Journal of Research in Personality 117 (2025) 104629

Contents lists available at ScienceDirect

Journal of Research in Personality

journal homepage: www.elsevier.com/locate/jrp

Ink and Identity: Personality perceptions based on tattoos

Brooke Soulliere [a], William J. Chopik [a,*], Alejandro Carrillo [b], W.Keith Campbell [c], Brandon Weiss [d,1], Joshua D. Miller [c,1]

[a] Michigan State University, USA
[b] University of Michigan, USA
[c] University of Georgia, USA
[d] Center for Psychedelic and Consciousness Research, Department of Psychiatry and Behavioral Sciences, Johns Hopkins School of Medicine, MD, USA

ARTICLE INFO

Keywords:
Lens model
Person perception
Tattoos
Personality judgments
Accuracy

ABSTRACT

People with and without tattoos are often judged differently, but previous research often neglects the *type and characteristics of tattoos*. We examined these questions in 274 adults (M_{age} = 24.59, SD = 7.17; 71.2 % women; 77.2 % White) with 375 tattoos who agreed to have their tattoos photographed for the study and completed a battery of personality measures. Although there was consensus about the personalities of people who had a particular tattoo (i.e., judges agreed in their perceptions of people with tattoos), these judgments were largely inaccurate, with a few exceptions. Specifically, judgments of openness to experience (based solely on tattoos) were modestly accurate and attributable to how "wacky" the tattoo was.

1. Introduction

Tattoos are relatively common, with some estimates suggesting that nearly a third of US adults have at least one tattoo (Schaeffer & Dinesh, 2023). Many individuals associate tattoos with violence, criminality, and mental illness (Durkin & Houghton, 2000; Forbes, 2001), even though such links to these factors are either modest or rarely found (Broussard & Harton, 2018; Stirn et al., 2006). While tattooed individuals may be stigmatized, previous research has often focused on comparing judgments about people who either have or do not have tattoos. However, several factors likely may affect how tattooed people are judged. For example, consider the content of a tattoo: a person with a tattoo with drug paraphernalia might be thought of differently than someone with a Hello Kitty tattoo. Researchers rarely examine if these characteristics are associated with interpersonal judgments and, by extension, if those judgments are accurate. The current study examined the correspondence between observer- and self-reports of personality judgments of tattooed adults and what features (or "cues") of tattoos people might be using in forming their judgments.

1.1. Tattooed people and what we think about them

Tattoos often carry special meanings, communicating important things about the person who decided to get the tattoo. There are an endless number of reasons people will cite for getting their tattoos. However, the most common are to celebrate or memorialize a person or event, to express themselves through art, or simply because they believe that tattoos look cool and appealing (Forbes, 2001; Tiggemann & Hopkins, 2011; Wohlrab, Stahl, & Kappeler, 2007). Do judgments of tattooed people depend, in part, on the content and design of their tattoos? Furthermore, how would knowledge of a tattoo's meaning impact people's perceptions of those with tattoos? Of course, people have at least some control over how they present themselves to the world, like with the clothes they wear and the body modifications they might make. As a result, there are likely particular characteristics that predict why people get tattoos (e.g., memorializing a loved one).

However, tattoos do not always communicate those characteristics explicitly, and people harbor all sorts of thoughts and stereotypes about people with tattoos. On the one hand, some early studies found that those with tattoos were slightly more likely to participate in illicit drug

* Corresponding author at: Department of Psychology, Michigan State University, 316 Physics Rd., East Lansing, Michigan 48824, USA.
E-mail address: bill.chopik@gmail.com (W.J. Chopik).
[1] Shared last author.

https://doi.org/10.1016/j.jrp.2025.104629
Received 31 January 2025; Received in revised form 29 May 2025; Accepted 13 June 2025
Available online 15 June 2025

use and engage in more sexual activity (Braithwaite et al., 2001; Carroll et al., 2002; Koch et al., 2005; Laumann & Derick, 2006; Roberts & Ryan, 2002). Studies such as these likely contributed to existing assumptions about people with tattoos–that they are risk-takers and prone to antisocial activity (Carroll et al., 2002). However, attitudes about people with tattoos have also changed over time. For instance, the number of people with tattoos has increased dramatically in recent years (Jackson, 2019). Many people may interpret this as a growing *acceptance* of tattoos, but the stigma surrounding them still exists, such that people view tattooed individuals as more neurotic and less conscientious and agreeable, despite there being little clear support for these or other clear differences between tattooed and non-tattooed people (Forbes, 2001; Giles-Gorniak et al., 2016; Hill et al., 2016; Nathanson et al., 2006; Swami et al., 2012; Swami et al., 2016; Tate & Shelton, 2008; Wohlrab, Stahl, Rammsayer, et al., 2007).

To date, nearly all of the work on perceptions of tattooed people has either compared (a) the personality judgments of targets with and without tattoos, or (b) self-reported personality judgments of people with and without tattoos. To our knowledge, no studies have examined the accuracy of personality judgments about tattooed people, such as whether personality judgments align with a tattooed person's self-reported personality. Further, most studies investigate perceptions in the context of binary comparisons, such that a target being judged either has a tattoo or does not. In the context of a growing acceptance of tattoos, might judgments of tattooed people be less driven by whether they have a tattoo and more by what it looks like? Rarely have scientists examined the characteristics of tattoos themselves and how they guide judgments.

1.2. How people judge personality and how they might do so based on tattoos

The work above might only tell us how tattooed people are judged and differ from non-tattooed people. However, this approach is limited in implicitly assuming that people with tattoos are one homogenous group with the same psychological characteristics. Likewise, it might not capture the actual judgment process, whereby people likely encode details about a tattoo (e.g., content, location) when judging others. Adopting an approach like this may reflect an underappreciation of how people with different types of tattoos vary from one another. As previously mentioned, there are many different reasons someone may get a particular tattoo, and in turn, tattoos can vary dramatically in their type, style, and content. For example, if someone has a cross tattoo, one might assume they are Christian. If someone has a name with wings or a date, it may be the name of a loved one who has passed away. In both examples, these tattoos communicate something of importance to the target's life through their content.

In thinking about how people might judge someone based on their tattoos, we found it most useful to employ a Brunswik, ((1956)/2023). lens model to make sense of judgment and their accuracy. A lens model describes how observers discern underlying traits by inspecting elements of their environments. These elements serve as a *lens* through which observers perceive underlying concepts. For example, a tattoo with a misspelling could serve as a lens through which an observer perceived a person's lack of conscientiousness. If people lower in conscientiousness are indeed more likely to have misspellings in their tattoos, observer judgments should converge with the underlying concept, resulting in accuracy. But how would something like a tattoo reflect an underlying concept? According to lens model theories and studies, they primarily do so through identity claims—symbolic statements intended to reinforce self-views or communicate to others how they would like to be perceived (Baumeister, 1982; Gosling et al., 2002).[2] In this way, there are two types of identity claims: self-directed and other-directed. Self-directed identity claims would involve tattoos that people get for their own benefit and reinforce some sort of self-view. For example, a person might get a tattoo commemorating their child's birthdate. A tattoo like this would reflect something meaningful to a person in that it reminds them of their role as a parent and centers an important person in their life. Other-directed identity claims would involve tattoos that people get to help them communicate to others how they would like to be regarded. For example, a person might get a tattoo of a sports team logo or an organization they are part of (e.g., a branch of the military). A tattoo like this would reflect an affiliation people would like to communicate to others who might share that affiliation. Of course, self- and other-directed identity claims in the context of tattoos are not always mutually exclusive (e.g., a military tattoo may also reflect pride and a reminder of a transformative experience [a self-directed claim] and a child's birthdate may also reflect an intention to communicate that they are a committed parent [an other-directed claim]). But our main point is that tattoos likely communicate information about people, whether it is primarily meant for themselves or others.

Indeed, previous research has shown that people tend to make judgments on environmental characteristics and cues that communicate things about a person's identity or personality. For example, how people decorate their spaces and belongings, even down to the stickers they put on their laptops, are used to derive cues about their personalities. For example, raters can accurately predict a person's open-mindedness and extraversion by looking at the amount and type of stickers on their laptop (Campbell et al., 2022). People also judge people based on their behavior in virtual spaces, such as their online personas. While it is fair to say that people's online profiles are curated, observers could still accurately assess agreeableness, conscientiousness, and extraversion when looking at a person's social media profile (Fernandez et al., 2021; Hall & Pennington, 2013; Van de Ven et al., 2017). But personality judgments are not restricted to laptop stickers and social media profiles; people will also judge someone's personality by looking at their physical appearance. Factors such as grumpy or friendly expressions, smiling or not smiling, and displaying strong or weak emotions are associated with personality judgments (Borkenau et al., 2009). In that study, people could judge a person's extraversion levels after just 50 ms of exposure to a picture of them. Needless to say, people will readily use cues about a person to judge their personality, and they tend to do so quickly and often accurately.

But how would people use the content of a person's tattoo to judge their personalities? There has not been much work on tattoos specifically, but it stands to reason that people might rely on stereotypes or societal norms, particularly identity-related cues, even if that reliance can lead to inaccurate judgments. For example, suppose someone were to have a tattoo of a skull and a gun. In that case, one may believe that the person who has that tattoo has antisocial or antagonistic tendencies, when in fact, that person may just like a certain band for whom those features are part of their logo (e.g., Guns N' Roses). Likewise, people

[2] Another suggested way that personality is reflected indirectly is through "behavioral residue" or elements that are reflected through repeated engagement within a particular domain or provides indicators for what a person might do outside that domain. An example of this provided by Gosling et al. (2002) is that an organized CD collection within a room might signal conscientious behavior within that space (interior behavioral residue) and a snowboard might signal sensation seeking behavior outside that space (exterior behavioral residue). Clear analogues of behavioral residue with respect to tattoos are a bit less clear, although could be possible. However, because tattoos are usually knowingly acquired by a person, we chose to focus more on the identity claim explanation as a way that people form judgments about personality (and if those judgments are accurate). The meanings that participants provided for why they got their tattoos seem to align more closely with communicating identity-related concepts.

may assume that those tattoos showcasing a band with violent lyrics or music may be more violent individuals, despite evidence to the contrary (Sun et al., 2019). Although people can often make accurate personality judgments based on physical characteristics, there are also plenty of scenarios in which these judgments are wrong. For example, people will often judge muscular men as more narcissistic even though there is evidence that they are not (Vazire et al., 2008). We currently do not know if people can provide accurate personality judgments based on the content of a person's tattoo and even whether the content of tattoos reflects identity-related motivations. Because there is evidence for and against the accuracy of physical cues guiding personality judgments, we treated this as an open question as to whether people would be accurate judges, what cues or criteria they are using to make those judgments, and if those cues (rightly or wrongly) do communicate something special about the person with the tattoo.

2. The current study

Previous work has been agnostic to whether and how people use the *content* of people's tattoos when forming judgments about them (and if those judgments are accurate). The content of tattoos might communicate important information about those people in similar ways that other external cues guide judgment (e.g., physical appearance, laptop stickers).

The current study recruited people with tattoos who completed a measure of Big Five personality traits. Photos of their tattoos were collected and given to expert raters who completed a personality measure based solely on these photos. We assessed the consensus and accuracy of personality ratings based solely on tattoos. We then applied a lens model analysis to evaluate whether experts' judgments based on particular cues from the tattoos, such as their color, size, and content (i.e., cue utilization), correspond to actual personality differences among people with those tattoos/cues (i.e., cue validity).

3. Method

3.1. Open Practices

This study was not pre-registered, and this is the first manuscript based on this data. Data, syntax, and materials can be found on our OSF site: https://osf.io/dtg84/.

3.2. Participants and Procedure

Participants were 274 adults with tattoos who agreed to be photographed for the study and to complete a battery of personality measures. They ranged from 18 to 70 years old (M_{age} = 24.59, SD = 7.17), were predominantly women (71.2 %, 28.8 % men), and predominantly White (77.2 %), Black (8.5 %), Latinx (8.5 %), Asian (3.7 %), and mixed or other races/ethnicities (2.2 %). Participants were recruited from the local community and tattoo parlors. An additional eighteen participants (due to missing personality data), nine (due to obscure or missing image ratings), and 38 (due to missing description information) people were excluded because we required complete data to compare different forms of accuracy, consensus, and portions of the lens model.

Participants completed a Big Five personality questionnaire, details about their tattoo (including a written description if their tattoo had a special meaning, which was also used in judgments by raters), other individual difference and health and well-being measures, and had their tattoo photographed (to be evaluated later). They received a chance in a raffle for a free tattoo (up to $100) in exchange for participating.

Following participant recruitment and tattoo photographing, tattoos were shown to a group of 30 raters. Fifteen of these raters evaluated each participant's personality based solely on the photo of the tattoo. Fifteen other raters evaluated each participant's personality based on the photo of the tattoo accompanied by a description of its meaning provided by the participant (no rater did both of these tasks). Both (a) photos only (hereafter: photo condition) and (b) photos accompanied by descriptions were rated to assess whether an accompanying description might enhance the accuracy of personality judgments based on tattoos (hereafter: description condition). The description condition was furthermore meant to approximate a social interaction or relationship in which a tattoo owner has shared the meaning of the tattoo with a perceiver. The 30 raters were comprised of undergraduate students, doctoral students, and professors with at least some education in social/personality psychology. Following previous research (Gosling et al., 2002), the raters were provided with a list of cues (i.e., characteristics) of tattoos (see OSF page for full list) and a Big Five personality trait questionnaire, namely the Five Factor Model Rating Form (Mullins-Sweatt et al., 2006), indexing the five broad traits of personality including agreeableness, conscientiousness, extraversion, neuroticism, and openness to new experience. Big Five personality traits were the only characteristics rated by both judges and participants (to enable a lens model analysis), so they are the focus of the main analysis.

The descriptions provided by participants were rated on several characteristics on a scale ranging from 1(*not at all*) to 7(*strongly*). After reading the participants' descriptions of why their tattoos were meaningful, a separate group of judges (from those providing personality judgments) most commonly considered the tattoos to symbolize a part of a person's identity (M = 4.08, SD = 2.01) and life philosophy (M = 3.25, SD = 2.07). The four least common descriptions were tattoos representing equality/rights of the marginalized, romantic relationships, group identities, depression/self-harm/trauma (average M = 1.42, SD = 1.16). Full ratings of the participants' descriptions can be found in Supplementary Table 1.

Participants were able to provide information about multiple tattoos, but most participants reported on only one. Nevertheless, a subset of participants reported on two tattoos (N = 101 people), so there were 375 tattoos altogether (101 participants provided information on two tattoos; 173 participants provided information on one tattoo). We accounted for this non-independence by nesting tattoos within participants in a follow-up analysis. However, the results reported below were resilient to different analytic approaches (e.g., averaging tattoo perceptions within participants, randomly choosing one of the two tattoos).

3.3. Measures

3.3.1. Participant self-reported personality

Participants completed the IPIP-NEO-60, a measure of Five Factor Model traits drawing on items from the International Personality Item Pool (IPIP; Goldberg et al., 2006; Maples-Keller et al., 2019). The scale is comprised of 60 items with 12 items measuring each of the Big Five personality traits: agreeableness (α = 0.66; "love to help others"), conscientiousness (α = 0.73; "know how to get things done"), extraversion (α = 0.80; "love large parties"), neuroticism (α = 0.74; "worry about things"), and openness to experience (α = 0.65; "have a vivid imagination"). Participants were asked to rate the extent to which they agreed that each statement described them on a scale from 1(*disagree strongly*) to 5(*strongly agree*).

3.3.2. Tattoo-rated personality

Expert raters evaluated the Five Factor Model personality traits of participants based either on a photo of the participant's tattoo (the photo condition), or a photo of the participant's tattoo accompanied by a description as to the meaning of the tattoo (provided by the participant; the description condition). Fifteen raters evaluated the personality of participants based on (a) slides (the photo conditions), and 15 separate raters did so based on (b) slides and descriptions (the description conditions). To aid in evaluating participants, raters were provided with a 30-item scale designed to measure each Five Factor trait using six facet items per trait (Mullins-Sweatt et al., 2006). Internal consistency for each trait was the following: agreeableness ($\alpha_{Photo} = 0.90$; $\alpha_{Description} = 0.89$; "soft, empathetic v. tough, callous, ruthless"), conscientiousness ($\alpha_{Photo} = 0.87$; $\alpha_{Description} = 0.87$; "ordered, methodical, organized v. haphazard, disorganized, sloppy"), extraversion ($\alpha_{Photo} = 0.78$; $\alpha_{Description} = 0.82$; "social, outgoing v. withdrawn, isolated"), neuroticism ($\alpha_{Photo} = 0.75$; $\alpha_{Description} = 0.79$; "angry, bitter v. even-tempered"), and openness to experience ($\alpha_{Photo} = 0.85$; $\alpha_{Description} = 0.84$; "strange, odd, peculiar, creative v. pragmatic, rigid"). Each item was rated on a semantic differential scale with sets of adjectives on either end, ranging from 1(e.g., *hasty, careless, rash*) to 5(e.g., *cautious, ruminative, reflective*).

Separate raters judged the photo and description conditions (15 raters each). Each rater judged the personalities of approximately 69 tattooed people, randomly determined and non-repeating (thus, each judge only rated a selection of the tattoos). An average of 2.78 raters rated each tattoo. To ensure comparability between self- and (the two types of) rater-reports of personality for subsequent analyses, personality scores were z-scored.

3.3.3. Cues

The fifteen judges who provided ratings on the personality of participants using photos of the participants' tattoos (i.e., the photo condition) also provided ratings on the physical characteristics of the tattoos, which later served as "cues" in the lens model (i.e., to quantify if raters were using cues to judge personality [e.g., a judge might rate someone with a floral tattoo as more agreeable] and if cues were reflective of a person's personality [e.g., if an agreeable person is more likely to have a floral tattoo]). Cues were generated by the author team based on the psychometric structure of Gosling et al. (2005)'s Personal Living Space Cue Inventory and rational observations of patterns in participants' tattoos. The full list of 18 cues used in the current study is reported in Table 2.

For each photo of a tattoo, a judge either rated the participant's personality or the tattoo's physical characteristics, but never both. In other words, judges who rated a tattoo's physical characteristics never rated the personality of the person with that tattoo. Doing so ensured that judges were not particularly attentive to the cues of a tattoo (i.e., by rating them prior to a person's personality). Cues for each photo were rated by two judges each.

The first six cues (i.e., prey animal [11.5 % of tattoos], predatory animal [9.3 %], floral [17.7 %], sacred geometry [6.7 %], color [29.8 %], and affiliative symbols [logos, flags; often school- or sports-team related; 3.4 %]) were rated as 0(*absent*) or 1(*present*).

The remaining 12 cues were rated on a 7-point semantic differential scale (with 4 as a midpoint): size (small [1] v. large [7]; $M = 3.69$, $SD = 1.38$), style (traditional [1] v. modern [7]; $M = 4.01$, $SD = 0.98$), words (1) v. imagery (7; $M = 5.33$, $SD = 1.81$), poor quality (1) v. high quality (7; $M = 4.29$, $SD = 1.12$), life imagery (1) v. death imagery (7; $M = 3.44$, $SD = 0.96$), concrete (1) v. expressionist (7; seeking to elicit meaning through emotion; $M = 4.13$, $SD = 1.21$), gloomy (1) v. cheerful (7; $M = 4.41$, $SD = 0.84$), generic (1) v. original (7; $M = 4.06$, $SD = 1.18$), concrete (1) v. figurative (7; ambiguous in meaning, metaphorical; $M = 4.33$, $SD = 1.16$), disturbing (1) v. comforting (7; $M = 4.43$, $SD = 0.86$), realistic (1) v. cartoonish (7; $M = 4.13$, $SD = 1.22$), and serious (1) v. wacky (7; $M = 3.79$, $SD = 0.99$). Despite their wide range of coverage, treating each cue as an indicator of a broader scale revealed relatively acceptable internal consistency across raters ($\alpha = 0.65$).[3]

3.4. Analytic approach

A Brunswikian lens model analysis (Back et al., 2011; Brunswik, ((1956)/2023); Gosling et al., 2002) was employed to examine the relationships between individuals' personalities, as inferred from their tattoos, and the cues present in the tattoos. This approach offers a structured framework to explore how perceivers use visible characteristics of tattoos to form impressions of personality traits and how those impressions align with self-reported personality measures.

The lens model provides two key components for analysis: cue validity and cue utilization. *Cue validity* refers to the extent to which the cues associated with tattoos (e.g., size, visibility, content, style) objectively correspond to the *actual* personality traits of the individual, as measured by self-report assessments. For example, extraverted people might get particularly large tattoos. *Cue utilization*, in contrast, focuses on whether a particular cue is correlated with an observer's judgment. For example, people might judge others with large tattoos as more extraverted.[4] Coefficients and significance tests were used to evaluate whether a particular cue was correlated with raters' personality judgments and if a particular tattoo cue was indicative of participants' personalities. Personality ratings were z-scored to ensure comparability between the cue utilization and cue validity estimates. By comparing these two components, the lens model assesses agreement between self-reported and perceived personalities and identifies potential mismatches or biases in cue interpretation. Analyses are presented for each Five Factor trait and separately for the photo and description conditions (see right side of Table 2).

The sample size was determined based on the resources available for recruitment. Given the number of tattoos available, we could detect effects as small as $r = 0.145$ with 80 % power at $\alpha = 0.05$.

We used the *multicon* package to estimate the lens model (Rauthmann et al., 2019; Sherman & Serfass, 2015). Regression analyses were conducted to estimate cue validity, with self-reported personality traits as outcomes and coded tattoo cues as predictors. Cue utilization was assessed through a parallel analysis using personality judgments by raters as the outcomes. The degree of correspondence between self-reported and judged personality traits was quantified using correlations between the coefficients in relation to the cues. Due to the large number of statistical tests run, for the lens model in particular, we used an adjusted alpha level of $p < 0.01$ and do not discuss associations above

[3] Based on previous lens model research (Gillath et al., 2012; Vazire et al., 2008), we decided to focus exclusively on *objectively measurable characteristics* of the tattoos, such that the presence or absence could be readily ascertained. We did collect a broader array of information about tattoos, including more subjective judgments and perceptions of the tattoos provided by raters (e.g., how assertive or mean the tattoo was, if it was perceived to be activism-related, and whether the person's tattoo description reflected self-love and authenticity). We decided to not model these cues for a few reasons.First, given that some of these tattoo evaluations overlap with personality traits, raters would be judging people and tattoos on overlapping content and even the *same item* in some circumstances, like when rating a tattoo as assertive and a person as assertive. Second, the cues included in our analyses are ones that could be reasonably discerned by most observers (which might not be the case for a more obscure tattoo that features an advocacy organization). As a result, more subjective or higher-order/abstract evaluations of the tattoos would not be as appropriate as the ones selected for generalizability concerns.

[4] Worth noting, in most lens model studies, researchers will use the phrase "cue utilization" with the assumption that people are formally using the cues to make a judgment. Of course, with correlational methods, and in the absence of formally asking observers if they are using a cue (if they are able to consciously ascertain this), it can be difficult to know whether cues are actually causing observer judgments. In our study, we correlated the presence of a cue with observer personality judgments but ultimately, we cannot make strong causal claims about how the various cues led to observer judgments.

this threshold; however, the supplementary materials have the full reporting of *p*-values.

4. Results

4.1. Tattoo Descriptives

Most tattoos were somewhat visible (52.9 %), followed by very visible (29.4 %) and not visible (17.6 %); visibility largely did not moderate any of the effects below. Most tattoos were black/gray (65.5 %) and color (34.5 %; note, participants provided this description, so it is slightly different than the raters' evaluation that 29.8 % of the tattoos had color). The most common place on the body for the tattoo was a person's arm (39.1 %), side of the body (13.8 %), wrists (11.5 %), legs or hip (10.3 %), back (9.2 %), shoulders (6.9 %), ankles (4.6 %), and chests/sternum (4.6 %). Most (87 %) said their tattoo had a special meaning. Most people's friends (96.6 %) and parents (92.8 %) knew the participant had this tattoo.

4.2. Observer consensus and accuracy

Observers (i.e., raters) assessed participants' personalities based on either (a) a photo of the tattoo (photo condition) or (b) a photo of the tattoo with an accompanying description from the participant (description condition). Because multiple raters rated overlapping sets of tattoos, consensus was assessed by computing an intra-class correlation for each personality trait (and for the two sets of judgments). The results of this analysis can be found in Table 1. Consensus was modest, although comparable to other lens model studies (e.g., Gosling et al., 2002). Specifically, consensus was largest for agreeableness and lowest for neuroticism or conscientiousness, depending on the criteria being judged (i.e., photo v. description conditions). For comparison, the consensus ratings for people rating other people (not rooms or other cues) also range a bit from around $r \sim 0.30$ (for long-term acquaintances) and $r \sim 0.10$ (for zero-acquaintance, although consensus is sometimes larger for some traits, like extraversion)(Connelly & Ones, 2010; Kenny et al., 1994). To formally compare the magnitude of the ICCs across the two conditions, we examined whether their 95 % confidence intervals overlapped. Although some Big Five traits ostensibly differed across the conditions, only consensus for neuroticism differed between the two conditions, such that being provided with a written description was associated with higher consensus for neuroticism compared to only evaluating the photo.

Following previous research, to assess the accuracy of personality judgments, we correlated aggregated personality judgments across raters (i.e., a more reliable measure of judgment independent of raters' idiosyncrasies) with self-reports of personality traits. These results are also reported in Table 1. Raters were most accurate with respect to openness to experience, providing some preliminary evidence that judgments based on tattoos with respect to openness might be more accurate. Some small degree of accuracy was also found for agreeableness and extraversion. Self- and observer-reported personality correlations were not significant for conscientiousness and neuroticism. To formally compare the magnitude of accuracy across the two conditions, we conducted a series of r-to-z tests. Doing so revealed that, despite some correlations being ostensibly larger than others, accuracy did not significantly differ across the two conditions: agreeableness ($p = 0.27$), conscientiousness ($p = 0.68$), extraversion ($p = 0.27$), neuroticism ($p = 0.41$), and openness ($p = 0.30$).

4.3. Lens model – Photo condition

We next examined whether raters were using particular cues from people's tattoos to judge their personalities and whether those cues accurately reflected people's personalities (i.e., a lens model). The results from the lens model in which only the photos of tattoos were rated can be seen in Table 2 (i.e., the left of the two estimates in the right side of the table). As a reminder, we only discuss associations that surpass our corrected alpha level of $p < 0.01$.

For cue utilization (i.e., raters judging a person's personality based on their tattoos; see right side of Table 2), cues were indeed correlated with raters' personality judgments. Specifically, if tattoos had more life (vs. death) imagery or were comforting (vs. disturbing), the participant was rated as more agreeable. If a tattoo was of high quality or was more concrete (vs. expressionist), the participant was rated as more conscientious. If a tattoo was larger or was more traditional (vs. modern), the participant was rated as more extraverted. If the tattoo was smaller, had more death (vs. life) imagery, or was more original (vs. generic), the participant was rated as more neurotic. If a tattoo was large, did not have affiliative symbols (e.g., sports teams, school logos), or was comprised of images (vs. words), the participant was rated as more open to experience.

For cue validity (i.e., if people with certain personalities indeed have certain types of tattoos), cues rarely corresponded to people's self-reported personalities (see left side of Table 2). After applying our *p*-value correction, the lone significant association was that people with tattoos that were more wacky (vs. serious) were more open to experience.

4.4. Lens model – Description condition

The results from the model in which photos of tattoos with an accompanying description were rated can be seen in Table 2 (i.e., the right of the two estimates in the right side of the table).

For cue utilization (i.e., raters judging a person's personality based on their tattoos with an accompanying description), cues were again correlated with raters' personality judgments. Specifically, if tattoos were smaller, had more life (vs. death) imagery, or were more comforting (vs. disturbing), participants were rated as more agreeable. If tattoos were of high quality, participants were rated as more conscientious. If tattoos had more death (vs. life) imagery, participants were rated as more neurotic. Finally, if tattoos were wackier (vs. serious), participants were rated as more open to experience.

For cue validity (i.e., if people with certain personalities indeed have certain types of tattoos), the results are identical for both conditions (because that portion of the analysis was consistent across the two models).

4.4.1. Major Takeaways

In general, raters' judgments of tattoos were correlated with tattoo cues, albeit modestly. However, the cues were largely bereft of validity—they rarely corresponded to the tattoo owner's personality. The lone exception was that people with wackier (vs. serious) tattoos were rated as more open to experience. Indeed, they were more open to experience according to their self-reports.

Although there was little evidence of cue validity, another way to quantify the association between cue validity and utilization is to correlate the coefficients from both sides of the lens model (sometimes called the vector correlation or a rank-ordering of associations between the 18 validity and utilization estimates). The most robust vector correlation was for openness to experience ($r_{Photo} = 0.54$; $r_{Photo\&Description} = 0.90$), suggesting that ostensibly using cues was somewhat correlated with the validity they provide (possibly driven by the wackiness and affiliative symbol findings for openness). The correlation was more modest for conscientiousness $r_{Photo} = 0.38$; $r_{Photo\&Description} = 0.17$) and agreeableness ($r_{Photo} = 0.19$; $r_{Photo\&Description} = 0.09$). Surprisingly, the vector correlations were near-zero or negative for extraversion ($r_{Photo} = -0.30$; $r_{Photo\&Description} = -0.08$) and neuroticism ($r_{Photo} = -0.36$; $r_{Photo\&Description} = -0.05$). A negative correlation suggests that how the raters were ostensibly using cues was particularly inaccurate given their disconnect with people's self-reported personality (or that the cues or tattoos are such imperfect indicators of personality). Thus, except for

Table 1
Consensus and Accuracy of Personality Judgments Based on Tattoos.

	Photo Condition			Description Condition		
	Observer Consensus	Observer Accuracy		Observer Consensus	Observer Accuracy	
	ICC	*r*	*p*	ICC	*r*	*p*
Agreeableness	0.43 [.39, 0.48]	0.09	0.084	0.43 [.39, 0.47]	0.17	0.001
Conscientiousness	0.30 [.26, 0.34]	0.04	0.457	0.25 [.22, 0.29]	0.01	0.861
Extraversion	0.27 [.24, 0.31]	0.04	0.425	0.31 [.28, 0.35]	0.12	0.023
Neuroticism	0.19 [.16, 0.22]	−0.01	0.796	0.33 [.30, 0.38]	0.05	0.335
Openness	0.33 [.29, 0.37]	0.24	< 0.001	0.33 [.30, 0.37]	0.31	< 0.001

Note. Brackets provide the 95% confidence interval for the ICCs which were used to compare whether consensus differed between the two conditions (only neuroticism did). The accuracy correlations did not differ between the two conditions.

agreeableness and extraversion, providing a description along with a photo of the tattoo increased the correspondence between cue utilization and validity.[5]

5. Discussion

The current study applied a lens model to personality judgments based on people's tattoos. We recruited a group of tattooed people who provided self-reports of their personalities and photos of their tattoos, and a group of independent raters judged their personalities. There was some consensus in raters' personality judgments. However, observer accuracy was relatively low or not significant, except for modest accuracy for openness to experience. In the lens model, raters' personality judgments were correlated with a few (but not many) tattoo cues. Still, these cues rarely translated to what tattooed people were actually like personality-wise (with one exception for openness). The current study illustrates that people may use the content of a tattoo when judging tattooed people (not just whether they have a tattoo or not). However, their use of the content of a tattoo largely lacked validity as those cues rarely corresponded to individual differences in personality.

5.1. What people think about tattooed people

Tattoos have been a part of human history for millennia, with some anthropological evidence that people had them as long as 5300 years ago (Krutak, 2015). Despite the historical presence of tattoos and the special meanings they communicate (e.g., in Polynesian and Samoan cultures), tattoos can be controversial in modern contexts. People with tattoos are often judged as antisocial, more likely to commit crimes, and more likely to engage in risky activities; findings from studies comparing tattooed and non-tattooed people are heterogeneous and equivocal (Braithwaite et al., 2001; Carroll et al., 2002; Koch et al., 2005; Laumann & Derick, 2006; Roberts & Ryan, 2002; Swami et al., 2012; Swami et al., 2016). As previously mentioned, comparing judgments of people with and without tattoos might only partially resemble the judgments people are making. Rather, people with tattoos might be judged differently depending on what their tattoos look like. For example, someone with a cross tattoo may be judged differently than someone with a pentagram tattoo.

The current study confirmed this intuition in that tattoo cues and characteristics were associated with raters' personality judgments, albeit modestly so. This is consistent with the idea that the tattoos people get may reflect both self- and other-directed identity claims (Gosling et al., 2002), or at least observers *think* they do. On the surface, some of the cue utilization makes sense. For example, someone with a low-quality tattoo may be perceived as less conscientious as others may assume they are less concerned with identifying an excellent artist or satisficing with the quality of their tattoo. When thinking about the facets of extraversion (Schwaba et al., 2020), raters might think extraverted people have large tattoos because they are more assertive (and may be less self-conscious about their tattoos) or are more attention-seeking. Extraverts have higher surgency (and may choose more positively valenced tattoos) and tend to be more social (and maybe would be willing to display/uncover a larger tattoo, which might spur curious discussions from strangers). Given that death- and disgust-related imagery tends to increase morbid thoughts (Chopik & Edelstein, 2014; Inbar & Pizarro, 2022; Wagemans et al., 2018), it also stands to reason that raters might think people with tattoos of death might be more likely to be higher in neuroticism or lower in agreeableness (compared to those with more life imagery). It would be understandable if strangers and judges, without any individuating information, arrived at these judgments. Because people high in openness to experience are more prone to creative efforts (e.g., Kaufman et al., 2016), it also makes sense that people with abstract or absurdist tattoos might be judged as more open to experience. Many of these observations and others would predict why raters assume people with these tattoos have these personalities. However, many of these cues were inaccurate when it came to whether they reflected the tattooed person's actual personality, even though raters tended to rate their personalities in consistent ways based on the cues.

5.2. Is a tattooed Person's personality associated with particular types of Tattoos?

In the current study, we examined cue validity or whether personality was associated with the likelihood of having a particular type of tattoo. There were also reasons to expect why personality might be associated with certain tattoo cues, including many of the reasons listed above. These personality differences may be reflected through the characteristics of tattoos, such as the style or the imagery contained. After all, people's personalities can be accurately discerned from their bedrooms and offices (Gosling et al., 2002), physical appearance and clothing (Borkenau et al., 2009; Vazire et al., 2008), laptop stickers (Campbell et al., 2022), social media profiles and websites (Vazire & Gosling, 2004), and even shoes (Gillath et al., 2012). Given the often permanent nature of tattoos and the fact that a person's personality is "left behind" or broadcast in these contexts, it seemed reasonable to think that tattoo characteristics would be related to a person's personality.

Nevertheless, associations between self-reported personality and tattoo characteristics were few and far between.[6] After adjusting for

[5] The lens model (and multicon package) provides a few additional characteristics of people's judgments, including measures of saturation and linear knowledge gained and unmodeled (e.g., Rauthmann et al., 2019). These indices are provided in Supplementary Table 4.

[6] In addition to so few cues being statistically significant for both utilization and validity, many of the *p*-values for these finding are relatively close to $p = 0.05$ (12 of the 23 significant cues [52%] were $p \leq 0.005$ in Table 2, and 7 of the 19 significant cues [37%] were $p \leq 0.008$ in Table 3). This suggests that, even for most of these significant cues, the evidentiary support is such that they are weak cues of judgments and validity (Benjamin et al., 2015).

Table 2
Lens Model of Personality Judgments based on Tattoos.

Cue validity							Cue utilization									
Agr	Con	Ext	Neu	Open			Agr		Con		Ext		Neu		Open	
							Photo	Description	Photo	Description	Photo	Description	Photo	Description	Photo	Description
b	b	b	b	b	Tattoo Cues ("lens")		b	b	b	b	b	b	b	b	b	b
0.17	0.03	−0.30	0.44	0.11	Prey		0.18	0.06	0.10	0.02	0.18	−0.04	−0.15	0.11	0.01	−0.01
−0.01	−0.09	−0.01	0.08	0.16	Predatory Animal		−0.22	0.08	−0.16	0.09	−0.14	−0.04	0.24	0.11	−0.10	0.18
0.11	0.21	−0.13	0.22	−0.04	Floral		0.24	0.07	0.04	0.11	−0.07	−0.16	−0.15	0.23	0.01	0.05
0.06	0.13	0.13	0.49	0.55	Sacred Geometry		0.19	0.09	0.46	0.36	−0.07	−0.27	−0.09	−0.05	−0.17	0.22
0.27	0.12	−0.16	0.11	0.17	Color		−0.04	−0.08	−0.18	−0.09	0.15	0.09	−0.04	0.05	0.06	0.04
−0.51	0.11	0.27	−0.07	−0.78	Affiliative Symbol		0.04	0.05	0.31	0.01	0.03	−0.05	−0.02	0.47	**−0.66**	−0.63
−0.05	0.02	0.01	−0.08	0.02	Small v Large		−0.03	**−0.13**	0.02	−0.03	**0.13**	0.06	**−0.09**	−0.06	**0.09**	0.01
−0.09	−0.02	−0.03	0.07	0.04	Traditional v Modern		0.00	−0.05	−0.03	−0.06	**−0.12**	−0.05	0.06	0.04	0.05	0.08
−0.02	−0.04	−0.04	−0.04	0.04	Words v Images		0.01	−0.05	0.01	−0.03	−0.02	−0.05	0.01	0.01	**0.06**	0.01
0.03	0.09	−0.11	0.00	−0.06	Poor v High Quality		0.02	0.05	**0.19**	**0.14**	0.03	−0.02	−0.07	0.01	0.06	0.05
−0.10	0.08	0.05	0.02	0.06	Life v Death Imagery		**−0.15**	**−0.14**	−0.05	−0.11	−0.05	−0.05	**0.15**	**0.15**	−0.03	0.04
−0.02	0.05	0.06	0.00	−0.02	Concrete v Expressionist		−0.03	0.04	**−0.11**	0.00	0.01	−0.02	0.05	0.06	0.06	0.03
−0.05	0.19	−0.01	0.02	−0.15	Gloomy v Cheerful		0.13	0.04	0.00	−0.09	0.08	0.08	−0.02	0.10	0.17	0.02
0.08	−0.03	−0.03	0.04	0.06	Generic v Original		−0.08	−0.02	−0.03	−0.01	−0.05	−0.09	**0.10**	0.05	0.03	0.02
−0.03	−0.01	0.01	−0.01	−0.07	Concrete v Figurative		0.00	−0.07	0.04	−0.05	−0.03	−0.04	0.03	0.08	0.01	0.04
0.06	−0.03	0.13	0.00	0.04	Disturbing v Comforting		**0.17**	**0.26**	0.07	0.09	0.04	0.05	−0.09	−0.14	−0.09	0.04
−0.01	0.07	−0.05	0.02	−0.10	Realistic v Cartoonish		0.02	−0.03	−0.02	−0.07	0.06	0.05	−0.05	−0.05	0.04	−0.03
−0.03	−0.12	0.10	0.01	**0.25**	Serious v Wacky		0.02	0.02	−0.12	−0.06	0.06	0.07	−0.04	−0.04	0.09	**0.15**

Note. Bolded correlations are those that are significant at a $p < 0.01$. The supplementary materials has tables with exact p-values. "Photo" corresponds to the condition where judges evaluated only photos. "Description" corresponds to the condition where judges evaluated photos that were accompanied with a description of the tattoo's meaning. Agr: Agreeableness, Con: Conscientiousness, Ext: Extraversion, Neu: Neuroticism, Open: Openness.

multiple comparisons, the only remaining association was that people high in openness to experience were likelier to have what raters considered "wacky" tattoos. This cue validity was very different from cue utilization. People high in openness to experience are more likely to have non-normative interests and hobbies (Matz, 2021). Thus, they may be more likely to eschew convention in favor of diverse types of tattoos that are unlikely to signal conformity. Such wacky (v. serious) tattoos also likely communicate their abstract and divergent thinking and humor (McCrae, 1987; Schwaba & Thalmayer, 2024). This wackiness of tattoos was among the few cues associated with raters' judgments that were accurate. It accurately reflected the personality of the person with that tattoo–open people indeed had wackier tattoos, on average.

Although there were very few cues that both were correlated with raters' judgments and were valid, openness to experience was perhaps the Big Five personality trait most readily communicated through tattoos. Specifically, judges were most accurate when rating a person's openness to experience based on their tattoos. Rater consensus was also relatively high and was comparable when accompanied by a description from the participant, suggesting that openness may be a particularly unique trait in this context. Specifically, when people see a tattoo, they can somewhat accurately judge the person's openness, and people tend to agree on whether they think they are open to experience (even without more information about a tattoo). The same cannot be said for a trait like conscientiousness (for which there were few to no valid cues). Although some cues hint at why people consensually (and to some extent accurately) judge openness, one might expect more significant cues. It is worth noting that the vector correlation (i.e., if cue utilization and cue validity estimates were correlated) was particularly high for openness. This suggests that personality judgments are associated with tattoo cues and, indeed, those associations are proportional to open people's tendency to have those types of tattoos. However, the precision of any particular cue was relatively weak. In other words, people may be using a constellation of cues, each of which had a relatively small effect. Still, these cues might not have been good indicators of an open person's tattoos (beyond if it was wacky).

6. Limitations and future Directions

The current study had many strengths. We assessed objective characteristics of people's tattoos and collected self- and observer personality reports. This was one of the first studies to examine personality judgments *within* a sample of tattooed people and evaluate whether those judgments are accurate (and how accuracy arises).

Nevertheless, some limitations should be acknowledged. First, we used relatively broad tattoo cues and did not examine *why* judges were deriving personality judgments from those cues. In this manuscript, we provided some reasonable ideas as to why cues would be related to personality (e.g., that open people might be more likely to have wacky tattoos because of their humorous and abstract tendencies). Like previous research, we relied on raters with some understanding of psychology and the Big Five personality traits. Although cues were indeed associated with personality judgments, we cannot say for certain how and why people were using each particular cue (e.g., why did they so strongly think that agreeable people had comforting tattoos?). It is also possible that people's impressions of tattoos might not be guided by such conscious rules grounded in their knowledge of psychology. Instead, some judgments might be based more on general impressions of the tattoos, as with other judgments based on preferences (Zajonc, 1980). Also, some cues potentially guided judgments of multiple traits (e.g., judges thought people with death-related tattoos were both less agreeable and more neurotic), and other cues might be more closely tied to particular traits (e.g., wackiness was only related to openness). Future research should expand to include several more cues.

Second, the context of the tattoo ratings might not closely resemble judgments made in more ecologically valid settings. Specifically, ratings were made in a rational, task-based setting such that they were asked to

evaluate people with tattoos based on the Big Five personality framework in a standardized setting (i.e., shown images of the tattoos projected on a screen). Real life does not quite resemble this context, and tattoos might be partially obscured and be just one amongst several. Another limitation is that our study focused on a relatively constrained task—judging people based on their tattoos (and every participant had tattoos). In everyday life, it is more common to encounter, in most contexts, a majority of people who do not have tattoos (Schaeffer & Dinesh, 2023) or visible ones and then occasionally see someone with a visible tattoo. Thus, our study does not approximate this experience in which people judge others with and without tattoos (and among those with tattoos, the actual tattoos). Likewise, other characteristics (e.g., tattooed people's age, clothes, setting of the judgment [like an office or on public transport]) might also affect these judgments, as people might judge others more holistically (i.e., not based solely on their tattoos). Finally, the characteristics of raters might also guide judgments about people with tattoos. Although we did not collect information on the raters (e.g., if they had tattoos or their personality traits), it is reasonable to think there might be variation across raters based on these characteristics.[7]

Finally, the current study may not generalize to other populations, samples, or contexts. Although we do not expect judgments to vary dramatically based on participant characteristics, this is nevertheless possible and may be the case for rater characteristics. An important limitation of this work is that, although the use of a focused set of raters to provide personality judgments is consistent with and exceeded other lens model studies (Gillath et al., 2012; Gosling et al., 2002), future research should recruit a much larger sample of raters so that variability in perceiver tendencies and rater characteristics can be more appropriately examined.

A reasonable direction for future research would be to examine if behavior toward people with tattoos varies based on the content of those tattoos. Some tattoos are more or less objectionable depending on the context, and future research can examine how tattoo variety intersects with contexts to predict differences in outcomes among people with tattoos. People's judgments about others guide how they treat them (Back & Kenny, 2010; Kenny, 2020). However, we restricted our focus to personality judgments of people's tattoos and did not extend it to interpersonal or behavioral outcomes. This approach is common in the tattoo literature, which finds that tattooed people can be the targets of discrimination and differential treatment across a variety of settings (e.g., dating; Guéguen, 2013). For example, women with visible tattoos are less likely to be hired for supervisory positions and are offered a lower salary than peers without visible tattoos (Henle et al., 2022). Discrimination based on someone having tattoos is likely never acceptable. However, as we showed, people make different judgments about different types of tattoos (even if personality was rarely related to the types of tattoos people have). The consequences of these judgments can be the subject of future research.

[7] A helpful reviewer wondered about the relative influence of the judge's characteristics in the formation of these personality judgments. Although we did not collect judge characteristics, an alternative way to quantify their influence is through a variance decomposition approach which would yield a percentage of the judgment that is attributable to targets (which this paper is primarily about) or judges. In running such models, the variance due to the target ranged from 25% to 40%, whereas variance due to the judge ranged from 5% to 16%. Notably, for traits such as neuroticism, judge effects were relatively strong—particularly in the condition where descriptions were included (i.e., photo condition: 16% was attributable to each targets and judges; description condition: 26% was attributable to targets and 23% was attributable to judges). This suggests that perceiver biases might contribute more meaningfully to judgments of internal traits (like neuroticism). Nevertheless, it looks like most of the variance in judgments of other traits are attributable to the target (other than residual error), which is largely consistent with our framing. This information is provided in Supplementary Table 5.

7. Conclusion

Previous research has primarily focused on between-person judgments of tattooed and non-tattooed people. The current study examined whether the content of tattoos guided personality judgments and whether those judgments were accurate. Judges could glean a person's openness to experience from their tattoos (with modest accuracy), particularly if they were wacky (v. serious) tattoos. Cue validity was low, suggesting that people with different types of tattoos are relatively similar, at least concerning broad personality traits. Future research could examine other sources of judgments of people with tattoos and whether these judgments translate to differences in interpersonal interactions.

CRediT authorship contribution statement

Brooke Soulliere: Writing – review & editing, Writing – original draft, Methodology, Investigation, Formal analysis, Conceptualization. **William J. Chopik:** Writing – review & editing, Writing – original draft, Investigation, Formal analysis, Conceptualization. **Alejandro Carrillo:** Writing – review & editing, Formal analysis. **W.Keith Campbell:** Writing – review & editing. **Brandon Weiss:** Writing – review & editing, Data curation, Conceptualization. **Joshua D. Miller:** Writing – review & editing, Formal analysis, Data curation.

Funding

We did not receive any funding for this research.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.jrp.2025.104629.

Data availability

Data, syntax, and materials can be found at: https://osf.io/dtg84/

References

Back, M. D., & Kenny, D. A. (2010). The Social Relations Model: How to Understand Dyadic Processes. *Soc. Pers. Psychol. Compass, 4*(10), 855–870.
Back, M. D., Schmukle, S. C., & Egloff, B. (2011). A closer look at first sight: Social relations lens model analysis of personality and interpersonal attraction at zero acquaintance. *Eur. J. Pers., 25*(3), 225–238.
Baumeister, R. F. (1982). A self-presentational view of social phenomena. *Psychol. Bull., 91*(1), 3.
Borkenau, P., Brecke, S., Möttig, C., & Paelecke, M. (2009). Extraversion is accurately perceived after a 50-ms exposure to a face. *J. Res. Pers., 43*(4), 703–706.
Braithwaite, R., Robillard, A., Woodring, T., Stephens, T., & Arriola, K. J. (2001). Tattooing and body piercing among adolescent detainees: Relationship to alcohol and other drug use. *J. Subst. Abuse, 13*(1–2), 5–16.
Broussard, K. A., & Harton, H. C. (2018). Tattoo or taboo? Tattoo stigma and negative attitudes toward tattooed individuals. *J. Soc. Psychol., 158*(5), 521–540.
Brunswik, E. (1956/2023). *Perception and the representative design of psychological experiments*. Univ of California Press.
Campbell, J. T., Turner, I. N., & Webster, G. D. (2022). Open laptops, open minds: Consensus and accuracy in big five personality perception from laptop stickers. *J. Res. Pers., 96*, Article 104186.
Carroll, S. T., Riffenburgh, R. H., Roberts, T. A., & Myhre, E. B. (2002). Tattoos and body piercings as indicators of adolescent risk-taking behaviors. *Pediatrics, 109*(6), 1021–1027.
Chopik, W. J., & Edelstein, R. S. (2014). Death of a salesman: Webpage-based manipulations of mortality salience. *Comput. Hum. Behav., 31*, 94–99.

Connelly, B. S., & Ones, D. S. (2010). An other perspective on personality: Meta-analytic integration of observers' accuracy and predictive validity. *Psychol. Bull., 136*(6), 1092–1122.
Durkin, K., & Houghton, S. (2000). Children'and adolescents' stereotypes of tattooed people as delinquent. *Leg. Criminol. Psychol., 5*(2), 153–164.
Fernandez, S., Stöcklin, M., Terrier, L., & Kim, S. (2021). Using available signals on LinkedIn for personality assessment. *J. Res. Pers., 93*, Article 104122.
Forbes, G. B. (2001). College students with tattoos and piercings: Motives, family experiences, personality factors, and perception by others. *Psychol. Rep., 89*(3), 774–786.
Giles-Gorniak, A. N., Vandehey, M. A., & Stiles, B. L. (2016). Understanding differences in mental health history and behavioral choices in a community sample of individuals with and without body modifications. *Deviant Behav., 37*(8), 852–860.
Gillath, O., Bahns, A. J., Ge, F., & Crandall, C. S. (2012). Shoes as a source of first impressions. *J. Res. Pers., 46*(4), 423–430.
Goldberg, L. R., Johnson, J. A., Eber, H. W., Hogan, R., Ashton, M. C., Cloninger, C. R., & Gough, H. G. (2006). The international personality item pool and the future of public-domain personality measures. *J. Res. Pers., 40*(1), 84–96.
Gosling, S. D., Craik, K. H., Martin, N. R., & Pryor, M. R. (2005). The personal living space cue inventory: An analysis and evaluation. *Environ. Behav., 37*(5), 683–705.
Gosling, S. D., Ko, S. J., Mannarelli, T., & Morris, M. E. (2002). A room with a cue: Judgments of perronality based on offices and bedrooms. *J. Pers. Soc. Psychol., 82*, 379–398.
Guéguen, N. (2013). Effects of a tattoo on men's behavior and attitudes towards women: An experimental field study. *Arch. Sex. Behav., 42*, 1517–1524.
Hall, J. A., & Pennington, N. (2013). Self-monitoring, honesty, and cue use on Facebook: The relationship with user extraversion and conscientiousness. *Comput. Hum. Behav., 29*(4), 1556–1564.
Henle, C. A., Shore, T. H., Murphy, K. R., & Marshall, A. D. (2022). Visible tattoos as a source of employment discrimination among female applicants for a supervisory position. *J. Bus. Psychol., 37*, 107–125.
Hill, B. M., Ogletree, S., & McCrary, K. (2016). Body modifications in college students: Considering gender, self-esteem, body appreciation, and reasons for tattoos. *Coll. Stud. J., 50*(2), 246–252.
Inbar, Y., & Pizarro, D. A. (2022). How disgust affects social judgments. In *Advances in experimental social psychology* (Vol. 65, pp. 109–166). Elsevier.
Jackson, C. (2019). *August 29)*. IPSOS: More americans have tattoos today than seven years ago. https://www.ipsos.com/en-us/news-polls/more-americans-have-tattoos-today.
Kaufman, S. B., Quilty, L. C., Grazioplene, R. G., Hirsh, J. B., Gray, J. R., Peterson, J. B., & DeYoung, C. G. (2016). Openness to Experience and Intellect Differentially Predict Creative Achievement in the Arts and Sciences. *J. Pers., 84*(2), 248–258.
Kenny, D. A. (2020). *Interpersonal perception*. The Guilford Press.
Kenny, D. A., Albright, L., Malloy, T. E., & Kashy, D. A. (1994). Consensus in interpersonal perception: Acquaintance and the big five. *Psychol. Bull., 116*(2), 245–258.
Koch, J. R., Roberts, A. E., Armstrong, M. L., & Owen, D. C. (2005). College students, tattoos, and sexual activity. *Psychol. Rep., 97*(3), 887–890.
Krutak, L. (2015). The cultural heritage of tattooing: a brief history. In *Tattooed skin and health* (Vol. 48, pp. 1-5). Karger Publishers.
Laumann, A. E., & Derick, A. J. (2006). Tattoos and body piercings in the United States: A national data set. *J. Am. Acad. Dermatol., 55*(3), 413–421.
Maples-Keller, J. L., Williamson, R. L., Sleep, C. E., Carter, N. T., Campbell, W. K., & Miller, J. D. (2019). Using item response theory to develop a 60-item representation of the NEO PI–R using the International Personality Item Pool: Development of the IPIP–NEO–60. *J. Pers. Assess., 101*(1), 4–15.
Matz, S. C. (2021). Personal echo chambers: Openness-to-experience is linked to higher levels of psychological interest diversity in large-scale behavioral data. *J. Pers. Soc. Psychol., 121*(6), 1284.
McCrae, R. R. (1987). Creativity, divergent thinking, and openness to experience. *J. Pers. Soc. Psychol., 52*(6), 1258–1265.
Mullins-Sweatt, S. N., Jamerson, J. E., Samuel, D. B., Olson, D. R., & Widiger, T. A. (2006). Psychometric properties of an abbreviated instrument of the five-factor model. *Assessment, 13*(2), 119–137.
Nathanson, C., Paulhus, D. L., & Williams, K. M. (2006). Personality and misconduct correlates of body modification and other cultural deviance markers. *J. Res. Pers., 40*(5), 779–802.
Rauthmann, J. F., Horstmann, K. T., & Sherman, R. A. (2019). Do self-reported traits and aggregated states capture the same thing? a nomological perspective on trait-state homomorphy. *Soc. Psychol. Personal. Sci., 10*(5), 596–611.
Roberts, T. A., & Ryan, S. A. (2002). Tattooing and high-risk behavior in adolescents. *Pediatrics, 110*(6), 1058–1063.
Schaeffer, K., & Dinesh, S. (2023, August 15). 32% of Americans have a tattoo, including 22% who have more than one. *Pew Research Center*. https://www.pewresearch.org/short-reads/2023/08/15/32-of-americans-have-a-tattoo-including-22-who-have-more-than-one/.
Schwaba, T., Rhemtulla, M., Hopwood, C. J., & Bleidorn, W. (2020). A facet atlas: Visualizing networks that describe the blends, cores, and peripheries of personality structure. *PLoS One, 15*(7), Article e0236893.
Schwaba, T., & Thalmayer, A. G. (2024). *Openness/intellect: The weirdest trait in the big five world?* Manuscript submitted for publication.
Sherman, R. A., & Serfass, D. G. (2015). The comprehensive approach to analyzing multivariate constructs. *J. Res. Pers., 54*, 40–50.
Stirn, A., Hinz, A., & Brähler, E. (2006). Prevalence of tattooing and body piercing in Germany and perception of health, mental disorders, and sensation seeking among tattooed and body-pierced individuals. *J. Psychosom. Res., 60*(5), 531–534.
Sun, Y., Lu, X., Williams, M., & Thompson, W. F. (2019). Implicit violent imagery processing among fans and non-fans of music with violent themes. *R. Soc. Open Sci., 6*(3), Article 181580.
Swami, V., Pietschnig, J., Bertl, B., Nader, I. W., Stieger, S., & Voracek, M. (2012). Personality differences between tattooed and non-tattooed individuals. *Psychol. Rep., 111*(1), 97–106.
Swami, V., Tran, U. S., Kuhlmann, T., Stieger, S., Gaughan, H., & Voracek, M. (2016). More similar than different: Tattooed adults are only slightly more impulsive and willing to take risks than non-tattooed adults. *Personal. Individ. Differ., 88*, 40–44.
Tate, J. C., & Shelton, B. L. (2008). Personality correlates of tattooing and body piercing in a college sample: The kids are alright. *Personal. Individ. Differ., 45*(4), 281–285.
Tiggemann, M., & Hopkins, L. A. (2011). Tattoos and piercings: Bodily expressions of uniqueness? *Body Image, 8*(3), 245–250.
Van de Ven, N., Bogaert, A., Serlie, A., Brandt, M. J., & Denissen, J. J. (2017). Personality perception based on LinkedIn profiles. *J. Manag. Psychol., 32*(6), 418–429.
Vazire, S., & Gosling, S. D. (2004). e-Perceptions: Personality Impressions based on Personal Websites. *J. Pers. Soc. Psychol., 87*(1), 123–132.
Vazire, S., Naumann, L. P., Rentfrow, P. J., & Gosling, S. D. (2008). Portrait of a narcissist: Manifestations of narcissism in physical appearance. *J. Res. Pers., 42*(6), 1439–1447.
Wagemans, F., Brandt, M. J., & Zeelenberg, M. (2018). Disgust sensitivity is primarily associated with purity-based moral judgments. *Emotion, 18*(2), 277.
Wohlrab, S., Stahl, J., & Kappeler, P. M. (2007). Modifying the body: Motivations for getting tattooed and pierced. *Body Image, 4*(1), 87–95.
Wohlrab, S., Stahl, J., Rammsayer, T., & Kappeler, P. M. (2007). Differences in personality characteristics between body-modified and non-modified individuals: Associations with individual personality traits and their possible evolutionary implications. *European Journal of Personality: Published for the European Association of Personality Psychology, 21*(7), 931–951.
Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *Am. Psychol., 35*(2), 151.