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3 **Estimates of gelotophobia and perceived stress among obese**
4 **individuals**

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9

10 **Abstract**

11 **Objectives:** The present research was carried out to find out an estimate of
12 gelotophobia among obese individuals. Perceived stress and differences on
13 socio-demographic factors were also studied.

14 **Method:** The survey design cross-sectional study was conducted from January
15 to June in 2018. A sample of 70 consenting participants (men = 22, women =
16 48) with BMI ≥ 25 were recruited through purposive sampling. The instruments
17 of Geloph<15> and Perceived Stress Scale (PSS) were used to assess the level
18 of gelotophobia and level of stress in the sample. Demographic details of
19 sample were also recorded to achieve study objectives.

20 **Result:** The estimate of gelotophobia among obese individuals in the current
21 study showed that 64.2% majority sample had moderate level of gelotophobia,
22 while 10% of the sample had high level of gelotophobia. Statistically significant
23 differences were observed in the level of gelotophobia among individuals
24 having different levels of socio-economic status ($p < .05$) and with history of
25 being ridiculed by peers ($p < .05$). However, the present study did not show any
26 significant demographic difference in perceived stress ($p > .05$).

27 **Conclusion:** The findings of the study could provide evidence in favour of
28 developing and implementing suitable intervention programs to help control risk

29 of gelotophobia among obese individuals. The study could also assist in creating

30 awareness and understanding about harmful consequences of bullying and

31 nurturing a healthier narrative of conversations and humour among the youth.

32 **Keywords:** Humor fear, obesity, BMI, body weight.

33

34 **Introduction**

35 Gelotophobia is identified as an individual's fear of appearing ridiculous or

36 being laughed at in a social group.[1] This term has been identified as a separate

37 concept and being theorized and studied empirically since only the present

38 decade.[1,2] Originally highlighted in clinical context, it is now identified and

39 researched in the normal population as another form of fear based response after

40 the construction of a reliable and valid quantitative assessment tool,

41 'GELOPH<15>'.[2,3] Gelotophobia is conceptualized as a continuum ranging

42 from the absence of fear to presence of a strong one, even in response to

43 laughter motivated by compassion.[4]

44 The core symptoms of gelotophobia include getting suspicious when hearing

45 others laughing, relating the laughter by others to oneself, or feeling unease

46 when hearing others laughing that might also impair body control.[2] The person

47 believe that something essential is wrong with him/her, therefore, it is inevitable

48 that he/she makes a funny impression on others. A key feature in establishing

49 the uniqueness of gelotophobia has been its significant distinction from other

50 already studied and closely associated concepts. Considerable evidence

51 suggested that even though gelotophobia shares features with personality

52 dimensions and variables of social anxiety, shame proneness, timidity, low self-

53 esteem, and insecurity, it cannot be entirely explained by either.[5,6]

54 Weight based teasing is globally identified as common among overweight and

55 obese adolescents and young adults.[7] Based on the WHO expert consultative

56 committee suggestion of body mass index (BMI) cut-offs for South Asian

57 population, a BMI equals to or greater than 25 is categorized as 'obesity',

wherein BMI is calculated as a person's weight in kilograms divided by the square of his/her height in meters.[8] Obesity and overweight are stigmatized in most populations and are accepted as well as promoted as a subject of ridicule. Such stigmatization and teasing places its victims at risk to internalize a negative self-concept and decline in their psychological health.[9] Weight-based teasing from peers and parents in adolescence can also result in weight gain, unhealthy weight control and eating to cope 15 years later.[10]

Low body weight and slim figures are increasingly highlighted as merit for social and even personal approval, and pressure to conform to achieve an ideal body type has considerably increased in the collectivist socio-cultural context of Pakistan.[11] Owing to this identified vulnerability of obese population in Pakistan towards developing gelotophobia, it is of prime significance to bring forth empirical data that facilitates its comprehension in the present sociodemographic relevance.

Although existing literature indirectly identifies relation between gelotophobia and stress, however, the same has not been studied among stigmatized obese population in the present region. A contextualized understanding of this connection is deemed vital for identifying suitable coping and preventive strategies against gelotophobia for clinical and non-clinical populations. The prime objectives of the present study were to find an estimate of gelotophobia among obese individuals, and to identify difference in levels of gelotophobia and stress across sociodemographic factors of socioeconomic status, history of being teased by peers, age, gender, and marital status.

Method

The current study used cross-sectional survey research design to achieve stated objectives. The study was conducted from January to June in 2018 in Islamabad. Data was collected from multiple formal and informal settings, such as, educational institutions, hospitals, and restaurants. Sample consisted of

87 individuals who were overweight (BMI ≥ 25) and have age ≥17 years. This
88 study used purposive sampling with inclusion and exclusion parameters for
89 sample selection. Concerning sample size estimation, Hair and his colleagues
90 regarded five respondents per variable to be considered as the lower limit but
91 the most acceptable is 10:1 ratio (10 samples for one variable).[12] To solicit
92 data, 200 participants were approached, out of which 70 met inclusion criteria
93 of age and weight and were included as study sample, including both men (n =
94 22) and women (n = 48). The exclusion criteria comprised of any diagnosed
95 medical condition, pregnancy, currently being on medication (for the treatment
96 of any general medical condition) and having a family history of obesity.

97 Ethical approval for the study was taken from departmental ERC (ethical review
98 committee) at the university where this research was carried out.

99 Screening of approached sample was done by recording participants' weight
100 and height on a weighing machine and stadiometer respectively and calculating
101 their BMI. Informed consent was requested from selected participants after they
102 were briefed about their rights as study sample, confidentiality of their
103 responses, minimum risk of participation and right to withdraw. Consenting
104 participants then completed provided survey booklet entailing demographic
105 questions, GELOPH<15> and Perceived Stress Scale. Average recorded survey
106 completion time was 10-15 minutes.

107 Description of the tools utilized: GELOPH<15>, a self-report instrument is used
108 to identify levels of gelotophobia. It has 15 statements to be rated in degrees of
109 agreement or disagreement by the respondents on a 4-point scale that ranges
110 from 1 (strongly disagree) to 4 (strongly agree). Total score is computed by
111 adding score on all the items which ranges 15-60. High score means high level
112 of gelotophobia and vice versa. In a past research, all items of the GELOPH
113 were translated to 42 different local languages of the collaborator. From 73
114 countries, 22,610 participants completed the GELOPH. Across all samples, the
115 reliability was high (mean alpha of 0.85).[13]

116 Perceived Stress Scale is the most widely used tool for measurement of
117 perceived stress.[14] It is a measure of degree to which situations in one's life are
118 appraised as stressful. Items are designed to identify how unpredictable,
119 uncontrollable, and overloaded respondents find their lives to be. The questions
120 in this scale ask about participants' feelings and thoughts during past one
121 month. In each case, participant will be asked to indicate how often they felt or
122 thought a certain way. A total of ten items are scored on a 4-point Likert scale.
123 Scores are obtained by reversing responses (0=4, 1=3, and so on) to the four
124 positively stated items (items 4, 5, 7, & 8). Total added score ranges from 0-40,
125 with 0-13 considered low stress, 14-26 moderate stress, and 27-40 high
126 perceived stress.

127 Demographic Data Sheet was developed by the researcher to record sample's
128 sociodemographic information of height, weight, BMI, age (late adolescents,
129 young adults, middle adulthood and late adulthood), gender, education, marital
130 status (single, in a relationship, married), self-reported socioeconomic status
131 (elite class, upper middle class, middle class), occupation (housewife, student,
132 teacher, doctor, manager, self-employed, private job, strugglers), exercise
133 adherence (including walking, running, jogging etc), number of times they
134 examined self in the mirror per day, and recalled number of incidents when they
135 were teased/ridiculed in the past.

136 The collected data was entered into SPSS software. Descriptive analyses
137 comprising of skewness and kurtosis calculation, t-test, ANOVA, and
138 correlation analyses were used to fulfil research objectives. Skewness and
139 kurtosis values on both variables were well within range to declare the data to
140 be normally distributed. The level of significance for all statistical measures was
141 kept at $p = 0.05$.

142 **Results**

143 The sample consisted of 70 participants (22 men and 48 women, 31.43% and
144 68.57% respectively) ranging from 17-56 years with 41 individuals (58.6%)

145 aged between 17-26 years, 20 between 27-36 years (28.6%) and 9 individuals

146 aged between 37-56 years (12.8%). Majority of the participants belonged to

147 student population. Those who did not engage in any physical health exercise

148 (which includes walking, running, jogging etc.) were 41 (58.6%) while 29

149 reported to exercise regularly making them 41.4% of the sample. Out of 70, 29

150 participants (41.43%) reported no history of being teased in the past. However,

151 more than half of entire sample (*n*=41, 58.6%) reported of being teased or

152 ridiculed by their peers by varying frequency of occurrence (almost always=4,

153 5.7%, often=14, 20%, sometimes=13, 18.6%, seldom=10, 14.3%).

154 The alpha reliability coefficient of GELOPH<15> scale for the present study

155 was calculated to be highly reliable with a value of 0.93 whereas for Perceived

156 Stress Scale (PSS) it was found 0.73, which is acceptable. Data collected using

157 these reliable measures were then used to carry out further analyses.

158 Table I illustrates the percentage of sample who reported experiencing different

159 levels of gelotophobia on the GELOPH<15> scale. Sample total scores falling

160 at or below 25th percentile indicated low level of gelotophobia, scores falling

161 between 25th and 75th percentile showed moderate level, while scores falling at

162 or above 75th percentile showed high level of gelotophobia. Frequencies and

163 percentages in each category revealed a symmetric distribution of scores, where

164 majority sample was identified experiencing moderate levels of gelotophobia

165 (*n*=45, 64.2%), fewer were in low level range (*n*=18, 25.8%), and the least in

166 high level range (*n*=7, 10%).

167 Table II illustrates statistically significant differences between the elite, upper

168 middle and middle socioeconomic classes in reported means on GELOPH<15>

169 for gelotophobia (*p*=0.01). Among three socioeconomic groups, the highest

170 mean score for gelotophobia was in upper middle class (*M*=36.83, *SD*=13.09),

171 second highest was in middle class (*M*=35.33, *SD*=9.82), and the lowest in elite

172 class (*M*=25.92, *SD*=9.67). Results from post-hoc analysis revealed that elite

173 class experienced statistically significantly lesser gelotophobia than both, upper

174 middle class (i-j=10.91, p<0.05) and middle class (i-j=9.41, p<0.05). There is

175 no statistically significant difference identified among sample from different

176 socio-economic status on Perceived Stress Scale score.

177 Results in table III illustrate statistically significant differences in degree of

178 gelotophobia experienced among individuals who reported history of being

179 teased or ridiculed in the past by peers in varying frequency (p=0.02).

180 Individuals who reported to be teased often in the past have highest mean score

181 on gelotophobia (M=42.07, SD=12.30). Moreover, post-hoc analyses revealed

182 that participants who had history of often being teased by peers experienced

183 statistically significantly higher gelotophobia than those who reported no history

184 of being teased (i-j = 11.52, p < 0.05). No statistically significant difference was

185 seen among the groups on perceived stress. Mean differences for gelotophobia

186 and perceived stress were statistically insignificant for all other demographic

187 variables studied in the sample including gender, marital status, occupation and

188 exercise routine.

189 Correlation analysis showed a significant positive correlation between

190 gelotophobia and perceived stress (r =.57, p = 0.03) indicating an increase in

191 gelotophobia is associated with an increase in perceived stress level and vice

192 versa.

193

194 **Discussion**

195 Weight based stigmatization is observed consistently across regions and cultures

196 and is often highlighted in literature for its detrimental influence on social and

197 mental health of the individual. A multinational study involving 73 countries

198 including a sample from Pakistan provided evidence for existence of

199 gelotophobia in various places of the world.[13] Gelotophobia is recently been

200 associated with physical appearance of the fearful person. Weight based teasing

201 adds risk to a heightened experience of gelotophobia, and further lead to

202 isolation seeking behaviour among other emotional and psychological

203   disadvantages.[15] Owing to the dearth of contextually relevant literature on same

204   picture in Pakistan, the present study aimed to assess how present population

205   sample with obesity experience gelotophobia.

206   The achieved objectives of the present study supported prevalence of medium to

207   high levels of gelotophobia in two-third of the sample. On one hand, this finding

208   asserted the presence of gelotophobia in normal population of Pakistan; on the

209   other hand, it highlighted lack of contextual understanding as our blind spot.

210   The need to overcome this blind spot in both clinical and non-clinical settings is

211   significant in light of the risk, it adds to wellbeing of the youth.[15] Similar

212   results were seen in a recent study concerning gelotophobia in India, more than

213   one fourth of the participants (27.70 %) exceeded a cut-off score indicating a

214   slight expression of gelotophobic symptoms.[16]

215   Current study found participants who had history of often being teased by peers

216   experienced statistically significantly higher gelotophobia than those who

217   reported no history of being teased. Weight based stigmatization is a dynamic

218   social and interpersonal phenomenon, where it is not always the objective

219   weight, which attracts teasing and ridicule from others, rather it is the

220   perception of weight and body image in a person, which places them in a higher

221   probability to experience stigmatization or teasing, and be sensitive towards

222   it.[17,18] Recent studies have identified that gelotophobia is associated with lower

223   degree of body appreciation, appearance control beliefs, and higher body

224   surveillance and body shame.[19] Thus objective weight and physical appearance

225   as well as subjective interpretation of both relates to the experience of

226   gelotophobia. A person with overweight might experience lower levels of

227   gelotophobia if they have a higher appreciation and satisfaction towards their

228   physical attributes. However, development of a healthy body image would be

229   hindered with each experience of being teased and ridiculed, as that is linked

230   with higher gelotophobia symptoms in sample of the study. Current study found

231 no statistically significant difference on perceived stress between the individuals
232 with a past history of being ridiculed or teased.

233 The role of social norms is highlighted in this study, where acceptable standards
234 of physical appearance dictate the perception and interpretation of weight and
235 body form, and whether it is acceptable to target certain weight and body types
236 as subject for teasing, ridicule or stigmatization. Study results showed that obese
237 individuals from elite socioeconomic group experience low gelotophobia as
238 compared to other, might indicate that financial security or status protects
239 against fear of being laughed at, or that the elite population follow a different set
240 of social norms altogether where obesity is not stigmatized.

241 According to the findings of current study, there are no statistically significant
242 gender differences on gelotophobia and perceived stress among obese
243 individuals. This is consistent with the result found in a study with a sample
244 from India, a region which is culturally more relevant to compare.[16] However,
245 men scored slightly higher than women on Geloph scale, while women scored
246 slightly higher than men on PSS. Previous study showed that women are more
247 fragile towards mockery than men. In a past study individuals with a feminine
248 psychological gender scored higher on gelotophobia as compared to masculine
249 psychological gender.[20] A recent study with adolescents revealed more
250 pronounced weight and shape concern in females than males.[21]

251 The mean score difference of gelotophobia and stress among individuals who
252 exercise and who do not exercise was analysed through independent t-test. The
253 gelotophobia and stress mean score of individuals who do not exercise was
254 slightly higher than those who exercise but the difference on both was not
255 statistically significant. Gelotophobes have a fear of presenting themselves as
256 ridiculous objects in front of their social partners.[22] This could probably be one
257 of the reasons due to which they avoid exercising because they fear that they
258 look absurd to others around them.

259 Concerning the relationship between gelotophobia and perceived stress, the
260 current study found a significant positive correlation between the two variables.
261 High level of gelotophobia is associated with greater perceived stress among
262 obese individuals. Past studies have established association between weight
263 status and stress among adolescents and revealed that obesity could lead to
264 stress, depression and low self-esteem.[23,24] The finding of this study
265 contributed to existing literature on stress and weight by showing a positive
266 relationship between gelotophobia and perceived stress among a sample of
267 overweight individuals.

268 The study has few limitations, which might have affected the results obtained.
269 Firstly, study selected participants were from a single city, which limit the scope
270 of generalization of its findings. Secondly, the study employed a cross-sectional
271 research design, which provided a snapshot of the phenomenon. Longitudinal
272 research can be more helpful in establishing the course of development of
273 gelotophobia and stress among overweight and obese individuals.

274

275 **Conclusion**

276 Present study highlighted common presence of moderate degree of gelotophobia
277 in the present sample of obese individuals. It brings forward the prevalent
278 teasing and ridicule often experienced by largely student sample of obese
279 individuals, and further adding risk for increase on gelotophobia for these
280 individuals. These findings provided a foundation for addressing pertinent
281 concern of weight-based stigmatization, informed the need for generating public
282 awareness of its related hazards from clinical perspective, and identified an at-
283 risk population of students where initiation of suitable interventions would
284 prove most beneficial.

285

286 **Disclaimer:** None

287 **Conflict of interest:** The authors declare they have no conflict of interest.

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367 **Table 1: Level of Gelotophobia in Obese Individuals (N = 70)**

Level of Gelotophobia	f	(%)
Low	18	25.8
Moderate	45	64.2
High	7	10

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371 **Table 2: Gelotophobia and Perceived Stress for Socio-economic Status of**
372 **Participants (N=70)**

Variables	Elite class (n= 13)	Upper middle (n= 24)	Middle class (n= 33)	F	p
	M±SD	M±SD	M±SD		
Gelotophobia	25.92±9.67	36.83±13.09	35.33±9.82	4.52	.01
Perceived Stress	21.69±3.63	25.38±6.06	23.00±6.14	2.04	.14

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376 **Table 3: Gelotophobia and Perceived Stress for Frequency of Being Teased**
377 **(N=70)**

Variables	Always (n= 4)	Often (n=14)	Sometimes (n=13)	Seldom (n=10)	Never (n=29)	F	p
	M±SD	M±SD	M±SD	M±SD	M±SD		
Gelotophobia	37.00±11.19	42.07±12.30	35.69±10.69	30.00±13.44	30.55±9.28	3.12	.02
Perceived Stress	24.25±6.29	26.64±5.63	24.54±6.93	21.20±6.28	22.38±4.76	1.88	.12

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