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Fear of being laughed at in Italian healthcare workers: Testing associations with humor styles and coping humor

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Abstract

Humor is a strategy that healthcare workers can use to help patients cope with stress and manage complex situations. However, people differ in how they deal with laughter. Our aim was to investigate gelotophobia (fear of being laughed at) among healthcare professionals and its relationships with humor styles and inclinations to use humor for coping. A sample of 550 Italian healthcare-workers was assigned to three groups: Professional Hospital Clown Group (PHCG, people who trained as professional clown in health-care setting), Humor Training Group (HTG, people who attended health-care relevant training courses related to humor), or Control Group (CG, people who attended healthcare or professional training courses not related to humor), and provided self-reports in the GELOPH < 15 >, the Coping Humor Scale, and the Humor Style Questionnaire. Participants from humor-related interventions, in particular PHCG, were lower in gelotophobia and used humor as a coping strategy. Gelotophobia correlated negatively with coping humor, and affiliative and self-enhancing humor styles. We discuss the findings with regard to the use of humor and laughter in healthcare settings.

Keywords Gelotophobia · Humor styles · Coping humor · Health care professionals · Hospital clowns · GELOPH < 15 >

Introduction

Conventional wisdom suggests that laughter and humor are universally enjoyed (e.g., "laughter is the best medicine"). However, there are those who do not experience laughter as joyful or positive but feel being ridiculed or appearing ridiculous to others: Ruch and Proyer (2008a) introduced the concept of gelotophobia (Greek: gélōs—γέλως = laughter; phobía—φοβία = fear), which describes individual differences in the fear of being laughed at. While there is increasing interest in the study of humor and how people deal with ridicule and being laughed at (e.g., Bittermann et al., 2021), no study has yet examined the role of gelotophobia, humor styles, and inclinations to use humor as a means for coping in healthcare professionals. Considering that this group uses humor and engages in laughter in their daily work routines, it is of interest to extend the understanding of how this professional group deals with humor and laughter. Further, to the best of our knowledge, no study has yet examined the expressions of gelotophobia in healthcare professionals who use humor in their daily routines (e.g., professional hospital clowns). We hypothesized that the use of humor at work or

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the interest on humor topics relates to gelotophobia and consequently with humor styles and the usage of humor to cope with stressful events. We collected data of Italian health care workers who either actively work in an area that requires them to engage in humorous interactions and engaging in laughter and those who do not need to engage in humor in their work. We compared the groups regarding their humor (i.e., humor styles and using humor for coping) and how they deal with laughter (i.e., gelotophobia) and tested how gelotophobia is associated with the use of coping humor and humor styles.

Fear of Being Laughed at

Those high in gelotophobia (gelotophobes) are convinced that all laughter has a negative intent and aims at ridiculing them and to put them down (Ruch et al., 2014; Ruch & Proyer, 2008a). Moreover, gelotophobes show an almost paranoid sensitivity to signs of laughter and experience laughter as being directed at them. Gelotophobia is a dimension ranging from no to extreme fear of being laughed at and is understood as individual difference variable in the population (Ruch & Proyer, 2008b). There is robust empirical support that gelotophobia relates to experiences and reactions to laughter; for example, regarding indicators of heart rate, affect, or facial reactions (see Ruch et al., 2014 for an overview). Further, the fear of being laughed at has been theoretically and empirically discriminated from constructs such as social anxiety, fear of negative evaluation, and maladaptive personality traits (e.g., Brauer et al., 2022; Careterro-Dios et al., 2010; Torres-Marín et al., 2021). Also, gelotophobia is not culturally or geographically limited, but has been identified across more than 70 countries (e.g., Proyer et al., 2009; Vagnoli et al., 2021). Research has shown that gelotophobia plays a role in important life domains; for example, in social and romantic relationships (e.g., greater likelihood of being single; predicting low relationship satisfaction in oneself and one's partner; and attachment styles; e.g., Brauer & Proyer, 2018, 2020a; Brauer et al., 2020; Canestrari, Arroyo, et al., 2021; Canestrari, Bongelli, et al., 2021; Ruch & Stahlmann, 2020) and in school (e.g., predicting experiences of victimization in bullying-type situations and lower willingness to speak in front of classmates; e.g., Barabadi et al., 2021; Proyer et al., 2013). There is also increasing interest in the study of gelotophobia in samples from Italy. For example, recent studies examined its associations with cyberbullying victimization, parental attachment (Canestrari et al., 2021; Canestrari, Bongelli, et al., 2021), and its relations to social support and coping strategies (Canestrari et al., 2019). Fear of being laughed at is an important individual difference variable that contributes to our understanding of how people deal with ridicule and being laughed at in social contexts. However, its role in the healthcare context has not yet been studied. Considering that humor and laughter are of importance in social relationships and for the healthcare context, an investigation within the group of health care workers who regularly communicate with others is important to extend the understanding of their engagement in dealing with laughter.

Humor and Laughter in Healthcare

Patients who require hospitalization represent a responsibility for the healthcare system and those working with them. Apart from pharmacological treatment, hospitals can offer non-pharmacological interventions that also involve elements of humor. For example, the role and positive effects of hospital clowns has been highlighted (e.g., Auerbach et al., 2014) and the role of humor, laughter, and hospital clowns has been particularly studied in children and adolescents. It has been discussed that an important mechanism in such approaches relies on using humor to help patients, but also healthcare workers, to cope with stressful events. Humor allows to deal with adversity and may enable patients to take alternative perspectives and reappraise the negative impacts of their illness as less threatening and more of an opportunity or challenge (e.g., Christie & Moore, 2005). Further, laughter is considered as one of the most positive aspects of human experience and several studies examined its functions and positive effects (e.g., Hofmann et al., 2015). Hence, laughter may further support relaxation, build relationships, promote cooperation between caregivers and patients, relieve anxiety and stress, enable to release anger and aggression in a socially acceptable manner, manage embarrassment, and facilitate learning (Dowling, 2002; Proyer & Wolf, 2017).

Humor and laughter are not only valuable for patients but can also support those providing patients with healthcare. Thus, laughter and humor can be useful tools for medical staff to approach patients and their families, and to manage traumatic situations and alleviate work-related stress. For example, a recent study of 625 Italian healthcare workers has shown that participants who used humor to cope with adversities showed less experiences of stress than participants who engaged in less use of coping humor during the COVID-19 pandemic (Canestrari, Arroyo, et al., 2021; Canestrari, Bongelli, et al., 2021). This fits well with earlier findings: Nurses reported the use of humorous language as a coping strategy, especially when they provide medicines or physical therapy (Wanzer et al., 2005). Among nurses, adaptive humor styles were found to promote well-being and to have protecting effects for low life satisfaction and high stress (Navarro-Carrillo et al., 2020). Humor interventions have been designed for both patients and medical staff (Ruch & McGhee, 2014), enabling them to cope with various unpleasant procedures and to improve the working climate (Åstedt-Kurki & Isola, 2001). Nevertheless, knowing when to use which type of humor is therefore very important

to estimate its appropriate use (e.g., timing, receptiveness, and context; see Proyer & Rodden, 2020). Negative uses of humor, such as socially cold humor (e.g., inappropriate smiling or fixed smiling without sincerity), an inept humor style (e.g., chuckling or laughing in an exaggerated way to hide one's fears and uncertainty; Ruch et al., 2009), or humor directed toward others (aggressive humor; see Martin, 1996; Martin et al., 2003) may be inadequate strategies and have detrimental effects (Proyer & Rodden, 2020). Moreover, humor is not used and perceived uniformly, as, for example, someone could feel uncomfortable or be perceived as unprofessional and ridiculous when engaging in humor and laughter (e.g., Ruch & Proyer, 2008a) while others might perceive certain humorous contents as being aversive (e.g., Bischetti et al., 2021).

Humor Styles and Coping Humor

While humor is often used as an umbrella term, several facets of the phenomenon are distinguished in the literature. For example, the production of humor and what type of humor one appreciates (see Ruch, 2008, for an overview). In this study, we used two humor concepts to investigate the humor of the healthcare workers, namely, humor styles and coping humor. Martin and colleagues (2003) introduced four humor styles that describe individual differences in using humor; namely affiliative humor (i.e., telling jokes and teasing others in a friendly manner with the aim of reducing social tension; interpersonal), self-enhancing humor (i.e., using humor to keep a humorous outlook on life; intrapersonal), aggressive humor (i.e., using sarcasm, ridicule, and malign teasing to manipulate others via threat of ridicule), and self-defeating humor (i.e., making self-disparaging remarks and jokes at one's own expense). While the former two styles are regarded as positive styles, aggressive and self-defeating humor are regarded as negative humor styles (Martin et al., 2003). The humor styles have been found to show robust associations with numerous outcomes such as life satisfaction, mental health, and constructs relevant to social life such as attachment styles, conflict styles, and relationship satisfaction (e.g., Cann et al., 2008; Chen & Martin, 2007; Dyck & Holtzman, 2013). The humor styles classification and its accompanying assessment instrument, the Humor Styles Questionnaire, are among the most frequently used taxonomies to describe individual differences in humor.

Since healthcare workers are subjected to intra- and interpersonal stress in their work (e.g., Canestrari, Arroyo, et al., 2021; Canestrari, Bongelli, et al., 2021), we were interested in their inclinations to coping humor, that is the use of humor as a means to cope with stress. There is good evidence that coping humor relates to numerous outcomes of dealing with stressors (e.g., Overholser, 1992). For example, Sliter and colleagues (2014) found that coping humor buffers the effects of stressors for burnout and PTSD in 179 firefighters and a recent study by Canestrari, Bongelli, et al. (2021) showed that healthcare workers perceived situations as less stressful when they engaged in using coping humor. While coping humor relates to the humor styles positively, except the self-defeating style being unrelated, the concepts are not redundant (Martin et al., 2003).

As discussed, people differ in how they deal with laughter and one might expect that in healthcare contexts humor interventions might not be suitable for everybody, particularly when considering that those high in gelotophobia might not feel comfortable in engaging in laughter- and humor-related activities. We examined whether gelotophobia and inclinations to use different styles of humor differ across subgroups of healthcare workers who engage in humor (e.g., hospital clowns) in comparison to those who do not systematically engage in making others laugh. Therefore, we collected data of healthcare professionals with respect to their engagement in the usage of humor in their daily work routine. Participants provided self-reports on gelotophobia, humor styles, and using humor as a means to cope. In addition to testing whether the healthcare workers differ in gelotophobia and humor (i.e., humor styles and coping humor), we extended the knowledge on the fear of being laughed at in the context of healthcare workers by testing the associations between gelotophobia and the humor variables. Prior findings have shown that gelotophobia is denoted by negative correlations with the self-enhancing and affiliative humor styles (e.g., Dursun et al., 2020; Ruch et al., 2009; Torres-Marín et al., in press) as well as low inclinations to using humor as coping strategy (Ruch et al., 2009; Vagnoli et al., 2021). While these findings were based on random samples from the population, we were interested whether findings would replicate in those who work in the healthcare system and engage in humor and making others laugh on a daily basis. Also, using subsamples of healthcare workers who attended a humor training as well as hospital clowns who engage in laughter and actively making others laugh at them (Auerbach et al., 2014; Spitzer, 2006) allowed for analyses of subgroups of healthcare workers.

The Present Study

Our first aim was testing the relationships between gelotophobia, coping humor, and humor styles to examine the role of gelotophobia among healthcare workers and their inclinations to engage in different types of humor. Based on prior literature, we expected to replicate findings from prior research (Dursun et al., 2020; Ruch et al., 2009; Torres-Marín et al., in press); namely, to find negative correlations between gelotophobia and affiliative and self-enhancing humor styles. We also expected to find a negative correlation between coping humor and gelotophobia as in Ruch

et al. (2009), because we hypothesize that healthcare workers who do not enjoy laughter are less capable to find benefits of using humor to cope with stressors (see Canestrari, Arroyo, et al., 2021; Canestrari, Bongelli, et al., 2021; Ruch et al., 2009). Secondly, we compared the expressions of gelotophobia among subgroups of the healthcare workers; namely, those who used humor at daily work (professional clowns), participants who attended health-relevant training courses based on humor, and a control group who attended other professional courses. As discussed, humor and laughter play an important role in social situations such as in settings of healthcare. However, people differ in how they perceive laughter and engage in humor (e.g., Martin et al., 2003; Ruch & Proyer, 2008a) and we sought to examine whether the engagement in humor-related activities within the healthcare setting would relate to individual differences in dealing with laughter (gelotophobia) and humor (humor styles and coping humor). We expected to find the lowest expressions of gelotophobia in those who attended humor-based courses in comparison to the subgroup of controls who did not attend humor-related training sessions since gelotophobes avoid situations in which they could be exposed to laughter (Ruch & Proyer, 2008a) and we assumed that healthcare workers showing inclinations to fear of being laughed at would be less likely to take courses that deal with using laughter and humor in healthcare. In addition, we tested the differences in humor styles and coping humor exploratorily among the subgroups. As an auxiliary aim of this study, we contributed to the knowledge on the psychometric properties of the Italian version of the GELOPH < 15 > by providing a replication of Forabosco et al. (2009a, b) findings on the item- and scale parameters of the instrument in our Italian-speaking sample.

Method

Participants and Procedure

The full sample comprised $N = 550$ participants between the age of 18 and 60 years ($M = 29.6$, $SD = 9.9$), which were members of one of three groups. The groups differed with regard to the training program they underwent (see group descriptions in the following sections). The participant-group assignment did not follow random assignment, as participants self-selected which program (i.e., group) they joined before our study started. Thus, our study rationale followed a quasi-experimental design.

Professional Hospital Clowns Group (PHCG, $n = 39$; 36.8% males) are participants who attended a long-term training to become a hospital professional clown with hospital experience and worked especially in pediatric hospitals with patients and their families through an Onlus Association (Non-profit organization of social utility[1]). All participants were professional clowns, musicians, actors, or worked in the field of art and used humor daily in their activities. They were versatile and multi-skilled players drawn from a broad spectrum of the entertainment world, specifically trained to acquire hospital clowning techniques. The training course to become a hospital clown includes a theoretical (e.g., psychology, nursing notions, hygiene) and a practical part (e.g., juggling, mime, magic) spanning about 500 h course time. Also, course takers must accomplish about 150 hours of internship in the hospital. All participants in this group had experience in this activity for at least ten years.

In the Humor Training Group (HTG), $n = 176$ (15.7% males) participants attended a training course on the use of humor in pediatric hospitals organized by Meyer Children's Hospital, Florence, Italy. They were interested in this field but did not necessarily work as healthcare professionals. The course is addressed to doctors, nurses, psychologists, physiotherapists, volunteers, and other health personnel interested in issues related to clowning techniques in the hospital setting. The goals of the course were to acquire the theoretical and scientific bases of humor psychology, understanding the advantages and limitations of the ward clown activity in the pediatric hospital, and acquiring the general concepts for alleviating suffering in the hospital through a humorous approach. The training course was held in the hospital in a specific area with training rooms. It included theoretical parts about humor and psychological aspects of patients, a practical part of classroom clown exercises, and a part of observation of hospital clowns in the wards.

In the Control Group (CG), $n = 336$ (14.4% males) participants attended different training courses. Some of them for healthcare professionals, but none were related to humor: medical students from the Faculty of Medicine at the University of Florence, people who attended a training course on the use of Animal Assisted Interventions in pediatric hospitals organized by Meyer Children's Hospital, Florence (which has the same characteristics of time, type of participants, place of realization and structure as the HTG) or other professional training courses organized by a vocational training center in Florence.

We computed a power analysis using G*Power (type = sensitivity; Faul et al., 2009). Our sample size allows to detect effects of small size ($\rho \geq 0.12$) with a 5% type-I error rate and 80% statistical power using two-tailed tests of statistical significance.

[1] Soccorso clown, www.soccorsoclown.it

Instruments

We used the Italian version of the GELOPH < 15 > (Ruch & Proyer, 2008a, b) by Forabosco et al. (2009a, b) for the assessment of gelotophobia. The GELOPH < 15 > contains 15 items (e.g., "When others laugh in my presence, I get suspicious") and participants give their responses on a 4-point Likert-type scale (1 = strongly disagree; 4 = strongly agree). The GELOPH < 15 > is the standard instrument for assessing gelotophobia and has been translated into more than 40 languages (Ruch et al., 2014). The instrument is denoted by a well-replicated single-factor structure across languages and shows good reliability (αs ≥ .80, ωs ≥ .86, and retest-stabilities ≥ .80 across six months for German-language versions; e.g., Ruch & Proyer, 2008a, b; see also Brauer & Proyer, 2021) and its Italian adaptation (Forabosco et al. 2009a, b; Vagnoli et al., 2021). However, the psychometric properties (i.e., item and scale parameters) of the Italian GELOPH < 15 > (Forabosco et al. 2009a, b) have not yet been replicated in an independent sample. Therefore, we tested and successfully replicated Foraboscos et al.'s findings on the psychometric properties of the Italian GELOPH < 15 > (e.g., single-factor structure with median loadings of .55; see Online Supplement for details).

The Coping Humor Scale (CHS; Martin & Lefcourt, 1983) is a 7-item self-report instrument to assess the degree to which respondents make use of humor in coping with stress in their lives. A sample item is "I often lose my sense of humor when I am having problems" and responses are given on a 4-point Likert-type scale from 1 (strongly disagree) to 4 (strongly agree). The internal consistencies are reported to be between .60 and .70, and a test–retest reliability coefficient of .80 over a 12-week period (Martin, 1996). There is good evidence for the validity (e.g., robust convergence with peer ratings). We used the Italian-language version of the CHS (Forabosco, 1994), which showed satisfying internal consistency for research purposes (α = .75; Pietrantoni & Dionigi, 2006[2]) and has been recently used for research on coping humor in Italian samples (Vagnoli et al., 2021).

The Humor Style Questionnaire (HSQ) is a 32-item self-report scale (Martin et al., 2003; Italian-language version by Penzo et al., 2011) that assesses four humor styles: (1) affiliative (using humor to amuse others and facilitate relationships; e.g., "I laugh and joke a lot with my closest friends"); (2) self-enhancing (using humor to cope with stress and maintain a humorous outlook during times of difficulty; "If I am feeling depressed, I can usually cheer myself up with humor"); (3) aggressive (using sarcastic, manipulative, put-down, or disparaging humor; "If someone makes a mistake, I will often tease them about it"); and (4) self-defeating (using humor for excessive self-disparagement, ingratiation, or defensive denial; "I let people laugh at me or make fun at my expense more than I should"). Respondents rate the degree to which each statement describes them on a scale from 1 (totally disagree) to 7 (totally agree). The reliabilities are satisfying for research purposes (αs between .77 and .81; test–retest reliabilities between .80 and .85 in a 1-week-interval). Martin and colleagues provided evidence for the validity by means of factorial validity, convergence with peer-ratings, and convergent validity. Sirigatti et al. (2014) provided robust evidence for the reliability and validity (e.g., Confirmatory Factor Analyses supported the 4-factor structure) of the Italian-language HSQ.

Procedure

Data collection was carried out before the outbreak of the global COVID-19 pandemic and concluded in 2018. Participants were recruited at the beginning of their respective training courses and asked to complete the paper–pencil questionnaires anonymously. Instructions were given orally by a trained psychologist and also provided in the questionnaire booklet. All participants took part in the survey voluntarily and remained anonymous at all times. There was no financial compensation. The study was conducted in line with the ethical guidelines of the APA. The study protocol was approved by the institutional review board of the Meyer Children's Hospital and participants' consent was obtained.

Data Analysis

In a first step, we analyzed the associations between gelotophobia (GELOPH < 15 >), the four humor styles (HSQ), and coping humor (CHS) by computing bivariate correlation coefficients using data of the full sample ($N = 550$). This allows us to examine the relationships among the constructs within all participants working in the health care context. Secondly, we examined whether the three study groups (i.e., PHCG, HTG, and CG) differ in gelotophobia, humor styles, and coping humor. Therefore, we computed a series of univariate ANOVAs with group as factor. Besides statistical significance, we inspect two effect sizes measures of interest: First, the ANOVA effect size η^2 (≥ 0.01/0.06/0.14 indicates a small/medium/large effect) informs about the overall effect of group membership. Second, we made post hoc group comparisons by computing Hedges' g effect sizes, which informs about the mean differences across the groups under consideration of the weighted group sizes

[2] Although there were slight differences in the translation of some items in Pietrantoni and Dionigi's (2006) version of the CHS, their internal consistency coefficient is a promising indication of the reliability of the instrument. Similarly, Canestrari, Bongelli et al., (2021a, 2021b) reported an alpha of .81 when using their Italian translation of the CHS.

($g \geq 0.20/0.50/0.80$ indicates a small/medium/large effect). This approach also allows us to examine differences among the subgroups in addition to testing the overall effect through the ANOVA and its associated effect size η^2 (Lakens, 2013).

Results

Associations Among Gelotophobia, Coping Humor, and Humor Styles

Findings of the correlation analyses of the relationships between gelotophobia, coping humor, and the four humor styles are displayed in Table 1. Preliminary analyses of the intercorrelations between the humor variables showed comparable findings to the literature (e.g., Chen & Martin, 2007). As expected, and in line with prior findings (Ruch et al., 2009), gelotophobia was negatively correlated with coping humor ($r = -.17$, $p < .001$). The analysis of the humor styles replicated the negative associations with affiliative and self-enhancing humor styles ($\geq 5.3\%$ shared variance) while being independent from self-defeating and aggressive humor ($rs \leq |.09|$). Hence, prior findings (Dursun et al., 2020; Ruch et al., 2009; Torres-Marín et al., in press) on the relationships among gelotophobia and Martin et al.'s (2003) humor styles replicated well in Italian healthcare workers, showing that with increasing fear of being laughed at healthcare workers tend to engage less in affiliative and self-enhancing humor while not utilizing humor as a coping strategy.

Comparing Gelotophobia and Inclinations to Humor Use across Subgroups of Healthcare Workers

Gelotophobia We compared the three groups PHCG, HTG, and CG concerning their expressions in fear of being laughed at and found a statistically significant difference (ANOVA: $F_{2,547} = 7.45$, $p = .001$; group means displayed in Table 2) accounting for a small effect size ($\eta^2 = 0.03$). In comparison to the PHCG, the HTG ($g = -0.65$) and the CG ($g = -0.64$) showed lower expressions in fear of being laughed at while there was no difference between the HTG and CG ($g = 0.05$).

Coping Humor For coping humor, we also found significant differences among the groups (ANOVA: $F_{2,547} = 9.68$, $p < .001$) with a small effect size ($\eta^2 = 0.03$). Again, the post hoc effect size analysis showed that the PHCG yielded the highest scores in comparison to the HTG ($g = -0.32$) and the CG ($g = -0.61$). Also, the HTG yielded higher scores than the CG ($g = 0.29$).

Humor Styles Next, we tested differences in the four humor styles among the groups and found that the groups differed only marginally: We found a small effect for differences in the affiliative humor style ($p = .015$, $\eta^2 = 0.02$), with the PHCG yielding higher scores in this style than the HTG ($g = 0.37$) and CG ($g = 0.49$), and a small difference between the HTG and CG ($g = 0.20$). Further, there was a minor effect for self-enhancing humor ($p = .043$; $\eta^2 = 0.02$), with the PHCG yielding small effects (higher scores) in comparison to the HTG ($g = -0.20$) and CG ($g = -0.37$), and the HTG being slightly higher than the CG ($g = 0.22$). Similarly, we found a small effect for the aggressive humor style ($p = .041$, $\eta^2 = 0.02$), with the PHCG yielding higher scores in this style than the HTG ($g = 0.50$) and CG ($g = 0.25$), and a small difference between the HTG and CG ($g = 0.21$). Finally, we found no robust group differences for the self-defeating humor style ($p = .136$; $\eta^2 < 0.01$). However, considering the overall small effect sizes, the findings should not be overinterpreted.

Discussion

Our study aimed at extending the knowledge on the fear of being laughed at (gelotophobia) and inclinations to use different humor styles (Martin et al., 2003) and coping humor (Martin & Lefcourt, 1983) among Italian healthcare workers. As in prior studies (Dursun et al., 2020; Ruch et al., 2009; Torres-Marín et al., in press), gelotophobia related

Table 1 Correlations between gelotophobia, humor styles, and coping humor

		Humor Styles			
	Gelotophobia	Self-Enhancing	Aggressive	Self-Defeating	Coping Humor
Humor Styles					
Affiliative	−.32**	.42**	.08	.23**	.27**
Self-Enhancing	−.22**		.06	.32**	.55**
Aggressive	−.02			.43**	−.04
Self-Defeating	.09				.25**
Gelotophobia					−.17**

*$p < .05$. **$p < .01$. Two-tailed. $N = 550$

Table 2 Average expressions of gelotophobia, coping humor, and humor styles among the Professional Hospital Clown Group (PHCG), Humor Training Group (HTG), and Control Group (CG)

	PHCG		HTG		CG	
	M	*SD*	*M*	*SD*	*M*	*SD*
Gelotophobia	1.52	0.32	1.82	0.45	1.84	0.49
Coping Humor	3.15	0.42	3.00	0.50	2.85	0.51
Humor Styles						
Affiliative	34.38	6.22	32.57	4.64	31.42	6.03
Self-Enhancing	27.79	5.98	26.79	4.98	25.56	6.04
Aggressive	21.37	6.35	19.10	4.15	20.11	4.98
Self-defeating	23.79	6.26	22.61	5.84	21.77	5.73

negatively to affiliative and self-enhancing humor while being uncorrelated from aggressive and self-deprecating styles of humor. As discussed previously (e.g., Ruch et al., 2014), this pattern could indicate that gelotophobes cannot see the positive valence in humor and laughter-related events and this also could be found in healthcare workers, who have daily contact with patients and colleagues in the hospital setting. The notion that gelotophobes are less inclined to see the positive sides and joy of laughter and humor is also supported by the negative correlation with coping humor, which suggests that gelotophobes do less engage in using humor as a means to cope with adversities. One might speculate that this has negative effects for their work and life satisfaction, when considering that Canestrari, Bongelli et al. (2021) findings highlight the importance of using humor to cope among healthcare workers in times of crisis for their experiences of work stress. Future research should collect data on the healthcare workers' satisfaction and stress experiences to examine whether coping humor mediates the association between gelotophobia and satisfaction or stress. Considering that prior research has found gelotophobia to relate negatively to satisfaction (e.g., Brauer & Proyer, 2018; Hofmann et al., 2017; Ruch & Stahlmann, 2020) an examination of the pathways between gelotophobia, humor use, and such outcomes is desirable. Also, further studies might investigate the GELOPH < 15 > in a variety of settings and might examine in deep, through qualitative approach, the meaning and use of humor from the patients, their family and healthcare workers' perspective. Investigating such processes is important, especially if humor interventions find their way into the ward and address patients and their family, which might fear being laughed at or might consider humor intervention inappropriate.

It must also be noted that gelotophobia was unrelated from two of Martin et al.'s (2003) humor styles; namely, aggressive and self-defeating styles. Thus, gelotophobes do not systematically engage in or avoid those styles, thus, a portion of gelotophobes engage in those styles. These styles are regarded negatively as they are detrimental to social relationships by hurting and alienating others (aggressive humor style; Martin et al., 2003) and used as "defensive denial, or the tendency to engage in humorous behavior as a means of hiding one's underlying negative feelings or avoiding dealing constructively with problems" (p. 54, Martin et al., 2003). Therefore, it can be expected that gelotophobes who engage in those humor styles might have increased difficulty in dealing with stressors in their healthcare work. Again, a study testing the mediating effects of humor styles on the association between gelotophobia and outcomes such as stress or job satisfaction could address this question in future research. Taken together, prior findings on the associations between fear of being laughed at and humor styles and coping humor could also be replicated in Italian healthcare workers who engage in social interactions with patients and colleagues in a stressful context on a daily basis.

Furthermore, we compared the three subgroups of the healthcare workers, namely, those who were working as hospital clowns, attended a humor training, and controls who did not actively attend humor-based trainings, in how they differ in gelotophobia, coping humor, and humor styles. As expected, those working as hospital clowns showed the lowest fear of being laughed at, followed by those attending humor training and controls. This fits into expectations because hospital clowns and those learning to use humor in their healthcare work actively seek and establish situations in which they can make patients laugh whereas participants with inclinations to gelotophobia were expected to tend to avoid situations involving laughter (e.g., Ruch and Proyer, 2008a). This might be seen as preliminary evidence that gelotophobia relates to a reduced likelihood of taking courses that aim at helping healthcare workers to utilize laughter and humor in their everyday work in the hospital. This might prevent gelotophobic healthcare workers to learn strategies that are supportive when dealing with stress and clinical everyday life. In a hospital setting, laughter can become an important resource to improve communication and collaboration, but we should consider that humor interventions may not be appropriate for all patients and professionals since fear of being laughed at might play a role for the success of humor interventions (cf. Proyer & Rodden, 2020). Therefore, it is important to consider the level of gelotophobia in

healthcare professionals and patients to tailor non-pharmacological treatment that involves laughter and humor.

In exploratory analyses, we found that the groups differed with regard to coping humor, with the hospital clowns showing the highest expressions followed by attendees of the humor training, and controls. Prior research has shown that using humor as a measure to cope has positive effects on the experience of stress (e.g., Canestrari, Arroyo, et al., 2021; Canestrari, Bongelli, et al., 2021; Overholser, 1992). One might argue that training measures support healthcare workers in utilizing their humor to cope with adverse situations and stress at work, but longitudinal studies are needed to clarify this assumption. In conjunction with the findings on gelotophobia, one might speculate that fear of being laughed at goes along with less inclinations to utilize humor to cope with adversities experienced at work, but this assumption should be verified in a longitudinal mediation model. This might contribute to also understand why gelotophobia relates negatively to job satisfaction (e.g., Hofmann et al., 2017). However, further research is needed to clarify this assumption. Also, it would be of interest to examine whether learning to cope with stressors by using humor could be beneficial for gelotophobes with regard to how they perceive negative and positive events (i.e., attributional styles; see Brauer & Proyer, 2020b), mood, and satisfaction. Although gelotophobes perceive themselves as being humorless, Ruch and colleagues (2009) found that they produce similarly humorous content as non-gelotophobes, and it might be possible that gelotophobes could benefit from learning to use humor as a mean to cope with stress, for example, in trainings involving theoretical units instead of practical exercises including being the focus of others' attention and making others laugh. Finally, when testing the group differences with regard to Martin et al.'s (2003) humor styles, we did only find minor effects that, in short, indicated that the hospital clowns engaged in greater use of the affiliative, self-enhancing, and aggressive humor styles, particularly in comparison to the control group. While this might again indicate that the clowns who actively engage in humorous interactions on a daily basis show greater inclinations to use humor in comparison to healthcare workers who did not attend any humor related training (i.e., control group) more frequently, this finding should be interpreted cautiously, as the effect sizes for the group differences were of small size and indicate only minor differences. Furthermore, it would be interesting to examine whether the hospital clowns are also better than the comparison groups in using their humor more appropriately. As discussed, humor is not used and perceived uniformly and it would be interesting to examine whether the group differences also translate to appropriately engaging in using humor (styles) with regard to the patients, colleagues, and situational contexts (e.g., Ferguson & Campinha-Bacote, 1989; Martin, 1996; Martin & Lefcourt, 1984). Future research might examine whether similarity between patients and those providing care plays a role in the patient—healthcarer relationship, in the sense that the matching and similarity between patients' and healthcare workers' inclinations to use humor and engage in laughter is more important than the individuals' expressions in gelotophobia and humor styles. This matching hypothesis would assume that patients with increased gelotophobia would benefit from being treated by a healthcare worker that is gelotophobic and would avoid using laughter in their social interactions instead of being treated by a healthcare professional who frequently engages in humor and laughter (vice versa, patients low in gelotophobia and preferring to engage in humor might benefit form a healthcare worker with similar inclinations to engaging in humor and laughter). Testing the dyadic levels of gelotophobia, humor styles, and coping humor in relationships of patients and carers might be a fruitful direction for further research on humor and laughter in the healthcare context.

Considering the ongoing interest in assessing gelotophobia in Italian-speaking samples (e.g., Canestrari et al., 2019; Canestrari, Arroyo, et al., 2021; Canestrari, Bongelli, et al., 2021; Vagnoli et al., 2021), we replicated findings on the psychometric properties and structural validity of the Italian-language version of the GELOPH < 15 > as an auxiliary aim of our study. Our findings showed comparable reliability coefficients for the Italian GELOPH < 15 > as in previous studies (Forabosco et al., 2009a, b) and we replicated the unidimensional factor structure in line with prior studies (e.g., Brauer & Proyer, 2021; Ruch & Proyer, 2008a, b) and other language versions. Our findings further support the good psychometric properties, reliability, and structural validity of the Italian GELOPH < 15 > . However, further work on the external validity is desirable. For example, testing associations with broad personality traits such as the Big Five or HEXACO traits (see e.g., Torres-Marín et al., 2019, in press) and narrow constructs (e.g., romantic and parental attachment styles; see Brauer et al., 2020; Canestrari et al., 2019, 2021; Canestrari, Bongelli, et al., 2021) but also with the two other dispositions toward ridicule and being laughed at; namely, joy in being laughed at (gelotophilia) and joy in laughing at others (katagelasticism; Ruch & Proyer, 2009a).[3] Finally, it would be desirable to examine the predictive validity of the Italian GELOPH < 15 > by testing relations with more objective criteria such as external diagnoses of gelotophobia (Ruch & Proyer, 2008b), daily diary data on

[3] To the best of our knowledge, Canestrari and colleagues (2019, 2021) have used a translation of the short form of the instrument to assess gelotophobia, gelotophilia, and katagelasticism, which could be a fruitful starting point to examine the associations between the GELOPH < 15 > and gelotophilia and katagelasticism in Italian-speaking samples.

gelotophobic behaviors (cf. the 18-item gelotophobia behavior record; Brauer & Proyer, 2020c), or semi-projective tests such as the Picture < GELOPH > (Ruch et al., 2017).

Limitations and Outlook

Our findings must be interpreted with regard to several limitations. First, the gender ratio was imbalanced, and a replication with more balanced gender ratios is desirable. Secondly, our study was exclusively based on self-reports; the inclusion of peer ratings would contribute to extend on the validity by testing the self-peer and peer-peer convergence for the humor variables. Prior research has reported robustly positive self- and peer agreement for gelotophobia (Brauer & Proyer, 2021), even when strangers base their impressions on minimal information (e.g., short self-descriptions; Brauer & Proyer, 2020c). Using external ratings would help to minimize self-report biases that might exist when gelotophobes report their humor-related behaviors (Ruch et al., 2009). Thirdly, our external measures are, although frequently used, subject of criticism; for example, there is robust critique of the HSQ's validity (see e.g., Heintz, 2019; Ruch & Heintz, 2017). Fourthly, Ruch and Proyer (2009) have identified two other dispositions that describe how people deal with laughter, namely, gelotophilia (joy in being laughed at) and katagelasticism (joy in laughing at others) and it would be interesting to examine their role for healthcare workers and their humor styles for a more fine-grained understanding. Fifthly, our study was based on cross-sectional data, and we cannot address the direction of effects. As discussed, it would be of interest to examine whether attending a humor-related training affects how people deal with laughter, engage in humor, and use humor as a means to cope. This should be addressed by longitudinal studies. Also, our data collection was concluded before the COVID-19 pandemic outbreak and a replication and extension of findings is desirable in future studies since attitudes to humor and its usage (i.e., frequency and context) might have changed during the pandemic (e.g., Bischetti et al., 2021). Taking the conceptualization of gelotophobia as a personality trait into account (i.e., being stable across situations and time; Ruch & Proyer, 2008b, 2009), we would not expect robust changes based on the occurrence of the pandemic. Taken together, our findings contribute to the knowledge in the field by examining the associations between gelotophobia and inclinations to humor styles and using humor to cope in the group of healthcare workers as well as providing further support for the good psychometric properties, reliability, and validity of the Italian language version of the GELOPH < 15 > .

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Authors' Contribution LV conceived of the study, participated in its design and coordination, participated in the data analysis and interpretation, and drafted the manuscript.

KB drafted the manuscript, participated in the data analysis and -interpretation, and revised the paper critically.

VM conceived of the study, participated in its design and coordination, and drafted the manuscript.

FA participated in the design and interpretation of the data, performed the measurement and the statistical analysis, and revised paper critically.

WR participated in the data analysis and interpretation and revised the paper critically.

All authors read and approved the final manuscript.

Data Availability The instruments have been referenced accordingly.

Code Availability Data and syntaxes are available from the first author upon reasonable request.

Declarations

Ethical Approval The study protocol was approved by the institutional review board of the Meyer Children's Hospital.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Conflict of Interest The authors declare that they have no conflict of interest.

Human Studies All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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