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The Interplay between Trait Anxiety and Stigma Against Tattoos: The Indirect Effect of Humor

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Abstract: *Tattoos are becoming increasingly prevalent in recent years, with more than 20% of the population having at least one. The present study examined the effect of trait anxiety on tattoo-related stigma and the indirect effect of humor on this relationship. We used a convenience sample comprising 402 female participants aged 19 to 72 (M = 32.35, SD = 7.56). Our results suggested that higher anxiety was associated with lower humor, which was further associated with higher tattoo-related stigma. Humor had a significant indirect effect on the link between trait anxiety and tattoo-related stigma when controlling for participants' tattoo status (i.e., participants with or without a tattoo). When controlling for participants' age, the mediating effect of humor did not remain significant. We discuss the practical implications of the present results concerning potential interventions to reduce stigma against people with tattoos.*

Keywords: *tattoos; humor; stigma; state anxiety; trait anxiety.*

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Introduction

Defined in many various ways, tattoos represent a derivation from the Tahitian term "tatu", which refers to an enduring mark or figure that is fastened to the body through the insertion of pigment beneath the skin or the creation of scars (Greif et al., 1999). Tattoos were studied on various topics, including symbolism, criminal behavior, and the perception of tattooed individuals (Leff & Otovescu, 2024; Miranda, 2020). Historically, tattoos have played a significant role in indicating an individual's affiliation with specific groups, such as cultural groups, tribes, religious communities, cults, and gangs (Ćalović & Popescu, 2024; Zestcott et al., 2018). For example, tattoos might reflect a person's rank and hierarchy in a specific group (Nichols & Foster, 2005). Tattoos also express a personal story, affection, or memory about an important person (Armstrong & Roberts, 2004).

The motivations behind individuals' decisions to get tattoos have been extensively documented in numerous previous studies. These include (but are not limited to) expressing one's identity, philosophical or political ideology-related motives, celebrating or commemorating significant life events, or displaying affiliation to a specific group, culture, or subculture (Maxwell et al., 2020). However, underlying reasons might be more specific and vary considerably. For example, Maxwell et al. (2020) suggested that victims of sexual abuse might use tattoos as a method of regaining perceived control over their bodies.

When discussing the positive outcomes of having a tattoo, some studies suggested that tattoos might boost one's self-esteem (Koch et al., 2015) and display self-identity (Kertzman et al., 2019; Samyuktha et al., 2018), in addition to increased psychological well-being and self-confidence (particularly for those who covered scars, wounds, or blemishes (Mun et al., 2012; Owen et al., 2013). Moreover, tattoos may represent a coping mechanism for dealing with emotional difficulties, including grief or disease (Cohen-Louck & Iluz, 2025; Davidson & Duhig, 2016; Eschler et al., 2018).

However, research has also suggested that tattoos are associated with negative outcomes, such as antisocial behavior, alcohol consumption, drug use, and delinquency (Dukes & Stein, 2011; Guéguen, 2012; Laumann & Kluger, 2018). In the following sections, we will discuss the negative outcomes for people who choose to have a tattoo (e.g., stigma) and how specific traits such as humor or anxiety might have a significant related role.

Tattoo-related stigma

Stigma refers to an attribute associated with a person that is linked to unusual or undesirable characteristics (Henry & Caldwell, 2006). Stigma is also a social construct linked to undesirable characteristics (Goffman, 1963). Specifically, stigma is based on stereotypes related to several particularities, such as physical appearance, behavior, interests, or health (Broussard & Harton, 2018). Previous literature suggested two types of stigmas: (1) physical stigma, which is typically attributed to those with observable malformations, scars, or injuries, and (2) characterological stigma, describing the type of stigma attributed to those perceived as having deviant behaviors, such as getting tattoos (Larsen et al., 2014). We will refer to this second type of stigma, which also falls into the "controllable stigma" category (i.e., negative preconceptions toward individuals that can choose to become part of a stigmatized group (Broussard & Harton, 2018).

Although research exploring tattoo-related stigma is limited, many studies have explored some related consequences for people with tattoos (Luzier, 2023). For instance, previous studies suggested that people who face tattoo-related stigmatization for prolonged periods might experience negative psychological effects such as depressive symptoms, suicidal ideation (Koch et al., 2015), and the adoption of maladaptive coping strategies (Larsen et al., 2014), in addition to workplace discrimination (Adisa et al., 2021; French et al., 2019). However, it is important to note that low self-esteem and increased loneliness are often not a direct consequence of getting tattoos but rather a consequence of discrimination and stigma related to tattoos (Ojeda et al., 2023). Also, society generally associates tattoos with criminality, perpetrating these stigmatizing attitudes (Adisa et al., 2021; Rima et al., 2023).

Furthermore, although the number of tattooed individuals and their acceptance in society increased, the perception of tattoos has generally remained negative (Broussard & Harton, 2018). Previous research found that tattooed females might be more likely to be stigmatized than non-tattooed females (Skoda et al., 2020) or tattooed males (Molloy & Wagstaff, 2021). Additionally, tattooed men may be perceived as more dominant and aggressive (Galbarczyk & Ziombiewicz, 2017), while tattooed females may be perceived as less intelligent, less attractive, and less honest (Guéguen, 2012) compared to females without tattoos.

Anxiety, humor, and the stigma of ink

When discussing anxiety, it is important to differentiate between state and trait anxiety. State anxiety refers to psychological and physiological responses to challenging circumstances at a given time (Leal et al., 2017). State anxiety is a momentary emotional state characterized by a conscious feeling of tension and distress (Horikawa & Yagi, 2012). Conversely, trait anxiety describes an individual's tendency to manifest anxiety frequently. This construct is more stable and displays smaller fluctuations over long periods (Leal et al., 2017). The literature examining the relationship between anxiety and stigmatizing attitudes (with anxiety as a predictor, for example) is scarce, particularly concerning tattoo-related stigma. Thus, in the present study, we aimed to address this gap. We will measure trait (and not state) anxiety for the current study.

Positive psychology defines humor as an individual skill that enables people to overcome challenges, maintain positive attitudes, and develop interpersonal relationships by making jokes or adopting a lighthearted attitude toward adversities (Proyer, 2018). Humor is present in all human cultures; it is also significantly shaped by the specifics of each culture, which also determines the complex ways humor is used and perceived (Jiang et al., 2019). Humor has been previously suggested as a common coping mechanism for dealing with stressful or unpleasant situations (Fritz et al., 2017). However, it is important to note that individuals who endorse coping through humor might also be less likely to experience anxiety-inducing thoughts (Morgan et al., 2019). Similarly, Kuiper et al. (2014) suggested that individuals with a high intolerance to uncertainty reported higher generalized anxiety and lower affiliative humor. Furthermore, affiliative humor mediated the link between intolerance of uncertainty and generalized anxiety.

Previous research has suggested that humor plays a protective role against anxiety, with individuals exhibiting higher levels of humor being associated with lower anxiety (Menéndez-Aller et al., 2019). However, there is limited research on the impact of anxiety on the use of humor (i.e., whether or not preexisting anxiety might influence one's ability to use humor). However, some previous studies suggested that individuals with high maladaptive concerns (e.g., excessive concerns related to their weight) might be less likely to endorse humor or other adaptive coping mechanisms (Himmelstein et al., 2020). A limited amount of research also suggested that some particular forms of anxiety (e.g., attachment anxiety) might predict maladaptive humor (Poncy, 2017). This perspective was also endorsed by Eden et al. (2020), who reported humor-based coping as one of the significant mediators between anxiety and mental health. Additionally, individuals may

use humor as a coping mechanism to mitigate the negative effects of stigma (Mazurkiewicz et al., 2021; Roscoe, 2021), as humor can improve one's mental health in such situations (Ilic et al., 2014).

Age and tattoo status: does it count when discussing tattoo stigma?

Previous research suggested that age is a significant demographic predictor of stigmatizing attitudes. For example, older people might have more stigmatizing attitudes toward people with mental disorders than younger ones (Aromaa et al., 2011). Similarly, McLean et al. (2014) suggested that age was a significant predictor of stigmatizing attitudes toward bulimia nervosa. Their results suggested that the highest age was associated with the highest level of stigmatizing attitudes. However, only a few studies examined the link between age and tattoo-related stigma, generally suggesting that younger individuals seem to have more positive attitudes and express less stigma toward people with tattoos (Deal et al., 2010; Zestcott et al., 2018). Regarding gender, however, there seems to be no significant difference concerning tattoo-related stigma (Naudé et al., 2019; Dickson et al., 2014).

The present study

Recent statistics and visible trends indicate that the number of people opting for tattoos is increasing significantly (Borkenhagen et al., 2019). Moreover, the new teen generations are increasingly interested in having a tattoo as a form of self-expression (Krzysztof et al., 2012). Given the significant documented consequences of stigmatizing attitudes toward people having a tattoo (Ojeda et al., 2023), in the present study, we aimed to investigate how specific personality traits (i.e., anxiety and humor) might be linked to tattoo-related stigmatizing attitudes among females, to explain tattoo-related stigma (TRS) better. Furthermore, we aimed to explore these attitudes regardless of participants' tattoo status. Thus, we assumed that, when controlling the presence of a tattoo (i.e., participants with tattoos), the relationship between trait anxiety and TRS would be mediated by humor.

Methodology

Participants and procedure

Our sample consisted of 402 female participants aged 19 to 72 (M = 32.35, SD = 7.56). Among them, 68.7% (N = 276) reported having at least one tattoo. Participation was voluntary. We used a convenience sample using the snowball sampling technique. Inclusion criteria were related to age only

(higher than 18). We advertised the survey through private groups on social media platforms, such as Facebook and WhatsApp. We posted the invitation link, specifying the study's details (i.e., tattoo-related) and participation conditions (i.e., age > 18). All participants were informed that their answers would remain anonymous and confidential and that they could withdraw from the study at any point. The research protocol was developed following the ethical guidelines of the authors' university of affiliation and the 2013 Helsinki Declaration. The average time needed to complete the form was approximately 15 minutes.

Measures

We employed the forward-backward translation design, in which the scales were translated from English to Romanian (Hambleton & de Jong, 2003). The few inconsistencies between the original and the back-translated version were reconciled, resulting in the final versions of the scales we used.

Stigma Against Tattoos. We used the Martin Stigma Against Tattoos Inkscape scale (Martin & Dula, 2010) to measure people's stigma against people with tattoos. The 10 items were answered on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Example items included "People with tattoos are likelier to be irresponsible". We computed an overall score for the scale, with higher scores indicating higher stigma. Cronbach's alpha was 0.87. The scale has been previously used in various studies that confirmed its psychometric properties (e.g., Dickson et al., 2014).

State-Trait Anxiety Inventory for Adults. We used the translated Romanian version (Grigore & Maftei, 2020) of the scale developed by Spielberger et al. (1968) to measure trait anxiety (20 items, e.g., "Generally (…), I feel nervous and restless"). The items are rated on a 4-point Likert scale ranging from 1 (*not at all/ rarely*) to 4 (*very much so/ almost always*). A higher score suggested higher trait anxiety. Cronbach's alpha was $\alpha = .62$ in the present study.

Humor. Humor was assessed using the Romanian version (Iliescu et al., 2015) of the 10-item scale proposed by Goldberg et al. (2006). Example items include "I try to tease my friends out of their gloomy moods", "I try to have fun in all kinds of situations" or "I have a great sense of humor". The items were rated on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Cronbach`s Alpha was .85. Higher scores suggested a higher sense of humor.

A demographic scale assessed participants' age and whether or not they had a tattoo (i.e., tattoo status).

Results

We analyzed our data using the 26th version of the SPSS program and Hayes' (2013) Macro PROCESS. There were no missing values. First, we conducted a preliminary analysis to assess the descriptive statistics of the primary variables. Considering our sample size, the Skewness and kurtosis coefficients included values that indicated a normal distribution (Brown, 2006). Next, correlations were assessed to examine the associations between the study's primary variables and tattoo status. Results suggested that TRS was significantly associated with humor (r = -0.18, p < 0.001) and age (r = 0.16, p = 0.001). Trait anxiety was significantly associated with humor (r = -.25, p < .001) and age (r = -.13, p = .005). Point-biserial correlation results indicated that people with a tattoo tended to report lower TRS (r_{pb} = -.42, p < .001, 95 CI [.36; .47]) and higher humor (r_{pb} = .16, p = .001, 95% CI [-.25; -.07]) (see Table 1).

Table 1. Pearson and Point-biserial correlations results and Descriptive statistics for the primary variables and (N = 402)

Variable	**1**	**2**	**3**	**4**		
1. Tattoo-related Stigma	**-**					
2. Humor	-.18**	-				
3. Trait Anxiety	.09	-.25**	-			
4. Age	.16**	-.10*	-.13*	**-**		
5. Tattoo-status	-.42**	.16*	-.05	-.09		
Descriptive statistics	M	SD	Min	Max	Skewness	Kurtosis
Tattoo-related Stigma	18.26	5.61	10	37	1.15	1.10
Humor	37.47	6.13	19	50	-.17	-.12
Trait Anxiety	43.93	6.61	27	64	.15	-.50

Tattoo-status: *Yes* = 1, *No* = 0.
**p < .001; *p < .01.

Next, we investigated the potential mediating role of trait anxiety in the relationship between humor and TRS, while controlling for participants' tattoo status (i.e., those with and without tattoos). For indirect effects, 95% confidence intervals (CIs) with 5,000 bootstrapped samples were computed and tested for statistical significance. Results suggested that trait anxiety significantly affected humor, B = -0.26, SE = 0.04, 95% CI [-0.33, -0.15]. In the model that included both variables, trait anxiety was not significant, B = 0.06, SE = 0.03, 95% CI [-0.04; 0.11], but humor was, B = -0.10, SE = 0.04, 95% CI [-0.18; -0.01]. The total effect of trait anxiety on TRS was not significant, B = 0.05, SE = 0.03, 95% CI = [-0.01; 0.13], and neither was the

direct effect, 95% CI = [-0.04; 0.11]. However, the indirect effect of humor on TRS was significant, *B* = 0.02 (i.e., completely standardized effect), *SE* = 0.01, 95% CI [0.001; 0.05] (see Fig. 1).

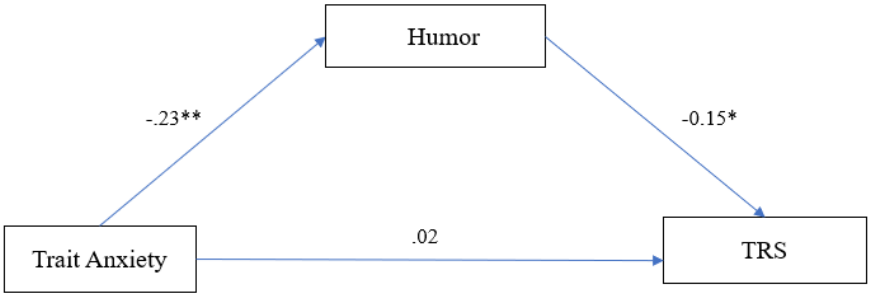


Fig.1. The mediating effect of humor on the link between trait anxiety and TRS (controlling for tattoo-status). Values represent standardized coefficients. $^{**}p < .001$; $^{*}p < .05$.
TRS = Tattoo-related stigma

However, when we repeated the same analysis, including age as a second covariate variable, the indirect effect did not remain significant, *B* = 0.02 (i.e., completely standardized effect), *SE* = .01, 95% CI [-.003; 0.05]

Discussion

The present study examined the link between trait anxiety and stigmatizing attitudes against people with tattoos and the indirect effect of humor in this relationship. Our results suggested that trait anxiety had no direct effect on TRS. To our current knowledge, there is very limited research on the direct relationship between anxiety and stigmatizing attitudes (i.e., stigmatizing attitudes toward any group, not necessarily referring to TRS).

In the present study, the effect of trait anxiety on humor was negative and significant. These results suggest that individuals with high trait anxiety are less likely to use humor since they may adopt a more negative view of events that unfold around them, thus being less prone to adopting a lighthearted attitude. Furthermore, humor had a negative effect on TRS. These results align with previous research that suggested that adaptive humor negatively predicts stigma (Ilic et al., 2014). The indirect effect of trait anxiety toward TRS through humor was also significant. Higher anxiety was associated with lower humor, which in turn was associated with lower TRS. These results may suggest that anxious individuals are less likely to employ humor and, in turn, are more likely to express TRS. To our knowledge, this is the first study to observe this relationship.

However, when we included the participants' age as a covariate (since age was significantly associated with all the main variables), the indirect effect of trait anxiety on TRS through humor was no longer significant. These results suggested that this relationship might only be relevant in specific age ranges and groups, and our sample was heterogeneous. Previous research suggests that adults of higher age may be more prone to adopting stigmatizing attitudes (McLean et al., 2014). Similarly, adults of different ages may have varying attitudes towards tattoos, influenced by various factors (e.g., visibility) (Sagoe et al., 2017). Nevertheless, further research is needed to test the validity of these claims and better understand the role of demographic factors concerning TRS.

Several limitations need to be addressed for the present study. First, one of the important limitations of this study is the use of convenience and snowball sampling via social media platforms. This recruitment method carries a risk of self-selection bias, as individuals who choose to participate may overrepresent individuals with tattoos or those who hold particularly strong views, potentially limiting the generalizability of the present findings to the broader population. Second, we employed a cross-sectional design, which did not allow us to observe the long-term relationship between the variables or establish causal relationships. Future longitudinal studies are needed to counter this limitation. Third, we used self-reported scales, which increased the risk of social desirability bias. Future studies may use more objective operationalizations (i.e., experimental designs) to address this limitation. Next, the trait anxiety measure demonstrated relatively low reliability in this sample; to address the low reliability of the trait anxiety measure, future research should consider using alternative scales with stronger psychometric properties or incorporating multi-method assessments. Additionally, future studies should explore in more depth how humor mediates the examined relations, e.g., whether it reduces perceived threat or serves another psychological function in the context of stigma. Next, although the study focused on trait anxiety for conceptual clarity, it did not account for potential interactions with state anxiety. Given the situational nature of stigma experiences, future research may consider the role of both trait and state anxiety in shaping responses to stigmatized identities. Finally, our study did not consider the specifics of the tattoos (e.g., size, images being depicted, and location). Previous research has suggested various patterns in the acceptance and decision to get a tattoo. For example, Sagoe et al. (2017) reported that adolescents and young adults were more likely to get tattoos in visible areas, while participants in their 40s were more likely to get tattoos that could be easily covered.

However, despite these limitations, the implications of the present study are twofold. First, they add to the scarce literature concerning the link between anxiety, humor, and stigmatizing attitudes, particularly regarding TRS. Second, from a more practical perspective, the present findings may help inform effective intervention strategies to combat TRS. For instance, our results suggested that people who use adaptive humor might be less likely to develop stigma toward outgroup members. However, anxiety might reduce the probability that they would endorse humor in the first place, which might make them more prone to developing stigmatizing attitudes towards outgroups. Thus, to help individuals reduce their stigmatizing attitudes towards outgroups, the reduction of their anxiety might be an important first step. Anxious individuals might perceive outgroup members (in this case, tattooed individuals) as untrustworthy or potentially harmful and therefore stay away from them as an excessive measure of precaution. However, by reducing their levels of anxiety, professionals might enable them to develop more adaptive coping mechanisms and view outgroups, therefore encouraging them to perceive tattooed individuals more positively. Nevertheless, further research is necessary to validate these claims.

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