentation must be eye-catching and simple to use. With an easy-to-read layout, professionals can flip to a page for a quick resource when implementing interdisciplinary care rather than sifting through in-depth, time-consuming literature.

Manual Format

There are two manuals, the *Physician's Manual* (see Appendix A) and the *Counsellor's Manual* (see Appendix B). The format of each manual will be discussed in the following section.

Physician's Manual

The *Physician's Manual* has four chapters of content about PCOS, the impacts of associated symptoms, diagnosis and treatment experiences, and treatment options. In addition to the four chapters, the manual provides physicians with various resources in the *glossary* and *appendix*, including key terminology, and a pamphlet.

Chapters One to Four. *Chapter One: Psychological Manifestations and Comorbidities of PCOS* outlines the significant risk of various psychological disorders and symptoms, such as anxiety, bipolar, and depression, and emphasizes the relationship between individuals' health-related quality of life and the common physical symptoms. *Chapter Two: Common Treatment*

Approaches and Barriers to a Positive Diagnosis and Treatment Experience describes the common treatment approaches and discusses the health care delivery experiences from the perspective of individuals with PCOS. *Chapter Three: An Interdisciplinary Approach to Treating and Managing PCOS*, discusses the importance of a mental health focus, benefits of an interdisciplinary approach, and supplies physicians with current guidelines when implementing a mental health focus in their practice. *Chapter Four: Introducing the Physician's Toolbox*, provides physicians with a toolbox to help integrate an interdisciplinary approach in their practice, with brief time-efficient resources.

Appendix. The appendix in the *Physician's Manual* contains a printable pamphlet that physicians can utilize with patients. The resources provided in the manual are intended to support, not replace, the provision of mental health support by physicians.

Glossary. The *Physician's Manual* includes key terminology placed at the back of the manual. While it is assumed that many physicians will have knowledge of these terms, it is there as a resource if physicians would like further guidance or as an educational resource for patients.

Counsellor's Manual

The *Counsellor's Manual* has six chapters, building upon the *Physician's Manual* by beginning with two foundational chapters that include information that would already be familiar to physicians. In addition to the six chapters, the manual supplies counsellors with a psychoeducational tool in the *appendix*.

Chapters One and Two. *Chapter One: Foundational Knowledge of PCOS* provides counsellors with key terminology and definitions used throughout the manual. Examples of crucial terminology include hirsutism, psychosocial, self-regulation, androgen, polycystic ovary syndrome, and hyperandrogenism. *Chapter Two: Diagnostic Process and Physical Symptoms of*

PCOS describes the current diagnostic criteria and challenges involved when assessing for PCOS and discusses in detail the prevalent physical symptoms, including hirsutism, obesity, acne, androgenic alopecia, and infertility and menstrual irregularities.

Chapters Three to Six. These chapters closely mirror those included in the *Physician's Manual*. *Chapter Three: Common Psychological Manifestations and Comorbidities of PCOS*, outlines the significant risk of various psychological disorders and symptoms, such as anxiety, bipolar disorder, and depression, and emphasizes the relationship between individuals' health-related quality of life and physical symptoms. *Chapter Four: Common Treatment Approaches and Barriers to a Positive Diagnosis and Treatment Experience* explores the current treatment approaches and discusses the healthcare delivery experiences from the perspective of individuals with PCOS. *Chapter Five: An Interdisciplinary Approach to Treating and Managing PCOS* highlights the importance of a mental health focus and the benefits of an interdisciplinary approach. *Chapter Six: Introducing the Counsellor's Toolbox*, provides counsellors with a toolbox to increase awareness of the various ways they can promote an interdisciplinary approach in their practice, including the importance of illness identity and illness perceptions.

Appendix. The appendix contains a psychoeducational tool that counsellors can utilize with clients. Again, the resources provided in the manual are intended to support, not replace, the provision of mental health support by physicians and counsellors.

CHAPTER V: DISCUSSION AND CONCLUSION

Discussion

With the increased prevalence of psychological distress, psychiatric disorders, self-harm, and suicidal behaviour amongst individuals with PCOS, the implementation of two manuals geared towards a focus on treating mental health has significant potential. With a lack of knowledge among physicians and patients, the manuals provide an accessible source of knowledge acquisition. With a person-centered lens and an interdisciplinary approach to treatment, patients are more likely to adhere to lifestyle prescriptions and, in turn, strengthen treatment outcomes. Additionally, providing a manual for both physicians and counsellors promotes a treatment model that extends across disciplines, providing optimal interdisciplinary care for individuals with PCOS.

Project Implications

This project addresses a critical gap in the psychological treatment of PCOS. With the inclusion of two online, in-depth manuals, physicians and counsellors will have access to a user-friendly resource that focuses on known comorbid psychological conditions for individuals diagnosed with PCOS. Notably, physicians can provide patient-centered care within a time-restricted service, whereby patients' psychological concerns can be addressed, validated, and managed. With this, counsellors can offer additional psychological care to support the interdisciplinary treatment plan individuals create with their physicians, thus optimizing treatment outcomes.

Considerations

Accessibility

Future use of these manuals could include the submission to the British Journal of General Practice (BJGP) for publication. The BJGP is an international, peer-reviewed, open-access, online-only journal of primary care. The use of an open-access journal will provide physicians with a free digital download for professional use.

Readability

The manuals provide an in-depth description of various clinical terminology. This allows physicians and counsellors easy access to potentially unfamiliar terminology. Additionally, users can download the relevant manual and depending on the software used (e.g., pdf on an Apple MacBook), can use the read aloud feature.

Adaptation of the Manual

The manuals are intended for physicians and counsellors working with individuals with PCOS. However, the brief, time-efficient tools mentioned in the manual could be adapted for other chronic illnesses. The tools provided in the manuals, including SMART-EST (White et al., 2020), the HADS (Zigmond & Snaith, 1983), CAMH suicide risk detection and assessment questions (CAMH, 2024), and the BATHE technique (Lieberman & Stuart, 1999), have all been developed for patients in general, not specifically for individuals with PCOS. Therefore, these tools can be adapted to various patients with conditions outside of PCOS to promote a mental health focus across the healthcare context.

The theories provided in the *Counsellor's Manual*, including the CSM and the illness identity states, were developed for individuals with a chronic illness and, therefore, can be utilized across all individuals with any type of chronic illness. Further, in addition to individual

counselling, the illness identity states have been used in group counselling sessions and can provide counselling clients with a sense of agency. Counsellors could work with clients in a group counselling format to understand their illness perceptions, focusing on their illness identity to guide treatment goals.

Critical Review and Future Directions

Strengths

The in-depth, thorough literature review comprises articles using various methods and journals to establish manuals reflective of the current understanding of PCOS. Throughout the development of this final project, the literature has been consistently updated. Additionally, the literature contains research that uses various methodological approaches, including qualitative and quantitative studies and meta-analyses. For example, Shakraki et al. (2023) provided a meta-analysis containing 73,102 individuals with PCOS and 340,724 controls, and Williams et al. (2022) utilized a cross-sectional investigation of individuals with and without PCOS to examine emotion dysregulation, non-suicidal self-injury, rumination, self-reported cases of past suicidal ideation, and future suicidal intention. Further, participants across the literature reflect diverse demographics, including age, ethnicity, and religion (Bazarganipour et al., 2014; Chaudhari et al., 2018; Jones et al., 2011). By integrating research of various methodologies, findings can point to the generalized importance of an interdisciplinary approach rather than in isolated contexts.

Limitations

The manuscript addresses the psychological implications of PCOS from a counselling psychology perspective. This limits the presentation of a complete understanding of medical approaches to treating PCOS, such as detailed information about medications and surgeries.

However, medical expertise has been sought out from Dr. Jamie Benham, an assistant professor at the University of Calgary, Alberta. With her expertise in PCOS, Dr. Benham reviewed the physical medical information within this manuscript for accuracy.

As mentioned, current literature and conceptualization of PCOS dominantly comes from a heteronormative lens, whereby PCOS is often viewed as an endocrine disorder amongst cisgender women, despite the prevalence of PCOS amongst transgender and gender-diverse individuals. Specifically, only four studies have significantly considered the experiences of PCOS among transgender and gender-diverse individuals (Frank, 2020; Guss & Pitts, 2018; Thorpe et al., 2019; Wugalter et al., 2023). Given the limited research on transgender and gender-diverse individuals, the manuals have been created based on literature that denotes results as women's experiences. Therefore, there must be caution when overgeneralizing the findings presented in this final project. Physicians and counsellors should be mindful of the unique experiences transgender and gender-diverse individuals with PCOS may have and ensure these concerns are being addressed.

Recommendations for Future Research

As outlined in the limitations, the manuals were developed from a counselling psychology lens. Therefore, future research should incorporate greater input from practitioners, to strengthen the interdisciplinary approach to treating and managing PCOS. Specifically, future research can extend the recommendations proposed by Teede et al. (2023) by expanding on the medical suggestions made.

Additionally, the treatment and management of PCOS needs a more inclusive approach where the unique challenges faced by transgender and gender-diverse individuals with PCOS are recognized in the PCOS community. Through an inclusive and interdisciplinary approach to

PCOS, all individuals will be able to have their psychological and physical concerns addressed, validated, and supported.

Conclusion

I came into this final project with my own experiences navigating a diagnosis of PCOS. Throughout the project, I immersed myself in the literature, uncovering new insights for myself, counsellors, and physicians. I reviewed numerous patient experiences of shame, sadness, and isolation. At the same time, I uncovered critical components of healthcare that were reflective of patients feeling empowered, in control, and empathically supported. Examining the benefits of counselling in current research as well as reflecting on my experience obtaining counselling support for PCOS, I felt determined to develop a resource that can promote a mental health focus in treating PCOS. In creating and sharing the manuals with the world, I hope to see more discussion of mental health in medical settings, more awareness of PCOS, and greater attention toward interdisciplinary care. I hope these manuals foster a more significant connection between physicians, counsellors, and individuals with PCOS. As beautifully said by Brené Brown (2021): “Connection is the energy between people when they feel seen, heard, and valued; when they can give and receive without judgment; and when they derive sustenance and strength from the relationship” (p. 170).

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APPENDIX A: PRACTITIONER'S MANUAL

APPENDIX B: COUNSELLOR'S MANUAL

APPENDIX C: PERMISSION STATEMENT TO REPRODUCE ©WHEEL OF WELLNESS

Permission for Wellness Models

Drs. Thomas J. Sweeney and on behalf of Jane E. Myers grants you permission to use figures (i.e., The Wheel of Wellness Model and /or the Indivisible Self: An Evidenced Based Model of Wellness) including reference and description of their component factors as a part of your Masters requirements.