



The funnier, the happier? The interplay between interpersonal humor styles on mental health via gratitude

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Abstract

According to Martin's taxonomy (2003), affiliative and aggressive humor are the two humor styles with an interpersonal focus. Many studies have demonstrated the mental health benefits of affiliative humor, whereas less consensus has been reached on aggressive humor. Focusing on the question "when and why aggressive humor would be related to mental health", the current study proposed that the association of aggressive humor and mental health could be mediated by gratitude and moderated by affiliative humor. The proposals were tested in a large multi-university student sample (N=4775, $M_{age} = 20.37$) in China, showing that trait gratitude mediated the negative relationship between aggressive humor and subjective happiness and the positive relationship between aggressive humor and depression. More importantly, this effect was less substantial for those who endorse a greater (vs. lesser) affiliative humor style. Implications of gratitude as a potential mechanism in explaining the mental health correlates of aggressive humor and the interplay of interpersonal humor styles are discussed.

Keywords Affiliative humor · Aggressive humor · Gratitude · Depression · Happiness

Introduction

In capturing day-to-day functions of humor, Martin and colleagues (2003) developed a conceptual framework that differentiates humor styles depending on (a) an intrapersonal or an interpersonal focus and (b) a benign or a malicious intention, based on which four humor styles have been identified, namely, self-enhancing, self-defeating, affiliative and aggressive. Of the four styles, affiliative and aggressive humor are the two humor styles with an interpersonal focus. Affiliative humor involves humor aiming to promote one's

relationship with others. Whereas aggressive humor, characterized by sarcasm, teasing, and ridicule of the recipient, aims at enhancing oneself at the expense of others (de Konig & Weiss 2002; Martin et al., 2003). Many studies have demonstrated the mental health benefits of affiliative humor (e.g., Martin et al., 2003; Stockton et al., 2016), whereas less consensus has been reached on aggressive humor.

Due to its alienating nature, aggressive humor is expected to impair interpersonal relationships (Martin et al., 2003; Schneider et al., 2018). For example, individuals who use more aggressive humor typically report lower relationship satisfaction and a lack of interpersonal competence (Stockton et al., 2016; Yip & Martin, 2006), especially in managing interpersonal conflict (Moran & McCosker, 2012). Furthermore, aggressive humor is positively associated with the dark personalities, such as hostility, neuroticism, machiavellianism, psychopathy, and narcissism (Martin et al., 2012; Veselka et al., 2010), and externalizing problems, such as hostility, anger, and bullying (Dozois et al., 2013), suggesting a manipulative lifestyle relating to poor relationship quality (Ermer et al., 2012; Love & Holder, 2014). Therefore, aggressive humor is expected to be related to poorer mental health (DeNeve & Cooper, 1998; Love & Holder, 2014; Lyubomirsky et al., 2005).

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The empirical findings, however, are somewhat inconsistent. In some studies, aggressive humor was positively related to depression (e.g., Kfrerer et al., 2019; Tucker, 2013a) and experienced hopelessness during Covid (Olah & Ford, 2021), whereas in others, the association turned out to be nonsignificant (e.g., Gardner et al., 2021; Kuiper & McHale, 2009; Maiolino & Kuiper, 2014; Martin et al., 2012; Yue et al., 2014). In an examination of the relationship between daily humor use and well-being measures, it was found to be unrelated to the negatively valent measures such as rumination and positively valent measures such as self-esteem (Nezlek et al., 2021). It was even shown to be positively associated with life satisfaction (Maiolino & Kuiper, 2014). These inconsistencies call for more investigation on the mechanisms and boundary conditions of how aggressive humor relates to mental health. Although some scholars suggest that aggressive humor might be linked to one's mental health through affective feelings reinforced by interpersonal experiences (Stockton et al., 2016), few have been directly tested. It thus appears to be an essential research question regarding how aggressive humor relates to mental health through one's affective experiences. One such case is gratitude.

Gratitude and Mental Health

Individuals differ regarding the frequency, intensity, span and density of grateful affective experiences (McCullough et al., 2002). This difference is captured by the conceptualization of the affective trait, gratitude. At the core of gratitude is an attribution style that gives credits of one's benefits received to both human and nonhuman benefactors (McCullough et al., 2002) and a world view that the world is a good place (Stahlmann & Ruch, 2022), both of which contributes to more frequent positive affective experiences and better well-being. In addition, gratitude commonly triggers coping strategies such as seeking out or using social support, actively coping with problems, and positively reinterpreting events (Wood et al., 2010). It also serves to build and sustain social relationships (Algoe, 2008), which could be used as a resource for surviving stressful times (Fredrickson, 1998, 2001). It therefore serves a critical psychological source of many major psychological and interpersonal benefits (Jiang et al., 2016).

Indeed, positive mental health outcomes of gratitude have been documented in many studies (see Jans-Beken et al. (2020) for a review). In two longitudinal studies, Wood et al. (2008) found that trait gratitude protected people from stress and depression, independent of the big five personalities. Gratitude intervention/practices were found to moderately reduce levels of depression immediately (Cheng et al., 2015; O'Connell et al., 2017; Salces-Cubero et al., 2019),

1-month (Salces-Cubero et al., 2019), and 3-month after the intervention (Cheng et al., 2015; O'Connell et al., 2017). On the other hand, gratitude interventions have been shown to increase happiness in healthy adult women (O'Leary & Dockray, 2015), elderlies (Salces-Cubero et al., 2019), or respondents with back pains (Baxter et al., 2012).

Humor Being Mutually Beneficial

Humor stems from violations of what is socially or culturally acceptable (Meyer, 2000). People get the punch line from being surprised by a unexpected perspective, such as a ticklish social situation. From an evolutionary perspective, Weisfeld (1993) argues that the novel perspective about the "ticklish" social situations is informational and bears adaptive value, because acquiring such information could help people resolve similar problems encountered in the future and avoid committing similar social gaffes, hence enhancing one's fitness. If the audience appreciates the informational content, they might indicate their gratitude through laughter and appraise, which suggests further intention to reciprocate. This feedback on the humorist's performance provides valuable information regarding what's been done well and areas of improvement, which could also be beneficial (Weisfeld, 2006) and would further elicit gratitude in the humorist and motivate both parties to build and maintain the relationship (Algoe et al., 2008). Support for this assertion mainly comes from research in the workplace contexts, where receiving performance feedback is considered an affect eliciting event (Smither et al., 2005; Young et al., 2017) and the affect of gratitude is largely embedded (Fehr et al., 2017; Sun et al., 2019). In a recent study on two-wave data, Jiang and Qu (2022) found that the leader's small praise triggered employee gratitude, which involves employees' interpretation of the positive feedback, as an altruistic and intentional benefit to them, and thus prohibited further withdraw behavior from the employees.

Humor as a social communication tactic does not always lead to positive feedback. Depending on the audience's relational appraisal regarding the motive, appropriateness and offensiveness of the humor act (Cooper, 2008), it might either trigger favorable feedback such as undivided attention, verbal appraise, laughter, and/or increased mentioning the jokes to other people, or unfavorable ones including removal of attention, undesirable comment or label. In this sense, an aggressive humor act would be less likely to receive positive feedback than an affiliative one, given its disparaging nature and malicious intention, with the humorist feeling like an undiscovered genius, and hence being derisive and maliciously critical (Ruch & Heintz 2016). Indeed, affiliative humor, instead of aggressive humor was found to be reliably related to a perception of "good sense

of humor” and socially attractiveness (Cann & Matson, 2014). Aggressive humor on the other hand, triggered more ungrateful responses from the recipient, including derogative payback (Bollmer et al., 2003; Ibarra-Rovillard & Kuiper, 2011), lower satisfaction with social relationships (Campbell et al., 2008), and lower willingness to engage in future interactions (Kuiper et al., 2010). It is therefore reasonable to expect that individuals endorsing aggressive humor would be less likely to experience gratitude than individuals endorsing affiliative humor, given the lack of positive feedback/presence of negative feedback reinforce the humorist’s prior negative beliefs about the world and elicit dysfunctional coping strategies, such as denial and failing to change perspectives (Kuiper & Harris, 2009), both of which work against gratitude. To support, this association has been confirmed in a handful of studies (Maiolino & Kuiper, 2014, in the form of ridicule and teasing; Ruch & Heintz 2016, in the form of mockery).

Moderating Role of Affiliative Humor

Conversely, we expected that affiliative humor would be positively related to the experience of gratitude. As affiliative humor refers to using humor to enhance relationships with others in a benevolent way (Martin et al., 2003) and aims at “laughing with others,” it may create more meaningful interpersonal encounters and experiences that deserve appreciation. In addition, the emphasis on facilitating interpersonal relationships by gratitude (Algoe, 2012) aligns with the motivation of affiliative humor. It hence should be more prominent among people who endorse greater affiliative humor. Indeed, empirical research suggests that affiliative humor is positively associated with trait gratitude (Stockton et al., 2016), interpersonal competence (Martin, 2007), and happiness in life (Ford et al., 2014, 2016).

We expected that affiliative humor could serve as a moderator. This prediction is based on literature examining humor clusters, through which the complexities of humor types are acknowledged (Everitt et al., 2011; Evans & Steptoe-Warren, 2018). In his pioneer work, Galloway (2010) identified four humor types in an Australian sample that categorized people into four groups: those who use all humor styles more than average, less than average, predominantly positive humor styles, and mostly negative ones. Leist and Müller (2013) further tested the relationship of humor clusters with mental health outcomes. They found humor clusters explained more variance than singular humor styles in predicting mental health outcomes such as self-esteem, tenacious goal pursuit, and life satisfaction. Therefore, it is suggested that humor styles per se cannot be considered detrimental or beneficial, as they might impact in combination to express different underlying motivational strivings.

The negative effect of aggressive humor has been shown to be offset when combined with affiliative humor. In a longitudinal study focusing on adolescents, interpersonal humorists (i.e., individuals with affiliative and aggressive humor styles) showed similar levels of depression, self-esteem, and loneliness as participants who endorse benevolent humor styles (e.g., affiliative humor; Fox et al., 2016). Similar results have been obtained in adults. In a sample of UK employees, it was found that compared with endorsing aggressive humor exclusively, endorsing benevolent humor styles alongside aggressive humor was related to less damaging organizational outcomes regarding communication, creativity, leader power, and job satisfaction (Evans & Steptoe-Warren, 2018).

Current Study

The current study investigated how interpersonal humor styles of aggressive and affiliative humor may jointly discourage/gratitude, endanger/protect individuals from depression, and decrease/increase one’s happiness. It was predicted that there would be a negative relationship between aggressive humor and gratitude and a positive relationship between affiliative humor and gratitude. Building on these relationships, aggressive humor was also expected to be indirectly related to increased depression and decreased subjective happiness through decreased gratitude. This effect might hold different strengths for individuals who endorse affiliative humor to different extents. Specifically, the indirect effect of aggressive humor would be stronger for people who endorse less (vs. more) affiliative humor.

Method

Participants and Procedure

In 2017–2018, 4775 undergraduates (2791 females, 1971 males, thirteen did not indicate their sex) from 26 mainland Chinese universities took the survey as a part of their course requirement in Psychology. The universities cover the north-eastern, north-western, south-western, southern, eastern, and central areas of China. The number of participants in each university ranges from 73 to 244. The mean age of participants was 20.37 years ($SD = 1.41$). A convenient sampling technique was used. Participants read and signed the informed consent form when they arrived at the testing site. If they agreed to participate, they then proceeded to a questionnaire that comprised measures of their demographics, interpersonal humor styles, depressive symptoms, and subjective happiness. They were thanked and debriefed upon completion.

Table 1 Descriptive Statistics and Correlations (N=4775)

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Aggressive Humor	3.00	0.86	-				
2. Affiliative Humor	4.83	1.02	-0.249**	-			
3. Gratitude	5.39	0.93	-0.368**	0.338**	-		
4. Subjective Happiness	5.00	1.12	-0.220**	0.407**	0.399**	-	
5. Depression	2.02	0.35	0.344**	-0.311**	-0.419**	-0.443**	-

Note: * $p < .05$. ** $p < .01$

Table 2 The Moderation Effects of Affiliative Humor on Aggressive humor-Happiness/Depression via Gratitude

	Gratitude			Subjective Happiness			Depression		
	Coefficient	SE	95% CI	Coefficient	SE	95% CI	Coefficient	SE	95% CI
Constant	5.42	0.01	[5.39, 5.44]	2.61	0.09	[2.43, 2.80]	2.71	0.03	[2.66, 2.77]
AGH	-0.33***	0.01	[-0.36, -0.30]	-0.11***	0.02	[-0.15, -0.08]	0.09***	0.01	[0.08, 0.10]
AFH	0.25***	0.01	[0.23, 0.27]						
AGH*AFH	0.09***	0.01	[0.06, 0.11]						
Gratitude				0.44***	0.02	[0.41, 0.48]	-0.13***	0.01	[-0.14, -0.12]
<i>F</i>	409.35***			461.87***			652.53***		
<i>R</i> ²	0.21***			0.16***			0.22***		

Note: *: $p < .05$; **: $p < .01$; ***: $p < .001$. AGH=Aggressive humor, AFH=Affiliative humor

Measures

Interpersonal Humor styles. The Chinese version of interpersonal humor subscales (Chen & Martin, 2007; Chen et al., 2013) of Martin's Humor Style Questionnaire (HSQ; Martin et al., 2003) was used to measure affiliative humor (8 items; e.g., "I enjoy making people laugh") and aggressive humor (8 items; e.g., "If someone has a shortcoming, I will often tease him/her about it"). Participants were asked to rate the items on a 7-point Likert scale ranging from 1 = totally disagree to 7 = totally agree. The Cronbach's α s for affiliative and aggressive humor were 0.77 and 0.63, respectively.

Trait gratitude. The Chinese version of the 6-item grateful disposition scale (McCullough et al., 2002), translated and validated by Jiang et al. (2016), was used. Participants responded on a 7-point Likert scale, ranging from 1 = *totally disagree* to 7 = *totally agree* (e.g., "If I had to list everything that I feel grateful for, it would be a very long list"). The internal consistency was 0.66.

Subjective happiness. Subjective happiness was measured with Lyubomirsky and Lepper's (1999) 4-item scale (e.g., "In general, I consider myself," choosing from 1 = not very happy to 7 = very happy). Its Chinese version has been widely used in Chinese samples and has shown good reliability (e.g., Yue et al., 2014). The internal consistency was 0.75 for the current sample.

Depression. Depression was measured with a Chinese version of the 20-item Self-Rating Depression Scale (SDS; Zung et al., 1965), translated and validated by Wang et al. (1999). Participants were asked to rate themselves on 20 depressive symptoms (e.g., "I feel down-hearted and blue")

for the past week on a 4-point scale ranging from 1 = "a little of the time" to 4 = "most of the time". The internal consistency was 0.75.

Results

The data and R scripts for power analysis can be found at https://osf.io/e4wuc/?view_only=1093234d829f427da63b40d785e251ac. Descriptive statistics are presented in Table 1. As predicted, aggressive humor was negatively correlated with gratitude and subjective happiness and positively correlated with depression. Affiliative humor was positively correlated with gratitude and subjective happiness and negatively correlated with depression. Aggressive humor and affiliative humor were negatively correlated.

We estimated the mediated effect of aggressive humor on subjective happiness with a 95% confidence interval of the indirect effect using the PROCESS macro model 4 (Hayes, 2013). Our analyses showed that the indirect effect was -0.18 (SE = 0.02) and significant (95% CI [-0.20, -0.16]). The moderated role of affiliative humor was tested using the model 7 (Hayes, 2013). Aggressive humor was negatively associated with gratitude ($B = -0.33$, SE = 0.01, $p < .001$, 95% CI [-0.36, -0.30]) and subjective happiness ($B = -0.11$, SE = 0.02, $p < .001$, 95% CI [-0.15, -0.08]), whereas gratitude was positively associated with subjective happiness ($B = 0.44$, SE = 0.02, $p < .001$, 95% CI [0.41, 0.48]). Affiliative humor was found to moderate the effect of aggressive humor on trait gratitude ($B = 0.09$, SE = 0.01, $p < .001$, 95% CI [0.06, 0.11]). The index of moderated mediation was 0.04 (SE = 0.01, 95% CI [0.02, 0.05]), suggesting the indirect

Fig. 1 Conditional indirect effects of aggressive humor on attitude via trait gratitude, at high (+ 1 SD) and low (-1 SD) affiliative humor. The coefficients are unstandardised. *** $p < .001$

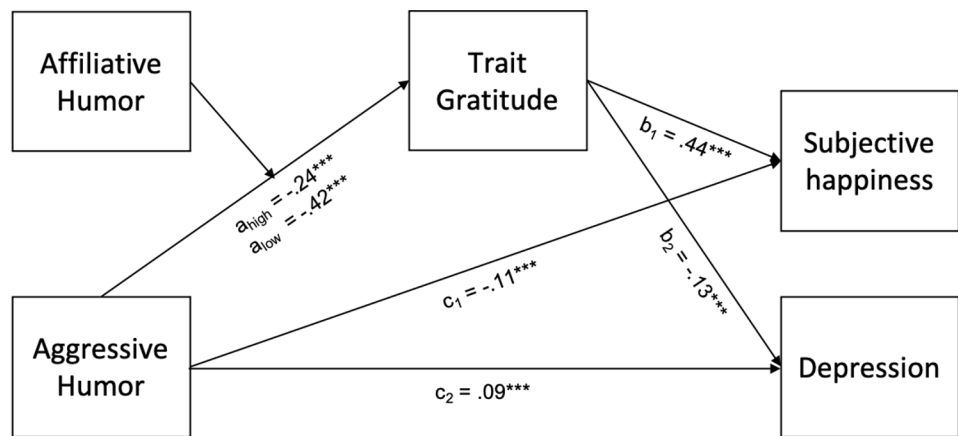
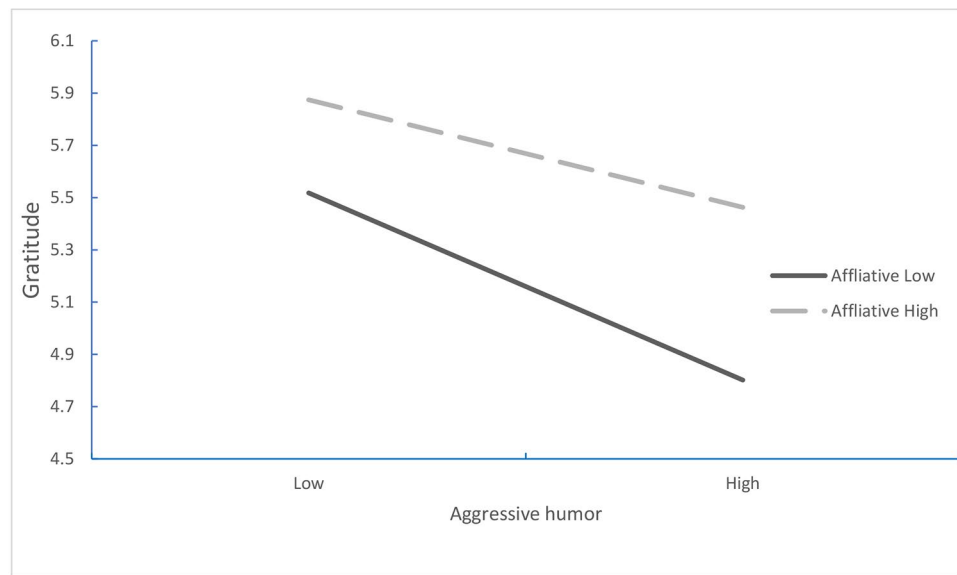


Fig. 2 The Moderation Effects of Affiliative Humor on the Relationship Between Aggressive Humor and Gratitude



effect to be different in different conditions. To be specific, the conditional indirect effect was stronger in those low in affiliative humor (1 SD below the mean; effect = -0.18 , SE = 0.01 , 95% CI [$-0.21, -0.16$]) than in those high in affiliative humor (1 SD above the mean, effect = -0.11 , SE = 0.01 , 95% CI [$-0.13, -0.09$]).

We estimated the mediated effect of aggressive humor on depression with a 95% confidence interval of the indirect effect using the PROCESS macro model 4 (Hayes, 2013) showed that the indirect effect was 0.05 (SE = 0.003) and significant (95%CI [$0.04, 0.06$]). The moderated role of affiliative humor was tested using the PROCESS macro model 7 (Hayes, 2013). Aggressive humor was positively associated with depression ($B = 0.09$, SE = 0.01 , $p < .001$, 95% CI [$0.08, 0.10$]), while gratitude was negatively associated with depression ($B = -0.13$, SE = 0.01 , $p < .001$, 95% CI [$-0.14, -0.12$]). Affiliative humor was found to moderate the effect of aggressive humor on trait gratitude ($B = 0.09$, SE = 0.01 , $p < .001$, 95% CI [$0.06, 0.11$]). The index of

moderated mediation was -0.01 (SE = 0.002 , 95% CI [$-0.02, -0.01$]), suggesting the indirect effect to be different in different conditions. Specifically, the conditional indirect effect was stronger in those low in affiliative humor (1 SD below the mean; effect = 0.05 , SE = 0.004 , 95% CI [$0.05, 0.06$]) than those high in affiliative humor (1 SD above the mean, effect = 0.03 , SE = 0.003 , 95% CI [$0.03, 0.04$]). Table 2; Fig. 1 display the results in detail.

Following Cohen et al. (2003), we plotted the moderation effect at conditional values of affiliative humor (± 1 SD). As Fig. 2 shows, compared with low affiliative humor ($b = -0.42$, se = 0.02 , $p < .001$, 95% CI [$-0.46, -0.38$]), high affiliative humor greatly attenuated the negative effect of aggressive humor on gratitude ($b = -0.24$, se = 0.02 , $p < .001$, 95% CI [$-0.28, -0.20$]).

We also ran power analyses to examine the power the design provided. We used the WebPower (Zhang et al., 2018) package in R to run simulations to estimate the power. Results showed that the present design provided sufficient

power to detect the mediation effect from aggressive humor to subjective happiness (100%) and depression (100%). The design also provided sufficient power to detect the moderated mediation model for subjective happiness (100%) and depression (90%). In short, the study demonstrated sufficient power to detect the proposed effects.

Discussion

With a large university student sample, the current study investigated the relationship between interpersonal humor styles of aggressive and affiliative humor, the experience of gratitude, and subjective happiness and depression. As expected, we found that aggressive humor was related to decreased subjective happiness and increased depression through decreased gratitude. This indirect effect was weaker for individuals who endorsed greater (vs. less) affiliative humor. This was the first study to investigate when and why aggressive humor would be related to mental health and how interpersonal humor styles could be jointly related to mental health through affective experiences of gratitude. These results coincide with previous findings that suggest a positive association between aggressive humor and depression (Kfrerer et al., 2019; Tucker, 2013a) and that of Kennison (2022) in an US student sample, showing a weak inverse relationship between aggressive humor and happiness measured by the Oxford happiness questionnaire (Hills & Argyle, 2002).

The current study contributes to the gratitude and the humor literature, as well as the organizational behavior literature, by highlighting the mutually beneficial role of humor in social communication from an evolutionary perspective (Weisfeld, 1993; 2006) and the key role gratitude might play for both parties in the humorist-audience dyad from a relational process perspective (Cooper, 2008). On the one hand, humor could be beneficial to the audience as it provides novel and useful information regarding social situations (e.g., group norms), which could be garnered by the leader to offer benign or corrective suggestions. On the other hand, the feedback from the audience might provide further information regarding one's humor performance (e.g., how the audience interprets the humorist's intention, to what extent it is appropriate or offensive, etc.). Both information are beneficial and will fuel into the affective experience of gratitude in both parties, which motivates them to build and maintain the relationship and reciprocate each other in the long run. In this respect, affiliative humor shows more potential in building and maintaining a positive relationship. For example, aggressive humor in leaders has been found to lead to poorer leader-member relationship quality (Liu et al., 2020), and less constructive voice or work engagement

from the employees than affiliative humor (Carnevale et al., 2022; Liu et al., 2020). Our findings further suggest that this might happen via the affective experience of gratitude.

The current findings indicated that the association of aggressive humor and mental health via gratitude were weaker in individuals endorsing higher (vs. lower) affiliative humor. These results echo past humor cluster studies highlighting the predominance of more than one humor style in an individual (e.g., Fox et al., 2016; Leist & Müller, 2013; Sirigatti et al., 2016) as well as the buffering role of affiliative humor (Fox et al., 2016). The current study clarifies the paradox "why aggressive humor is not consistently related to poorer interpersonal outcomes or mental health?" by highlighting the moderating role of affiliative humor. That is, people with a high affiliative humor style tend to have higher interpersonal competence (Moran & McCosker, 2012), with which one could either better read the room and reserve aggressive humor for a receptive audience (Fritz, 2020; Fritz et al., 2017; Kuiper, 2012; Yip & Martin, 2006) or quickly ease possible tensions caused by aggressive humor (Fox et al., 2016). In contrast, among individuals with low affiliative humor, the use of aggressive humor might lack discernment, disparage and repel the audiences, and thus lead to negative affective responses (e.g., unappreciation).

One has to admit, however, that aggressive humor might not always be related to negative outcomes, and the specific interpersonal motivation of a humor act may be an important moderating variable. Some aggressive humor attempts might not necessarily alienate others or impair essential relationships. For example, in Martin's taxonomy, "friendly teasing" and "playfully poking fun at others" are both classified as aggressive humor due to their disparaging nature; however, they are commonly used in enhancing group cohesiveness (Martin et al., 2003). In fact, mockery and sarcasm that are targeting submissive group members might shame individuals and groups into improvement (Ruch & Heintz, 2016). Ruch and Heintz further term them as corrective humor which is distinct from aggressive humor, doing good deeds through a vicious means. Research look into humor and comic styles further complicates the picture (Heintz & Ruch, 2019). For example, a high overlap was found for affiliative humor, self-enhancing humor and aggressive humor with comic styles, but not self-defeating humor. In addition, many comic styles are left unexplained, suggesting a more complex picture beyond the explanatory power of Martin's humor style model. The proposal of corrective humor even questions the assumption that the motivation of a humor act could be either intentionally benign or malicious (Cao et al., 2023; Ruch & Heintz, 2016). Therefore, it is worth investigating the complexity of aggressive humor

based on distinct interpersonal goals and revisiting the dimensionalities of the whole construct.

Limitations and Future Directions

The current study suffers from several limitations. First, the cross-sectional nature of the first study restricts us from making causal inferences and limits the implications of the findings. Relatedly, although our process model supported moderated mediation effects, other models (structures) may also capture the data, and more research is needed to pin down actual causality, mechanisms, and outcomes. Moreover, although gratitude serves as an important mediator for the negative effect of aggressive humor on mental health, it was only partly mediating the effect. The direct effect of aggressive humor remains significant, suggesting other possible routes through which this effect takes place. A few potential candidates might include lowered relationship satisfaction (Yip & Martin, 2006), reciprocated caring, increased social disconnectedness, and burdensomeness to others (Hampes, 2016; Tucker et al., 2013b). In addition, such an effect might be mediated by feelings of pride/deservingness (Weisfeld, 1980, 1993). Specifically, making others laugh could reward the humorist (Papousek et al., 2017), hence boosting the sense of pride for having amused the audience. Future research could explore other potential mechanisms and test their roles in the effect of aggressive humor on mental health and beyond.

In addition, the current work obtained the results in a traditional Asian culture where interpersonal harmony is highly valued, which might limit the generalizability of our conclusion, given that the discussion of the cultural contingency of humor effects is still inconclusive. A meta-analysis (Schneider et al., 2018) suggests that the negative impact of aggressive humor is more consistently observed in Asian cultures since ingroup use of aggressive humor is incompatible with the traditional Asian culture. However, a recent meta-analysis (Jiang et al., 2020) suggests a universal effect. Moreover, humor has been shown to have different temperamental basis in different cultures (Lau et al., 2020, 2022). Therefore, future research is needed to test this model in a non-Asian culture. Moreover, our research focused mainly on young adults (18–25) who find inappropriate jokes funnier and endorse aggressive humor to a greater extent than older adults (Stanley et al., 2014)¹. Future investigations are therefore needed to test the age contingencies of our model.

Conclusion

Despite these limitations, the current study provides novel insights into understanding when and why aggressive humor is related to mental health. As aggressive humor usage may contribute to interpersonal difficulties resulting in mental health problems, studying gratitude as a potential mediator could lend further support to the effectiveness of existing interventions to increase gratitude (Wood et al., 2010). On the other hand, the moderation role of affiliative humor highlights the potential of promoting affiliative humor style in therapeutic interventions for depression, as this humor style may help increase the experiences of gratitude and subjective happiness, which could protect aggressive humor users from adverse interpersonal outcomes and long-term mental health problems.

Authors' contribution All authors conceptualized the manuscript, SL and FJ wrote the first complete draft, JL and TW contributed data collection and analysis, and all authors edited the manuscript and approved the final version. SL and FJ contributed equally to this work, and are co-first authors. FJ is the corresponding author.

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Data and code availability The data and R scripts for power analysis could be found at https://osf.io/e4wuc/?view_only=1093234d829f427da63b40d785e251ac

Declarations

Competing Interests The authors have no competing interests to declare that are relevant to the content of this article.

Ethics approval We have followed the current APA Ethical Principles of Psychologists and Code of Conduct. Our studies were approved by the Ethics Review Board of Business School of the University of International Business and Economics.

Informed Consent All participants signed an informed consent form.

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¹ Similar results were obtained when controlling for age and gender. For supplementary analysis, please contact the first author.

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