Laughing off cyber spoofing: the role of self-deprecating humor in enhancing celebrities' interpersonal likeability

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Abstract

Background Given the increasing prevalence of cyber spoofing and satire targeting public figures, understanding the psychological and social effects of self-deprecating humor can provide valuable insights into its effectiveness as a coping strategy.

Methods Studies 1a ($N=183$) and 1b ($N=198$) manipulated self-deprecating humor and examined its effect on interpersonal liking using within-participant and between-participant designs, respectively. Study 2 ($N=205$) explored the moderating role of social distance and Study 3 ($N=274$) investigated the mediating role of perceived forgiveness in the distant condition.

Results The results showed that using self-deprecating humor as a coping strategy increased the celebrity's interpersonal likeability (Study 1). Moreover, self-deprecating humor was more effective in the distant condition than in the close condition (Study 2) and may enhance interpersonal liking through perceived forgiveness (Study 3).

Conclusions These findings suggest that self-deprecating humor can serve as an effective strategy for celebrities to navigate cyber spoofing, particularly when addressing a distant audience. The study highlights the role of social distance and perceived forgiveness in shaping audience responses, offering practical implications for celebrity image management on social media.

Keywords cyber spoofing, Coping strategy, Forgiveness, Self-deprecating humor, Social distance

Introduction

Social media has emerged as a prevalent communication medium in daily life [23, 35]. Nonetheless, it has also become a platform witnessing the proliferation of

malicious content, particularly directed towards highly renowned celebrities. Some websites engage in the deliberate alteration of images or videos featuring celebrities, subsequently disseminating these modified materials across various social media platforms to captivate users. While such content undeniably caters to the public's desire for entertainment and consumerism, it inevitably tarnishes the reputation of celebrities, detrimentally affecting their likability. This phenomenon, referred to as "cyber spoofing," involves the vilification and vulgarization of esteemed individuals or entities through parody or pastiche for amusement, enjoyment, or allegorical purposes [8]. Despite celebrities being prime targets of cyber spoofing, research examining their coping strategies in response to such incidents remains notably

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Cao *et al. BMC Psychology*   (2025) 13:501

Page 2 of 9

limited. Given that prior studies have demonstrated that self-deprecating humor is an effective strategy for dealing with adverse content encountered on social media [28, 36], the present research aims to investigate whether celebrities' self-deprecating humor can remedy their interpersonal likability in the context of cyber spoofing and explore how these effects may be moderated by social distance and mediated by perceived forgiveness.

Self-deprecating humor

Self-deprecating humor involves seeking support or connection with others by humorously highlighting one's own flaws or vulnerabilities [3, 20, 38]. Prior research has shown that self-deprecating humor is a problem-focused coping style [1] capable of mitigating the severity of threats to one's online reputation [34]. For example, Kim et al. [13] found that compared to alternative coping strategies, self-deprecating humor is particularly effective at eliciting positive public attitudes and preserving the reputations of companies. Extending this understanding, Xu et al. [36] demonstrated that self-deprecating humor employed by brands could ameliorate negative customer sentiments following instances of brand misconduct. However, prior investigations primarily focused on how this coping strategy could restore the reputations of corporations and brands, rather than addressing its applicability in enhancing the images of celebrities. While a recent study revealed mixed attitudes toward self-deprecating humor as a coping strategy in response to cyberbullying [1], it's important to note that cyberbullying primarily targets teenagers [15], whereas cyber spoofing often takes the form of entertainment and predominantly targets celebrities. Consequently, it remains unclear whether self-deprecating humor can serve as an effective coping strategy for celebrities confronted with cyber spoofing. According to the benign violation theory [21], which posits that humor arises when a situation is both a violation of norms (e.g., mockery in spoofing) and simultaneously perceived as benign (e.g., celebrities' humorous reframing). By responding to spoofing with self-deprecation, celebrities transform a potential threat into a non-threatening interaction, thereby reducing audience defensiveness and enhancing likability. Given that we hypothesized that self-deprecating humor should facilitate celebrities' likability when they use it to cope with cyber spoofing on social media.

The role of social distance

Furthermore, does the effect of celebrities' self-deprecating humor on their likability depend on social distance? Social distance refers to the perception of the distance between others and the self [31] and it also describes the degree of emotional intimacy and closeness among

individuals in a society [11]. Therefore, social distance is also an important indicator of interpersonal liking. Based on construal level theory, the proximity of social distance plays a pivotal role in shaping how individuals construe the objects of their perceptions. When social distance is close, people tend to explain the object of their perceptions with low-level interpretations, which are more susceptible to the influence of specific, peripheral, and contextual mental representations. In contrast, when social distance is distant, individuals tend to interpret the object at a high level and use abstract mental representations that place the object in the foreground and capture its essence [31, 32]. Therefore, the degree of social distance may influence the manner in which people process information and subsequently evaluate it [16, 18, 32]. For example, Dickson and Maclachlan [5] observed that when social distance is close, both positive and negative evaluations of the object tend to be elevated. This phenomenon can be attributed to the fact that individuals generally engage in more intimate interactions with the object and possess a privileged understanding of the information about it [18]. In the present research, the public whose social distance is close to celebrities (e.g., fans) tends to have a rather complete and stable evaluation of these celebrities, which may not be easily altered by the specific strategies taken by celebrities in response to cyber spoofing. However, the public whose social distance is distant from celebrities tend to prioritize the strategies used by celebrities in dealing with cyber spoofing due to the absence of other salient information about these celebrities. In such cases, self-deprecating humor as a coping strategy can exert a positive effect on interpersonal liking. Such effect may also reflect dynamics of Social Identity Theory [30]. Distant audiences, who perceive celebrities as out-group members, are more likely to evaluate humor through group-level categorization. Self-deprecating humor by celebrities could signal humility, bridging the gap between 'elite' and 'public' identities, thereby fostering in-group cohesion. Conversely, close audiences (e.g., fans) already identify with the celebrity, making humor less impactful on existing affiliations. In light of this, the present research proposed that interpersonal liking is expected to be affected by self-deprecating humor, but it may be more effective for increasing interpersonal liking in the distant condition than in the close condition.

The role of perceived forgiveness

Furthermore, we address why self-deprecating humor may facilitate interpersonal liking when used by celebrities to cope with cyber spoofing. We proposed that perceived forgiveness can explain this phenomenon. First, cyber spoofing has the potential to harm the image of

celebrities, even though it is intended for entertainment purposes. However, the utilization of self-deprecating humor as a coping strategy signifies the celebrities' willingness to address cyber spoofing in a lighthearted and informal manner, rather than seeking retribution. In this context, self-deprecating humor aligns with the principles of "harmony" and "repaying evil with good," which are encouraged by Chinese society. Moreover, self-deprecating humor involves sacrificing one's own image to amuse others [20], thereby catering to the entertainment aspect of cyber spoofing prevalent on social media platforms. Consequently, the public may perceive celebrities as displaying forgiveness when they employ self-deprecating humor as a response to cyber spoofing. Furthermore, previous research has highlighted a series of positive effects of forgiveness, including its capacity to mend interpersonal relationships strained by conflicts, enhance relationship satisfaction, and promote intimacy [4, 12, 26, 27]. Therefore, it is plausible that self-deprecating humor can bolster celebrities' interpersonal likability by allowing the public to perceive their forgiveness when they use it to cope with cyber spoofing.

Research Overview
Given the discussion above, the present research used four studies to explore the effect of celebrities' use of self-deprecating humor on interpersonal liking within the context of cyber spoofing and how this effect may be moderated by social distance and mediated by perceived forgiveness. Specifically, Studies 1a and 1b examined the effect of self-deprecating humor on interpersonal liking via within-participant and between-participant designs, respectively. Study 2 investigated the moderating effect of social distance on the relationship between self-deprecating humor and interpersonal liking. Furthermore, Study 3 explored the mediating role of perceived forgiveness in the distant condition.

Study 1a
In Study 1a, we examined the effect of self-deprecating humor on interpersonal liking when celebrities use this strategy to cope with cyber spoofing. We hypothesized that this coping strategy could help celebrities increase their interpersonal liking.

Method
Participants
Assuming a small to medium effect size ($f = 0.15$), power = 0.90, G*power [6] analysis estimated that 119 or more participants were required for a repeated measure main effect. Two hundred Chinese participants participated in an online study via the Wenjuanxing platform.[1] Five reported false demographic information,

and another 12 failed the quality check. The final sample included 183 participants (all ethnic Chinese; 126 males, 57 females; $M_{age} = 29.39$ years, $SD_{age} = 5.73$). All participants signed the informed consent form and received 3 CNY for their participation.

Material and Procedure
We sent a Wenjuanxing online survey link to all of the participants' cell phones and asked them to complete the questionnaire within 2 days. They were told that all questionnaires would be processed anonymously for research purposes only and that they should answer all of the questions carefully.

Participants were asked to read the following scenario:

A celebrity[2] has suffered a cyber spoofing attack because netizens made a malicious video edit of a classic character from a movie that he starred in. This video was spread widely on social media, resulting in the destruction of the celebrity's image.

Then, we manipulated the type of response by having participants rate their attitudes toward the celebrity twice. The first version of the celebrity's response that the participants read is as follows:

The celebrity wrote a humorous and self-deprecating limerick based on the content of the cyber spoofing video and publicly shared it on social media[3]. [self-deprecating humor condition]

The second version that the participants read is given below (order counterbalanced):

The celebrity issued a stern letter from their lawyer to the pranksters and demanded that they make an apology publicly. [serious control response]

The question "How much do you like the celebrity?" was used to measure interpersonal liking, which has been widely utilized in previous liking research [2]. Participants rated this item on a 10-point scale from 1 (*dislike extremely*) to 10 (*like extremely*). In conclusion, participants rated the celebrity twice, with self-deprecating humor as a within-participant factor.

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[1] Wenjuanxing is an online crowdsourcing platform in mainland China that provides functions equivalent to Amazon Mechanical Turk. Each study had a unique participant group with no overlap.

[2] To control for potential biases stemming from participants' admiration of the celebrity, we did not disclose the celebrity's identity in any of the study materials.

[3] The limerick was written in Chinese, and the corresponding author can provide the limerick upon request.

Cao *et al. BMC Psychology* (2025) 13:501

Page 4 of 9

Results

A paired t-test was used. The results showed that the celebrity received a higher interpersonal liking rating in the self-deprecating humor condition ($M=5.31$, $SD=1.68$) than in the serious control condition ($M=4.73$, $SD=1.78$), $t_{(182)}=3.54$, $p=0.001$, 95%CI [-0.91, -0.26], Cohen's $d=0.26$.

Study 1b

Study 1a provided support for our assumption that the use of self-deprecating humor as a coping strategy facilitates interpersonal liking when celebrities use it to cope with cyber spoofing on social media. One potential problem with Study 1a is that we used a within-participant design, in which participants rate their attitudes toward the celebrity twice might have introduced a confounding factor, although we did our best in counterbalancing the order. Therefore, in Study 1b we used similar materials as those in Study 1a but applied a between-participant design to eliminate this potential confound and replicate the results from Study 1a.

Method
Participants

For a two-group between-participant design, G*power estimated that at least 150 participants were required to identify a medium effect size ($f=0.20$) with power=0.80. We recruited 200 Chinese participants to participate in an online study via the Wenjuanxing platform. Two failed the quality check, giving a final sample of 198 (all ethnic Chinese; 64 males, 134 females; $M_{age}=33.45$ years, $SD_{age}=5.58$). All participants signed the informed consent form and received 3 CNY for their participation.

Material and Procedure

We sent a Wenjuanxing online survey link to all of the participants' cell phones and asked them to complete the questionnaire within 2 days. First, all participants read the same scenario as in Study 1a. Then, participants were randomly assigned to either the self-deprecating humor response condition or serious control response condition and read the corresponding version of the celebrity's response from Study 1a. Finally, the participants answered the question "How much do you like the celebrity?" in the same way as in Study 1a.

Results

An independent-sample t-test was used. The results showed that the celebrity received a higher interpersonal liking rating in the self-deprecating humor response condition ($M=5.99$, $SD=1.97$) than in the serious control response condition ($M=4.18$, $SD=2.29$), $t_{(196)}=5.97$, $p<0.001$, 95%CI [-2.41, -1.22], Cohen's $d=0.85$. The results of Study 1b replicated the results of Study 1a.

In conclusion, Studies 1a and 1b showed that using self-deprecating humor as a coping strategy increased the celebrity's interpersonal likeability.

Study 2

Studies 1a and 1b found that using self-deprecating humor as a coping strategy increased the celebrity's interpersonal likability. This effect, however, may be dependent on social distance. Accordingly, Study 2 examined the moderating role of social distance between self-deprecating humor and interpersonal liking. We hypothesized that self-deprecating humor may be more effective in the distant condition than in the close condition.

Method
Participants

Assuming a small to medium effect size ($f=0.15$), power=0.90, at least 120 participants were required for a 2×2 mixed design to identify an interaction. We recruited 230 Chinese participants to participate in the experiment. After we excluded 25 participants who did not arrive at the laboratory as required, 205 participants (all ethnic Chinese; 139 males, 66 females, Mage=27.87 years, SDage=6.48) participated in the experiment. All participants signed the informed consent form and received 5 CNY.

Material and procedure

Participants read the same scenario as in Study 1a. Then, they were randomly assigned to the close group or the distant group. Participants in the close group read the guideline, "Answer as if you were a fan of the celebrity," while participants in the distant group read the guideline, "Answer as if you were not a fan of the celebrity." A similar manipulation was used in Mcgraw et al. [21]. Next, we manipulated the type of response as in Study 1a. Finally, the participants rated how much they liked the celebrity twice in both groups. Overall, the study followed a (social distance: distant vs. close)$\times2$ (type of response: self-deprecating humor vs. control serious response) design, with self-deprecating humor as a within-subject variable.

Results

The results of a 2×2 mixed ANOVA showed that the main effect of the type of response was significant, $F(1, 203)=7.09$, $p=0.008$, 95%CI [-0.61, -0.09], $\eta_p^2 = 0.03$; the main effect of social distance was not significant, $F(1, 203)=0.56$, $p=0.452$; and the interaction effect was significant, $F(1, 203)=5.28$, $p=0.023$, $\eta_p^2 = 0.03$ (see Fig. 1). Furthermore, the simple effects test showed that in
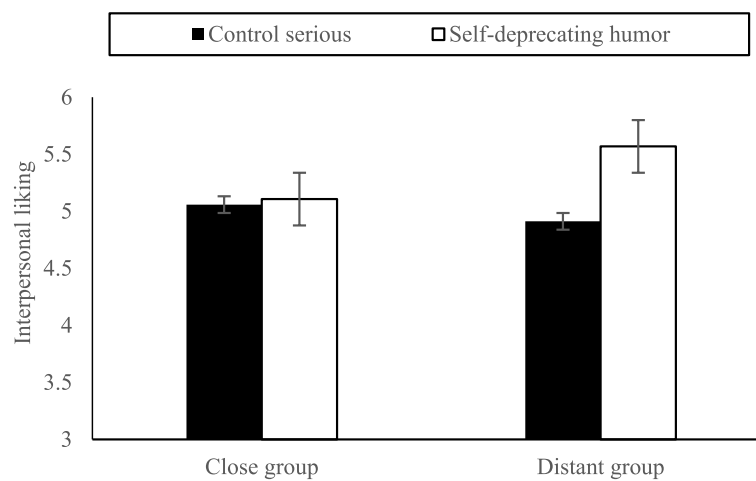
Fig. 1 The moderating effect of social distance in Study 2. Error bars represent 95% confidence interval

the distant group, the celebrity received a higher interpersonal liking rating in the self-deprecating humor condition ($M=5.57$, $SD=1.66$) than in the control serious condition ($M=4.91$, $SD=1.84$), $F(1, 203)=12.24$, $p=0.001$, 95%CI [0.29, 1.03], $\eta_p^2 = 0.06$. In the close group, there was no significant difference in interpersonal liking ratings between the self-deprecating humor condition ($M=5.11$, $SD=1.77$) and the control serious response condition ($M=5.06$, $SD=1.83$), $F(1, 203)=0.07$, 95%CI [-0.42, 0.32], $p=0.795$.

In conclusion, Study 2 found that the use of self-deprecating humor by the celebrity as a coping strategy for cyber spoofing was more effective for members of the distant group than members of the close group.

Study 3
Study 2 revealed that self-deprecating humor proved to be effective in the distant condition but not in the close condition. However, why does self-deprecating humor emerge as a more potent coping strategy in the distant condition? We hypothesized that self-deprecating humor may make participants perceive the celebrity as forgiving, which increases interpersonal liking in turn.

Method
Participants
The required sample size for the mediation model was calculated using a Monte Carlo simulation, yielding a minimum of 190 participants, assuming a power of 0.9, a 95% confidence interval, a correlation of 0.3, and a standard deviation of 1. We recruited 300 Chinese participants to participate in an online study via the Wenjuanxing platform. After we excluded 26 participants who failed the quality check questions, 274 participants (all ethnic Chinese; 78 males, 196 females, $M_{age}=35.37$ years,

$SD_{age}=6.99$) completed the experiment. All participants signed the informed consent form and received 5 CNY.

Material and procedure
We sent a Wenjuanxing online survey link to all of the participants' cell phones and asked them to complete the questionnaire within 2 days. Participants read the same scenario as in Study 1a. Then, they were randomly assigned to either the humor (self-deprecating humor) condition or the control serious condition.

Participants in the humor condition read the following version of the celebrity's response[4]:

> *The celebrity publicly said, "I'd really like to thank those who made a spoof out of me. To be honest, this is all I can do nowadays to entertain people. I mean, it's free publicity, so here's a huge thanks to all the spoof creators!" [self-deprecating humor condition].*

Participants in the control serious condition read the following version of the celebrity's response:

> *The celebrity publicly said, "They must apologize to me, or I will resort to the law." [serious control response].*

Next, the participants in both conditions were given the following guideline: "If you were not familiar with the celebrity, how would you answer the following questions?" Then participants were asked to answer the questions, "Do you perceive the celebrity as forgiving from his coping strategies?" and "How much do you like the celebrity?" Participants rated these two items on a 10-point

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[4] Materials used in Study 3 are different from those in Studies 1 and 2.

Cao *et al. BMC Psychology*   (2025) 13:501

Page 6 of 9

scale from 1 (extremely disagree/dislike) to 10 (extremely agree/like).

Results

First, an independent-sample t-test showed that participants were more likely to perceive forgiveness in the self-deprecating humor condition ($M=5.91$, $SD=1.91$) than participants in the control serious condition ($M=5.21$, $SD=1.86$), $t_{(272)}=3.09$, $p=0.002$, 95%CI [-1.15, -0.26], Cohen's $d=0.37$. In addition, the celebrity received a higher interpersonal liking rating in the self-deprecating humor condition ($M=5.87$, $SD=2.00$) than in the control serious condition ($M=5.36$, $SD=1.88$), $t_{(272)}=2.20$, $p=0.029$, 95%CI [-0.98, -0.05], Cohen's $d=0.27$. Then, the mediating mechanism was tested using the Model 4 in the PROCESS Macro for SPSS by setting the type of response (0 = control serious response, 1 = self-deprecating humor response) as the independent variable, interpersonal liking as the dependent variable, and perceived forgiveness as the mediating variable (see Fig. 2). The results indicated a significant indirect effect via perceived forgiveness, *effect* = 0.41, 95%CI [0.15, 0.71], which accounted for 80.35% of the total effect. The direct effect was not significant, *effect* = 0.10, 95%CI [-0.29, 0.49].

In conclusion, Study 3 further found that perceived forgiveness fully mediated the effect of self-deprecating humor on interpersonal liking in the distant condition.

General discussion

Cyber spoofing has recently become a prevalent issue in social media interactions, particularly affecting highly renowned celebrities. Although previous research has indicated that self-deprecating humor serves as an effective strategy for coping with negative content on social media [13, 36], these investigations have focused mainly on its application in repairing the reputations of companies or brands, rather than addressing its potential impact on a celebrity's image. Hence, the present research explored how celebrities use self-deprecating humor to cope with cyber spoofing. In Studies 1a and 1b, we manipulated the use of self-deprecating humor and found that it could facilitate interpersonal liking. Study 2 further examined the moderating role of social distance and found that self-deprecating humor may be more effective in the distant condition compared to the close condition. Finally, Study 3 explored the mediating role of perceived forgiveness in distant condition and found that the use of self-deprecating humor as a strategy for coping with cyber spoofing increased celebrities' interpersonal likability through perceived forgiveness.

Implications

These findings have several significant implications. First, these results enrich the literature on self-deprecating humor. Previous research on humor has suggested that self-deprecating humor could have negative implications for individual well-being when used in social interactions, potentially leading to psychological distress, depression, or anxiety [7, 10, 20, 29, 37]. However, the present research unveiled a novel facet, demonstrating that self-deprecating humor can serve as an effective coping strategy, particularly beneficial for celebrities seeking to enhance their interpersonal likability on social media. While some celebrities may opt for more serious coping strategies, such as legal recourse, in response to cyber spoofing, the effectiveness in terms of boosting interpersonal likability does not appear to match that of self-deprecating humor. Consequently, the present research significantly broadens the potential applications of self-deprecating humor by highlighting its positive impact when employed as a response to cyber spoofing.

Furthermore, our findings indicated that self-deprecating humor is more effective among individuals in the distant condition, thereby suggesting the presence of a specific contextual boundary for this coping strategy in the context of cyber spoofing. These findings are consistent with the views of some researchers [17, 22], who have suggested that the effects of coping strategies depend on specific situations. Additionally, these findings also expand the framework proposed by Ouvrein et al. [24], who did not consider contextual variables in the relationship between coping strategies and public attitudes. More importantly, the present research suggests that celebrities should focus mainly on socially distant members of the
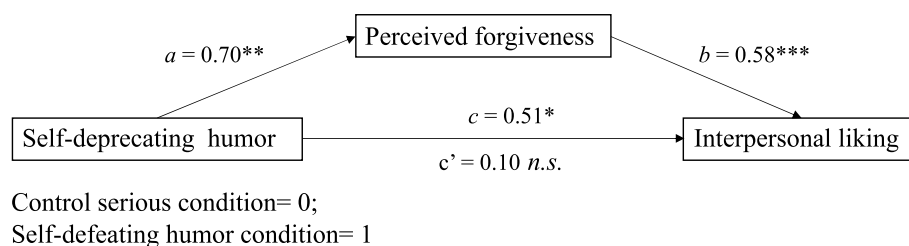

Control serious condition= 0;
Self-defeating humor condition= 1

Fig. 2 Indirect effect of self-deprecating humor on interpersonal liking via perceived forgiveness (unstandardized coefficients). *$p < .05$. **$p < .01$. ***$p < .001$

Cao *et al. BMC Psychology*   (2025) 13:501

Page 7 of 9

public when coping with cyber spoofing, since the attitudes of those who are socially close, such as fans, are not affected by the type of coping strategy used.

Additionally, the findings highlight the interplay between digital reputation management and audience engagement in addressing cyber spoofing. By leveraging self-deprecating humor, celebrities reframe reputational threats into opportunities for relatability, aligning with DRM principles that prioritize proactive narrative control over reactive tactics (e.g., legal actions) [14]. This approach capitalizes on the viral nature of spoofing, fostering audience engagement through humor's inherent shareability—a critical factor in modern reputation repair, where social media algorithms amplify emotionally resonant content [33].

Next, past studies have indicated that individuals' use of self-deprecating humor cannot predict or may even negatively predict their forgiveness [9, 19]. This tendency is attributed to the notion that those who frequently resort to self-deprecating humor may be more psychologically vulnerable, leading them to perceive many situations as unforgivable [9]. However, the purpose of the present research is not to evaluate the celebrities' actual forgiveness when they use self-deprecating humor in response to cyber spoofing. Rather, our emphasis is on whether the public perceives celebrities as forgiving when they opt for this coping strategy. In other words, the present research regards self-deprecating humor as a coping strategy rather than a personality trait or individual characteristic.

In addition to the theoretical implications, this research also carries practical significance. It suggests the potential for psychosocial interventions that leverage self-deprecating humor as a strategy for coping with stressful situations such as cyber spoofing. This could be beneficial for individuals facing online harassment. Furthermore, the findings raise the question of whether these effects can be generalized to the broader population, or if they are more applicable to celebrities, where factors like social distance may play a crucial role. These considerations open up avenues for future research into the broader applications of self-deprecating humor in managing stress and navigating social interactions.

Limitations and future directions

There are several limitations to this research. First, we chose celebrities' experiences as our experimental scenario. This is because celebrities, as a high-exposure group, have suffered more from cyber spoofing; thus, choosing celebrities holds certain practical implications. In addition, the present research was conducted with Chinese participants only, with a limited number of humorous responses. Future studies should explore more scenarios and include a more diverse sample of participants to test the generalizability of the present findings.

Another limitation of the present research is the lack of sociodemographic data, such as participants' socioeconomic status and educational level. These factors could provide valuable insights into the results and should be considered in future research for a more comprehensive understanding of the findings.

Third, a recent study has shown that not responding is also a good social media coping strategy, such as in the face of online bashing, because critics become bored when the victims ignore their comments [25]. However, it's worth noting that in contrast to cyber spoofing, online bashing occurs only between celebrities and attackers and is not widely shared and reposted. As a result, the audience is limited. Future research could explore whether this strategy is suitable for widespread cyber spoofing.

Finally, Future research could explore the comparison between self-deprecating humor and other humor types, such as aggressive, enhanced, or affiliative humor, to investigate their differential effects. Understanding why self-deprecating humor may yield better or distinct outcomes compared to these other styles could provide valuable insights into its unique role in interpersonal dynamics.

Abbreviation
CNY   Chinese Yuan

Data availability
The data that support the findings of this study are available in "figshare" at https://doi.org/10.6084/m9.figshare.19802509.v1.

Declarations

Ethics approval and consent to participate
This research has been conducted in accordance with the principles outlined in the Declaration of Helsinki and has received approval from the appropriate ethics committee at Peking University (2022–02-15). All human participants involved in the study (or their parents/legal guardians, for children under 16) have provided informed consent.
Participants in this study were provided with comprehensive information regarding the purpose, procedures, and risks of the research, and were ensured that their participation was voluntary. They were also informed of their right to withdraw from the study at any time without facing any negative consequences. Appropriate measures have been taken to ensure the privacy and confidentiality of data collected and analyzed from human participants in this study.

Cao *et al. BMC Psychology*   (2025) 13:501

Page 8 of 9

If animal experiments or clinical trials were involved in this study, appropriate ethics approval has also been obtained, and in the case of animal experiments, welfare of the animals has been ensured to the best of our ability. We are committed to upholding ethical standards and ensuring the rights and safety of participants are protected to the fullest extent possible.

Consent to publication
All authors have given their consent for publication.

Competing interests
The authors declare no competing interests.

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Cao *et al. BMC Psychology*   (2025) 13:501

Page 9 of 9

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