



# Fidgeting and first impressions: The impact of nonverbal cues on personality perception

Sydney Chertoff<sup>a</sup>, Rhiannon M. Mesler<sup>b,\*</sup>

<sup>a</sup> Department of Psychology, University of Lethbridge, 4401 University Drive, Lethbridge, Alberta, T1K 3M4, Canada

<sup>b</sup> Dhillon School of Business, University of Lethbridge (Calgary Campus), S6032-345 6 Ave SE, Calgary, Alberta, T2G4V1, Canada

## ARTICLE INFO

### Keywords:

Fidgeting  
Nonverbal behavior  
Personality  
Personality perception  
HEXACO  
Social cognition  
First impressions

## ABSTRACT

Fidgeting is a pervasive nonverbal behavior that occurs across diverse social contexts and populations. While prior research has explored the role of fidgeting as an indicator of internal states such as anxiety or engagement, limited research has examined how observers interpret fidgeting behaviors when forming personality impressions of others. This preregistered study investigates the impact of fidgeting on personality trait attributions using the HEXACO-PI-R. In a between-subjects design, a U.S Prolific sample of 388 participants were randomly assigned to view a short video (avg. 56.25 s) of a game of checkers/draughts which they either viewed one of two players engaged in fidgeting (e.g., object manipulation, self-touching, foot tapping), or viewed a game in which both players remained still. Video stimuli were also counterbalanced for the sex of the fidgeter presented (Man\_Fidget,  $n = 95$ , Man\_Still,  $n = 99$ , Woman\_Fidget,  $n = 96$ , Woman\_Still,  $n = 98$ ). Participants then assessed the personality traits of the observed individual. Results indicate that fidgeting significantly influenced perceptions of four of the six HEXACO personality traits: Emotionality was rated higher for the fidgeting condition ( $d = 0.84$ ) while Agreeableness ( $d = -0.35$ ), Conscientiousness ( $d = -0.65$ ), and Openness to Experience ( $d = -0.50$ ) were rated lower. No significant differences were found for Extraversion ( $d = -0.24$ ) or Honesty-Humility ( $d = -0.11$ ). Neither the gender of the fidgeter nor participant moderated these effects. These findings contribute to the literature on nonverbal behavior by demonstrating that fidgeting can shape social judgments in neutral contexts, with potential implications for workplace interactions, educational settings, and social evaluations.

## 1. Introduction

Picture someone whom you don't know fidgeting – in the workplace, in a classroom, or even somewhere like a doctor's office. What do these behaviors tell you about that person? Fidgeting is a ubiquitous behavior, performed cross-culturally, across age, sex and class, and among neurotypical and neurodivergent populations (Perrykkad & Hohwy, 2020). In other words – fidgeting is pervasive. Fidgeting may take many forms including object-directed fidgeting (e.g., clicking a pen; Perrykkad & Hohwy, 2020), macro-body movements (e.g., pacing; Farley, Risko, & Kingstone, 2013), micro-body movements (e.g., foot tapping; Farley et al., 2013), and self-manipulation, –touch, and –adaptors (e.g., twirling one's hair; Ekman & Friesen, 1972; Harrigan, Kues, Steffen, & Rosenthal, 1987, Sacks & Schegloff, 2002). Adaptors are a category of non-verbal behaviors that are performed to cope with and communicate emotions and other interpersonal situations (Tancredi & Abrahamson,

2024). Additionally, the term “fidgeting” has been used analogously and in conjunction with hyperactivity, restlessness, and stimming (Tancredi & Abrahamson, 2024).

While there are numerous terms used to identify and categorize behaviors that are classified as fidgeting, the distinction between behavioral categories is murky (Perrykkad & Hohwy, 2020). In a recent review, Tancredi and Abrahamson (2024) defined fidgeting as a “Psychology term for repetitive body movements, generally characterized as task irrelevant, involuntary, and superfluous,” (pg. 6) whereas adaptors are defined within the communication realm and represent a category of nonverbal behavior “first learned as part of need satisfaction, managing emotions, interpersonal interaction, or instrumental learning are partially or fully completed” (pg. 6). Colloquially, the occurrence of fidgeting (and its constituent behavioral categories) has been associated with both ends of the arousal spectrum from boredom (Galton, 1885; Ricciardi, Maggi, & Nocera, 2019) to anxiety (Feller & Powell, 2016;

\* Corresponding author.

E-mail addresses: [chertoff@uleth.ca](mailto:chertoff@uleth.ca) (S. Chertoff), [rhiannon.mesler@uleth.ca](mailto:rhiannon.mesler@uleth.ca) (R.M. Mesler).

<https://doi.org/10.1016/j.actpsy.2026.106208>

Received 28 July 2025; Received in revised form 28 December 2025; Accepted 2 January 2026

Available online 21 January 2026

0001-6918/© 2026 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Pang, Canarlan, & Chu, 2022; Surley, Taherzadeh, Misal, & Kleinsmith, 2022; Waxer, 1977), reflecting heightened cognitive and emotional load (Mueller, Martin, & Grunwald, 2019). For the remaining portion of this manuscript, fidgeting behavior will refer to all of the described forms of fidgeting listed previously, including self-adaptors.

In the academic literature, fidgeting has only recently been studied for the sake of itself; rather, it has more commonly been used as a behavioral proxy for other constructs such as engagement (e.g., Carriere, Selj, & Smilek, 2013; Farley et al., 2013; Ricciardi, Maggi, & Nocera, 2019) or anxiety (e.g., Mehrabian & Friedman, 1986; Mohiyeddini, Bauer, & Semple, 2015; Reinecke, Dvoretzka, Joraschky, & Lausberg, 2020). The many descriptions of actions that constitute fidgeting and the diverse use of fidgeting to operationalize other constructs (e.g., lack of engagement), has muddied our understanding of how we perceive fidgeting and the type of information we can garner from observing this behavior in ourselves and others. Consider the attributions you made about the person you pictured above. Are they conscientious? Neurotic? Agreeable? How might this in turn affect your interactions with the person? Prior work has established that fidgeting contributes to deleterious outcomes for the performer in contexts including physician-patient interactions (i.e., Ruben & Hall, 2016), justice system judgments (i.e., Mann, Vrij, & Bull, 2004), and workplace interactions (i.e., Hartwig, Voss, & Wallace, 2015). However, limited work exists to assess how individuals use the fidgeting behavior of others to draw personality inferences about them in a neutral context (e.g., as opposed to an interview), despite the current body of research detailing how personality attributes often correlate with non-verbal behaviors (Hall, Gunner, & Andrzejewski, 2011). Thus, the aim of this paper is to explore how individuals attribute personality traits to another engaged (vs. not engaged) in fidgeting behavior in a neutral setting. Despite the ubiquity of fidgeting and the centrality of trait inference in personality science, no prior work has directly examined how fidgeting alone shapes personality attributions; an oversight this study seeks to correct.

### 1.1. Nonverbal behavior and perceptions

Non-verbal behaviors such as the aforementioned gestures and adaptors are frequently cited as indicators of the emotional state of the performer (Hall & Bernieri, 2001). Having greatly contributed to the field of study on non-verbal behavior, Ekman and Friesen (1972) emphasize the importance of investigating multiple forms of non-verbal behavior when an individual is alone or in social settings. In a study in which they had observers determine whether a subject was being honest or dishonest, observers accurately determined the dishonest condition based on the increase of self-adaptor behaviors performed by the subject (Ekman & Friesen, 1972). This study demonstrated the power of nonverbal behaviors in interpersonal judgments and subsequent relationships. In another study, Ekman and Friesen (1972), analyzed the hand movements of psychiatric patients while being interviewed, finding that the frequency of self-adaptor activity was positively correlated with scale-determined ratings of anxiety, guilt, hostility and suspiciousness. In neurotypical populations, Ekman and Friesen (1977), determined that people perceive individuals who engage in more self-directed behaviors as “tense” and “awkward” (pg. 39). These studies provided the foundation on which subsequent researchers have furthered our understanding of how nonverbal behaviors map onto different personality traits perceived by both performers and observers.

### 1.2. Personality perceptions

Although definitions of personality vary, a widely accepted conceptualization by Carver and Scheier (2004) describes personality as a dynamic organization of psychophysical systems that shape consistent patterns in an individual's behavior, thoughts, and feelings. One of the most robust contemporary frameworks for assessing personality is the HEXACO Personality Inventory-Revised (HEXACO-PI-R; Ashton & Lee,

2007), which comprises six broad dimensions: Honesty-Humility, Emotionality, eXtraversion, Agreeableness, Conscientiousness, and Openness to Experience. Unlike the Big Five model (De Raad, 1998), HEXACO uniquely includes Honesty-Humility, which captures tendencies toward sincerity, fairness, and modesty versus manipulateness and greed. This addition is relevant here given prior work linking nonverbal behaviors such as fidgeting with deception-related impressions (Riggio & Friedman, 1983).

Personality is not only a psychological construct but also a social signal. Traits are inferred, accurately or not, from behavioral cues, particularly those that are observable and automatic (see Connelly et al., 2022). From an evolutionary perspective, the ability to read and interpret such cues serves an adaptive function by allowing individuals to rapidly assess others' intentions and dispositions (Hall & Bernieri, 2001). Fidgeting, though often ambiguous, falls into the category of self-directed nonverbal behaviors that may result in varying personality attributions (Harrigan, Lucic, Kay, McLaney, & Rosenthal, 1991). As previously stated, fidgeting can be seen as signaling affective discomfort, cognitive overload, or poor self-regulation, and thus can become a basis for personality inference. Observers commonly associate these types of behaviors with certain personality traits, regardless of the actual underlying state or intent (Carney & Harrigan, 2003; Mohiyeddini & Semple, 2013; Morris & Warne, 2017).

Conscientiousness, as defined in the HEXACO model, encompasses characteristics such as organization, diligence, perfectionism, and prudence. These traits reflect an individual's capacity for self-discipline and structured goal pursuit (Lee & Ashton, 2018). Fidgeting, particularly when unprompted or seemingly purposeless, may violate expectations about behavioral control (Lopez-Ozieblo, 2025). This violation can lead observers to interpret fidgeting as a sign of disorganization or distractibility, resulting in lower attributions of Conscientiousness. Supporting this interpretation, Carriere et al. (2013) found that fidgeting behavior was positively associated with attentional lapses and spontaneous mind-wandering. Since mind-wandering is commonly viewed as incompatible with task focus and impulse regulation (Smallwood & Schooler, 2006), the behavioral link to fidgeting may reinforce observer biases about low Conscientiousness, even in neutral contexts where performance is not at stake.

Emotionality is another HEXACO domain particularly relevant to fidgeting perception. This trait includes facets such as fearfulness, anxiety, dependence, and sentimentality—each reflecting susceptibility to emotional reactivity and stress (Lee & Ashton, 2018). Fidgeting may cue observers to perceive the individual as easily overwhelmed. Mohiyeddini et al. (2015) demonstrated that individuals who exhibited greater displacement behaviors under stress (e.g., touching one's face, manipulating objects) also scored higher in neuroticism—a construct conceptually similar to Emotionality. Although such behaviors may serve as coping mechanisms to reduce stress, their outward expression is often interpreted as a lack of emotional stability (e.g., credibility judgments; Bogaard, Dimopoulos, & Quaedflieg, 2025). Thus, observers may intuitively associate fidgeting with higher Emotionality, even when unaware of the contextual or internal drivers of the behavior.

### 1.3. Aims and summary of research questions

The aim of this research is to explore how the presence (vs. absence) of fidgeting behavior, which encompasses multiple forms of nonverbal behavior, impacts the personality assessment of others in a neutral context (i.e., a game of checkers). Since the previous literature primarily highlights the role of nonverbal behavior in specific contexts such as a doctor's office (Ruben & Hall, 2016), job interview (DeGroot & Gooty, 2009) or within the justice system (Mann et al., 2004) we wanted to contribute to this literature by investigating fidgeting behavior in a seemingly neutral context. We predict that the presence (vs. absence) of fidgeting behavior will result in an observer inferring significantly higher (lower) Emotionality and lower (higher) Conscientiousness

(Carriere et al., 2013; Mohiyeddini et al., 2015; Pang et al., 2022). Based on the existing literature, we did not have directional predictions with Honesty-Humility, Extraversion, Openness to Experiences, or Agreeableness.

## 2. Method

### 2.1. Research ethics

Institutional review board (IRB) approval was received before beginning data collection [Pro00143315]. Participants completed informed consent before beginning the study and were asked to re-consent at the end of the survey.

### 2.2. Participants

We recruited 400 American participants from Prolific Academic who were then randomly assigned to a 2-level (fidgeting versus still) between-subjects design (Fidgeting,  $n = 194$ , Not Fidgeting = 194). One attention check was embedded in the surveys with two additional Honesty and Attention checks placed at the end of the survey (see Supplemental Material). Participants were given the opportunity to withdraw their data after they completed the study. We removed 12 participants either due to inattention (3), dishonesty (2), withdrawing their data (3), or technical difficulties (4). The final sample was 388 participants (Mean age = 48.22, [SD = 15.31], 47.94% female, 51.03% male, 1.03% non-binary). For full demographic information, see the Supplemental Material.

### 2.3. Measures and procedure

This study was pre-registered at [AsPredicted.org](https://aspredicted.org/g42x-nqvh.pdf) (<https://aspredicted.org/g42x-nqvh.pdf>). Participants were asked to view an approximately 55-second video in which two individuals; one man and one woman were playing a game of checkers. One of the players waited approximately 10 s between each turn during which the opponent (fidgeter) engaged in fidgeting while the other player remained still. There were three types of fidgeting demonstrated per video: object-directed with a fidget tangle, foot tapping and self-adaptors (i.e., micro-fidgeting, clothing adjustment), and self-touching (i.e. touching the face). There were four stimuli videos created for two conditions: Man\_Fidget ( $n = 95$ ), Man\_Still ( $n = 99$ ), Woman\_Fidget ( $n = 96$ ), Woman\_Still ( $n = 98$ ) (video stimuli: [https://researchbox.org/4040&PEER\\_REVIEW\\_passcode=SBCVEF](https://researchbox.org/4040&PEER_REVIEW_passcode=SBCVEF)). Participants viewed one of the four stimuli videos at random; perceived sex of the fidgeter was counterbalanced. The same male and female actors are used throughout. Aside from the previously described fidgeting behavior and moving the checker pieces, the actors did not perform any other movements or speak.

Participants were instructed to watch either the man or woman on the left side of the table regardless of which condition they were taking part in. They were then instructed to complete the HEXACO-PI-R for Others 100-item scale (Lee & Ashton, 2018) based on the subject they were instructed to watch. They were not made aware that they were watching the fidgeting behavior specifically or that they would be answering the HEXACO-PI-R scale. All factors and facets demonstrated strong internal consistency, in line with prior work (alpha range: 0.86 to 0.92; Lee & Ashton, 2018).

As this study was part of a larger project, participants answered additional questions not considered in this manuscript. Demographic data including participant age, gender (male, female, non-binary/other), ethnicity, language, and employment status can be found in the Supplemental Material.

### 2.4. Statistical analyses

All analyses were conducted using R. Bi-variate correlations were conducted for each HEXACO factor and facet. To test whether participants viewed the fidgeter as possessing more or less of the personality factors measured via the HEXACO-PI-R for Others scale, we ran two-tailed independent  $t$ -tests. Bonferroni correction was used to account for the use of multiple independent  $t$ -tests. Welch's  $t$ -test was used to test the equal variances assumption; where this was violated, R computed adjusted degrees of freedom. Results are presented in Table 1 and Table 2, with supplemental findings presented in the Supplemental Material. Two separate one-way Welch's ANOVAs were used to test whether the fidgeter's gender and participant self-identified gender demonstrated effects at the factor level.

## 3. Results

Summarized results can also be found in Table 1; a detailed correlation table can be found in the Supplemental Material. As predicted, for Emotionality there was a significant difference,  $t(365) = 8.28$ ,  $p < 0.001$ ,  $d = 0.84$ , 95% CI [0.65, 1.03], with the "fidgeter" ( $M = 3.34$ ,  $SD = 0.59$ ) rated higher in Emotionality than the "still" ( $M = 2.90$ ,  $SD = 0.46$ ) counterpart. Additionally, as predicted, for Conscientiousness, there was a significant difference,  $t(382.86) = -6.43$ ,  $p < 0.001$ ,  $d = -0.65$ , 95% CI [-0.86, -0.45], with the "fidgeter" ( $M = 2.96$ ,  $SD = 0.68$ ) rated lower in Conscientiousness than the "still" ( $M = 3.38$ ,  $SD = 0.62$ ) counterpart. Similarly, Agreeableness,  $t(372.91) = -3.47$ ,  $p < 0.01$ ,  $d = -0.35$ , 95% CI [-0.55, -0.15], and Openness to Experience,  $t(380.93) = -4.96$ ,  $p < 0.001$ ,  $d = 0.50$ , 95% CI [-0.72, -0.30], differed significantly with the "fidgeter" (Agreeableness:  $M = 2.90$ ,  $SD = 0.62$ ; Openness to Experience:  $M = 2.84$ ,  $SD = 0.59$ ) rated lower for both factors than the "still" (Agreeableness:  $M = 3.10$ ,  $SD = 0.51$ ; Openness to Experience:  $M = 3.12$ ,  $SD = 0.52$ ) counterpart. Honesty-Humility,  $t(381.39) = -1.05$ ,  $p > 0.05$ ,  $d = -0.11$ , 95% CI [-0.30, 0.08] and eXtraversion,  $t(381.49) = -2.41$ ,  $p > 0.05$ ,  $d = -0.24$ , 95% CI [-0.45, -0.04] were not significantly different between the fidgeting (Honesty-Humility:  $M = 3.21$ ,  $SD = 0.60$ ; eXtraversion:  $M = 2.79$ ,  $SD = 0.58$ ) and still (Honesty-Humility:  $M = 3.27$ ,  $SD = 0.54$ ; eXtraversion:  $M = 2.93$ ,  $SD = 0.52$ ) conditions. For detailed results for each corresponding Facet, see Table 2.

We next assessed whether fidgeter gender or observer gender had an effect on the factor ratings. Since the Levene's test indicated that there was a lack of homogeneity of variances in our data set for Emotionality, Agreeableness and eXtraversion, (Emotionality:  $F(1, 386) = 9.17$ ,  $p = 0.003$ , Agreeableness:  $F(1, 386) = 4.87$ ,  $p = 0.028$ ), eXtraversion:  $F(1, 386) = 7.39$ ,  $p = 0.007$ ), we conducted two separate Welch's one-way ANOVAs followed by a post-hoc analysis, the Games-Howell Test, for each factor. When testing the effect of the gender of the fidgeter on the HEXACO-PI-R scores, there were no statistically significant differences for Agreeableness,  $F(1, 384.27) = 0.68$ ,  $p = 0.410$ , Conscientiousness,  $F(1, 383.01) = 383.01$ ,  $p = 0.500$ , or Openness to Experience,  $F(1, 382.68)$ ,  $p = 0.450$ ). However, there were statistically significant differences between groups for Emotionality,  $F(1, 378.95) = 55.27$ ,  $p < 0.001$ , Honesty-Humility,  $F(1, 386) = 5.40$ ,  $p = 0.002$ , and eXtraversion,  $F(1, 382.68) = 18.71$ ,  $p < 0.001$ . Games-Howell post hoc test revealed that for Emotionality, the male fidgeter ( $M = 2.918$ ,  $SD = 0.51$ ) was rated lower than the female fidgeter ( $M = 3.32$ ,  $SD = 0.56$ ),  $p < 0.001$ . The test revealed that for Honesty-Humility, the male fidgeter ( $M = 3.17$ ,  $D = 0.58$ ) was rated lower than the female fidgeter ( $M = 3.31$ ,  $SD = 0.56$ ),  $p = 0.002$ . Finally, the test revealed that for eXtraversion, the male fidgeter ( $M = 2.98$ ,  $SD = 0.52$ ), was rated higher than the female fidgeter ( $M = 2.74$ ,  $SD = 0.56$ ),  $p < 0.001$ .

When testing the effect of the gender of the participant on the HEXACO-PI-R scores, there were no statistically significant differences for Agreeableness,  $F(1, 379.47) = 1.61$ ,  $p = 0.206$ , Conscientiousness,  $F(1, 381.45) = 3.82$ ,  $p = 0.051$ , Emotionality,  $F(1, 368.19) = 0.004$ ,  $p =$

**Table 1**

Welch's *t*-Test values for each factor in the HEXACO-PI-R-100 Item Scale. *P*-values presented have been adjusted using Bonferroni Corrections. Cohen's *D* for effect sizes and the associated Confidence Intervals are provided.

Factors	Not Fidgeting		Fidgeting		<i>t</i>	df	<i>p</i>	<i>d</i>	95% CI
	M	SD	M	SD					
Honesty-Humility	3.27	0.54	3.20	0.60	-1.05	381.36	1.000	-0.11	[-0.30, 0.08]
Emotionality	2.90	0.46	3.34	0.59	8.28	365.00	<0.001***	0.84	[0.65, 1.03]
eXtraversion	2.93	0.52	2.80	0.58	-2.41	381.49	0.100	-0.24	[-0.45, -0.04]
Agreeableness	3.10	0.51	2.90	0.62	-3.47	372.91	0.003**	-0.35	[-0.55, -0.15]
Conscientiousness	3.38	0.62	2.96	0.68	-6.43	382.86	<0.001***	-0.65	[-0.86, -0.45]
Openness to Experience	3.12	0.52	2.84	0.59	-4.96	380.93	<0.001***	-0.50	[-0.72, -0.30]

\* *p* value is less than 0.05.

\*\* *p* value is less than 0.01.

\*\*\* *p* value is less than 0.0001.

**Table 2**

Welch's *t*-Test values for each facet in the HEXACO-PI-R-100 Item Scale. H = Honesty-Humility, E = Emotionality, X = eXtraversion, A = Agreeableness, C = Conscientiousness, O = Openness to Experience. *P*-values presented have been adjusted using Bonferroni Corrections. Cohen's *D* for effect sizes and the associated Confidence Intervals are provided.

Facets	Not Fidgeting		Fidgeting		<i>t</i>	df	<i>p</i>	<i>d</i>	95% CI
	M	SD	M	SD					
H1: Fairness	3.33	0.77	3.21	0.84	-1.42	382.95	1.000	-0.14	[-0.35, 0.05]
H2: Greed Avoidance	3.13	0.75	3.11	0.80	-0.22	384.40	1.000	-0.02	[-0.22, 0.17]
H3: Modesty	3.40	0.71	3.40	0.75	0.03	384.86	1.000	0	[-0.2, 0.22]
H4: Sincerity	3.23	0.57	3.11	0.67	-1.80	377.52	1.000	-0.18	[-0.37, 0.02]
E1: Anxiety	2.93	0.63	3.70	0.82	10.30	362.26	<0.001***	1.05	[0.84, 1.28]
E2: Dependence	2.81	0.61	3.12	0.66	4.60	383.59	<0.001***	0.48	[0.24, 0.68]
E3: Fearfulness	2.93	0.59	3.37	0.77	6.23	361.98	<0.001***	0.63	[0.43, 0.83]
E4: Sentimentality	2.91	0.61	3.18	0.70	4.08	378.65	0.001***	0.41	[0.21, 0.63]
X1: Liveliness	2.86	0.62	2.96	0.61	1.69	385.91	1.000	0.17	[-0.02, 0.38]
X2: Sociability	2.73	0.71	2.72	0.81	-0.04	378.90	1.000	-0.004	[-0.20, 0.19]
X3: Social Boldness	2.80	0.67	2.53	0.79	-3.48	376.60	0.014*	-0.353	[-0.56, -0.16]
X4: Social Self-Esteem	3.33	0.61	2.95	0.70	-5.67	379.91	0.001***	-0.58	[-0.80, -0.38]
A1: Flexibility	3.06	0.64	2.89	0.71	-2.48	381.45	0.33	-0.25	[-0.46, -0.05]
A2: Forgiveness	2.87	0.58	2.66	0.67	-3.28	378.20	0.027*	-0.33	[-0.55, -0.13]
A3: Gentleness	3.18	0.65	3.13	0.73	-0.75	381.90	1.000	-0.08	[-0.29, 0.12]
A4: Patience	3.30	0.62	2.93	0.82	-5.03	360.03	<0.001***	-0.51	[-0.72, -0.32]
C1: Diligence	3.39	0.71	3.13	0.78	-3.34	382.97	<0.022*	-0.34	[-0.55, -0.14]
C2: Organization	3.35	0.71	2.85	0.77	-6.60	382.64	<0.001***	-0.67	[-0.88, -0.47]
C3: Perfectionism	3.36	0.69	3.07	0.83	-3.67	372.90	0.007**	-0.37	[-0.57, -0.17]
C4: Prudence	3.44	0.74	2.78	0.79	-8.45	384.34	<0.001***	-0.86	[-1.09, -0.67]
O1: Aesthetic Appreciation	3.17	0.66	2.68	0.79	-6.58	373.55	<0.001***	-0.67	[-0.87, -0.45]
O2: Creativity	3.09	0.60	2.98	0.68	-1.71	379.88	1.000	-0.17	[-0.40, 0.01]
O3: Inquisitiveness	3.21	0.72	2.71	0.85	-6.25	375.92	<0.001***	-0.63	[-0.84, -0.40]
O4: Unconventionality	3.02	0.54	3.00	0.57	-0.31	384.75	1.000	-0.03	[-0.23, 0.17]

\* *p* value is less than 0.05.

\*\* *p* value is less than 0.01.

\*\*\* *p* value is less than 0.0001.

0.95, Openness to Experience,  $F(1, 381.92)$ ,  $p = 0.671$ , and eXtraversion,  $F(1, 377.23) = 0.81$ ,  $p = 0.370$ . There was a statistically significant difference between groups for Honesty-Humility,  $F(1, 377.47) = 8.51$ ,  $p = 0.004$ . Games-Howell post hoc test revealed that participants who identified as men ( $M = 3.16$ ,  $SD = 0.55$ ) provided lower ratings of Honesty-Humility than participants who identified as women ( $M = 3.32$ ,  $SD = 0.58$ ),  $p = 0.004$ .

It should be noted that we did not include the group of nonbinary individuals in this analysis due to there being only four participants who identified as such.

#### 4. General discussion

This study demonstrates that observers draw meaningful personality conclusions from fidgeting alone, highlighting how small, often unconscious behaviors can perhaps influence how others are perceived across multiple trait domains. By isolating fidgeting in a neutral setting and demonstrating its influence across multiple HEXACO traits, this study offers the first empirical evidence that a single, common

nonverbal behavior can systematically influence trait impressions, underscoring its relevance for both theory and application in personality psychology. Specifically, factor-level analyses reveal that there is a significant difference between the presence (vs. absence) of fidgeting behavior and four of the six factors present in the HEXACO-PI-R for Others scale including: Emotionality, Agreeableness, Conscientiousness, and Openness to Experience. There were no group differences between the presence of fidgeting and perceptions of the fidgeter's Honesty-Humility or eXtraversion. Among the significant relationships, Emotionality was the only personality factor with a positive effect. Agreeableness, Conscientiousness, and Openness to Experience all had negative effects. It is also worth noting that while all the facets for Emotionality and Conscientiousness differed significantly between the Not Fidgeting and Fidgeting conditions, this was not the case for Openness to New Experiences (Aesthetic Appreciation and Inquisitiveness) or Agreeableness (Forgiveness and Patience). Furthermore, despite there being a lack of group differences within eXtraversion, two of the facets did have group differences (Social Boldness and Social Self-Esteem). These findings allow us to begin hypothesizing the specific

components of each factor that are influenced by the presence of fidgeting behavior. In other words, it is not enough to hypothesize about these personality traits, but rather the individual behavioral patterns, or facets, that compose them.

The Welch's ANOVAs also revealed that the gender of the individual performing the fidgeting movements may have an impact on the perceived personality as well as the gender of the participant. The presence of sex-differences in regards to the HEXACO-PI-R-100 has been previously noted (Lee & Ashton, 2020). These results highlight the importance of acknowledging not only the behaviors being performed, but also who is performing the nonverbal behaviors. Additional analyses are required to further isolate the role of gender and sex in the studying of fidgeting behavior.

A final note is that the results presented in this study show strong correlations for the HEXACO-PI-R for Others 100-Item scale compared to other studies such as Zettler, Lang, Hülshager, and Hilbig (2016) study in which they compared self- and observer reports. These results could be due to the study design in which our raters were complete strangers to our fidgeters in the video-stimuli.

#### 4.1. Theoretical implications

The findings of this study contribute to the growing body of literature on nonverbal behavior and personality perception by elucidating the impact of fidgeting on first impressions. Theoretically, our results align with research suggesting that nonverbal cues serve as heuristics for personality attribution (Carney & Harrigan, 2003; Hall & Bernieri, 2001). Specifically, the negative effects between fidgeting and perceived Agreeableness, Conscientiousness and Openness to Experience suggest that observers may implicitly associate fidgeting with nervousness, distraction, or social disengagement, even in neutral settings. This extends prior work demonstrating the impact of nonverbal behaviors in evaluative contexts, such as job interviews (DeGroot & Gooty, 2009), by demonstrating that such attributions persist even in non-evaluative environments. Moreover, the positive association between fidgeting and Emotionality aligns with theories suggesting that observers interpret self-directed behaviors as signals of heightened affective states (Ekman & Friesen, 1972).

#### 4.2. Practical implications

From a practical standpoint, these findings have implications for various social, marketplace and professional domains where first impressions carry significant weight. In workplace settings, employees who fidget may be perceived as less conscientious or agreeable, potentially influencing hiring decisions, performance evaluations, and leadership perceptions. Similarly, in educational contexts, students who engage in fidgeting behaviors may be misperceived as inattentive or disengaged, impacting teacher-student interactions and academic assessments (Mugavero, Skuthan, & Christopher, 2024). Further, customer service professionals may receive more negative evaluations (e.g., reviews) or remuneration (e.g., tips) based on the first impressions derived from fidgeting. These findings highlight the importance of raising awareness about the biases associated with nonverbal behavior, and the need for further research, particularly in contexts where implicit judgments can affect social and professional outcomes.

#### 4.3. Limitations and future directions

Despite these contributions, this study has several limitations that warrant consideration in future research. First, our experimental design relied on brief video stimuli, including two individuals counter-balanced for gender, which may not fully capture the complexity of real-world social interactions. While this met our objective of examining first impressions, future studies should explore how personality attributions evolve over longer observational periods, in dynamic social settings, and

across a diverse set of fidgeting targets to enhance generalizability. For example, we are unable to determine whether gender differences observed herein are in fact gender differences, or due to other features of the actors used in the stimuli. Additionally, our study did not account for individual differences in observer characteristics, such as baseline personality traits or neurodivergence, which may moderate fidgeting perceptions. Further research should examine whether individuals with heightened sensitivity to nonverbal cues (e.g., those high in Social Perceptiveness) demonstrate stronger attribution effects. Lastly, while we controlled for contextual factors by using a neutral setting to maximize the impact of fidgeting, it remains unclear whether the effects generalize across contexts featuring additional stimuli that may be used to form a personality assessment. Future research should incorporate self-reports and observer reports from familiar individuals to gain a deeper understanding to the extent which fidgeting is associated with the HEXACO factors and facets. Addressing these limitations will provide a more comprehensive understanding of the role of fidgeting in personality perception and its broader implications for social cognition.

#### 4.4. Conclusion

This study provides empirical evidence that fidgeting significantly influences first impressions, with fidgeting individuals being perceived as higher in Emotionality but lower in Agreeableness, Conscientiousness, and Openness to Experience. These findings underscore the broader role of nonverbal behavior in shaping personality perceptions, even in neutral contexts where such cues are not explicitly relevant. By advancing our understanding of the interplay between nonverbal behavior and social cognition, this work contributes to broader discussions on the accuracy and consequences of first impressions in everyday interactions.

#### CRediT authorship contribution statement

**Sydney Chertoff:** Writing – review & editing, Writing – original draft, Visualization, Validation, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.  
**Rhiannon M. Mesler:** Writing – review & editing, Supervision, Resources, Methodology, Funding acquisition, Formal analysis, Conceptualization.

#### Declaration of Generative AI and AI-assisted technologies in the writing process

During the preparation of this work the authors used ChatGPT in order to generate ideas for titles and provide suggestions on text that was previously written by the authors. After using this tool/service, the authors reviewed and edited the content as needed and take(s) full responsibility for the content of the publication.

#### Funding

This work was supported by the Dhillon School of Business Research Development Fund from the University of Lethbridge, awarded to Rhiannon M. Mesler.

#### Declaration of competing interest

The authors declare that there are no financial or personal conflicts of interest in the conceptualization, data collection, analysis, or drafting of this manuscript.

#### Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.actpsy.2026.106208>.

## Data availability

Due to constraints of our Ethics Protocol, we cannot make our data publicly available; however, it is available upon request.

## References

- Ashton, M. C., & Lee, K. (2007). Empirical, theoretical, and practical advantages of the HEXACO model of personality structure. *Personality and Social Psychology Review*, 11(2), 150–166. <https://doi.org/10.1177/1088868306294907>
- Bogaard, G., Dimopoulos, R., & Quaedflieg, C. W. E. M. (2025). Lying under pressure: Examining the impact of stress and veracity on verbal and nonverbal behaviors in credibility judgments. *Applied Cognitive Psychology*, 39(1), Article e70018. <https://doi.org/10.1002/acp.70018>
- Carney, D. R., & Harrigan, J. A. (2003). It takes one to know one: Interpersonal sensitivity is related to accurate assessments of others' interpersonal sensitivity. *Emotion*, 3(2), 194–200. <https://doi.org/10.1037/1528-3542.3.2.194>
- Carriere, J. S. A., Seli, P., & Smilek, D. (2013). Wandering in both mind and body: Individual differences in mind wandering and inattention predict fidgeting. *Canadian Journal of Experimental Psychology/Revue Canadienne de Psychologie Expérimentale*, 67(1), 19–31. <https://doi.org/10.1037/a0031438>
- Carver, C. S., & Scheier, M. (2004). *Perspectives on personality* (5th ed.). Pearson/A and B.
- Connelly, B. S., McAbee, S. T., Oh, I.-S., Jung, Y., & Jung, C.-W. (2022). A multitrait perspective on personality and performance: An empirical examination of the trait-reputation-identity model. *Journal of Applied Psychology*, 107(8), 1352–1368. <https://doi.org/10.1037/apl0000732>
- De Raad, B. (1998). Five big, Big Five issues: Rationale, content, structure, status, and crosscultural assessment. *European Psychologist*, 3(2), 113–124. <https://doi.org/10.1027/1016-9040.3.2.113>
- DeGroot, T., & Gooty, J. (2009). Can nonverbal cues be used to make meaningful personality attributions in employment interviews? *Journal of Business and Psychology*, 24(2), 179–192. <https://doi.org/10.1007/s10869-009-9098-0>
- Ekman, P., & Friesen, W. V. (1972). Hand movements. *Journal of Communication*, 22(4), 353–374. <https://doi.org/10.1111/j.1460-2466.1972.tb00163.x>
- Ekman, P., & Friesen, W. V. (1977). Nonverbal Behavior. In P. F. Ostwald (Ed.), *Communication and social interaction*. Grune & Stratton.
- Farley, J., Risko, E. F., & Kingstone, A. (2013). Everyday attention and lecture retention: The effects of time, fidgeting, and mind wandering. *Frontiers in Psychology*, 4. <https://doi.org/10.3389/fpsyg.2013.00619>
- Feller, A. R., & Powell, D. M. (2016). Behavioral expression of job interview anxiety. *Journal of Business Psychology*, 31, 155–171.
- Galton, F. (1885). The measure of fidget. *Nature*, 32, 174–175. <https://doi.org/10.1038/032174b0>
- Hall, J. A., & Bernieri, F. J. (Eds.). (2001). *Interpersonal sensitivity: Theory and measurement*. Lawrence Erlbaum Associates.
- Hall, J. A., Gunnery, S. D., & Andrzejewski, S. A. (2011). Nonverbal emotion displays, communication modality, and the judgment of personality. *Journal of Research in Personality*, 45(1), 77–83. <https://doi.org/10.1016/j.jrp.2010.11.012>
- Harrigan, J. A., Kues, J. R., Steffen, J. J., & Rosenthal, R. (1987). Self-touching and impressions of others. *Personality and Social Psychology Bulletin*, 13(4), 497–512. <https://doi.org/10.1177/0146167287134007>
- Harrigan, J. A., Lucic, K. S., Kay, D., McLaney, A., & Rosenthal, R. (1991). Effect of expresser role and type of self-touching on observers' perceptions<sup>1</sup>. *Journal of Applied Social Psychology*, 21(7), 585–609. <https://doi.org/10.1111/j.1559-1816.1991.tb00538.x>
- Hartwig, M., Voss, J. A., & Wallace, D. B. (2015). Detecting lies in the financial industry: A survey of investment professionals' beliefs. *Journal of Behavioral Finance*, 16(2), 173–182. <https://doi.org/10.1080/15427560.2015.1034862>
- Lee, K., & Ashton, M. C. (2018). Psychometric properties of the HEXACO-100. *Assessment*, 25, 543–556. <https://doi.org/10.1177/1073191116659134>
- Lee, K., & Ashton, M. C. (2020). Sex differences in HEXACO personality characteristics across countries and ethnicities. *Journal of Personality*, 88(6), 1075–1090. <https://doi.org/10.1111/jopy.12551>
- Lopez-Ozielbo, R. (2025). The dual functions of adaptors. *Languages*, 10(9), 231. <https://doi.org/10.3390/languages10090231>
- Mann, S., Vrij, A., & Bull, R. (2004). Detecting true lies: Police officers' ability to detect suspects' lies. *Journal of Applied Psychology*, 89(1), 137–149. <https://doi.org/10.1037/0021-9010.89.1.137>
- Mehrabian, A., & Friedman, S. L. (1986). An analysis of fidgeting and associated individual differences. *Journal of Personality*, 54(2), 406–429. <https://doi.org/10.1111/j.1467-6494.1986.tb00402.x>
- Mohiyeddini, C., Bauer, S., & Semple, S. (2015). Neuroticism and stress: The role of displacement behavior. *Anxiety, Stress, & Coping*, 28(4), 391–407. <https://doi.org/10.1080/10615806.2014.1000878>
- Mohiyeddini, C., & Semple, S. (2013). Displacement behaviour regulates the experience of stress in men. *Stress*, 16(2), 163–171. <https://doi.org/10.3109/10253890.2012.707709>
- Morris, P. H., & Warne, A. (2017). Personality affects 'fidgeting' in the laboratory: Implications for experimental design. *Personality and Individual Differences*, 118, 7–10. <https://doi.org/10.1016/j.paid.2017.04.023>
- Mueller, S. M., Martin, S., & Grunwald, M. (2019). Self-touch: Contact durations and point of touch of spontaneous facial self-touches differ depending on cognitive and emotional load. *PLoS One*, 14(3), Article e0213677. <https://doi.org/10.1371/journal.pone.0213677>
- Mugavero, S., Skuthan, A., & Christopher, K. (2024). Fidgets and attention deficit hyperactivity disorder: Teacher perceptions. *Journal of Occupational Therapy, Schools, & Early Intervention*, 17(3), 755–768. <https://doi.org/10.1080/19411243.2023.2275568>
- Pang, H. T., Canarslan, F., & Chu, M. (2022). Individual differences in conversational self-touch frequency correlate with state anxiety. *Journal of Nonverbal Behavior*, 46(3), 299–319. <https://doi.org/10.1007/s10919-022-00402-9>
- Perrykkad, K., & Hohwy, J. (2020). Fidgeting as self-evidencing: A predictive processing account of non-goal-directed action. *New Ideas in Psychology*, 56, Article 100750. <https://doi.org/10.1016/j.newideapsych.2019.100750>
- Reinecke, K. C. H., Dvoretzka, D., Joraschky, P., & Lausberg, H. (2020). Fidgeting behavior during psychotherapy: Hand movement structure contains information about depressive symptoms. *Journal of Contemporary Psychotherapy*, 50(4), 323–329. <https://doi.org/10.1007/s10879-020-09465-5>
- Ricciardi, O., Maggi, P., & Nocera, F. D. (2019). Boredom makes me "nervous": Fidgeting as a strategy for contrasting the lack of variety. *International Journal Of Human Factors And Ergonomics*, 6(3), 195. <https://doi.org/10.1504/IJHFE.2019.104590>
- Riggio, R. E., & Friedman, H. S. (1983). Individual differences and cues to deception. *Journal of Personality and Social Psychology*, 45(4), 899–915. <https://doi.org/10.1037/0022-3514.45.4.899>
- Ruben, M. A., & Hall, J. A. (2016). Healthcare providers' nonverbal behavior can lead patients to show their pain more accurately: An analogue study. *Journal of Nonverbal Behavior*, 40(3), 221–234. <https://doi.org/10.1007/s10919-016-0230-3>
- Sacks, H., & Schegloff, E. A. (2002). Home position. *Gesture*, 2(2), 133–146. <https://doi.org/10.1075/gest.2.2.02sac>
- Smallwood, J., & Schooler, J. W. (2006). The restless mind. *Psychological Bulletin*, 132(6), 946–958. <https://doi.org/10.1037/0033-2909.132.6.946>
- Surley, A., Taberzadeh, I. S., Misal, V., & Kleinsmith, A. (2022). *Exploring affective dimension perception from bodily expressions and electrodermal activity in paramedic simulation training*. 10th International Conference on Affective Computing and Intelligent Interaction.
- Tancredi, S., & Abrahamson, D. (2024). Stimming as thinking: A critical reevaluation of self-stimulatory behavior as an epistemic resource for inclusive education. *Educational Psychology Review*, 36(3), 75. <https://doi.org/10.1007/s10648-024-09904-y>
- Waxer, P. H. (1977). Nonverbal cues for anxiety: An examination of emotional leakage. *Journal of Abnormal Psychology*, 86(3), 306–314.
- Zettler, I., Lang, J. W. B., Hülshager, U. R., & Hilbig, B. E. (2016). Dissociating indifferent, directional, and extreme responding in personality data: Applying the three-process model to self- and observer reports. *Journal of Personality*, 84(4), 461–472. <https://doi.org/10.1111/jopy.12172>