Fear of being laughed at with relation to parent attachment in individuals with autism

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A B S T R A C T

The model of putative causes and consequences of gelotophobia (i.e., the fear of being laughed at) assumes that the fear of being laughed at develops as a consequence of (1) individuals’ having been laughed at over a long period of time and (2) failing interactions with parents. Past studies show that individuals with autism are subjected to being laughed at and that they tend to worry about being laughed at or ridiculed, but empirical studies investigating the interactions of individuals with autism with parents and these connections between these interactions and gelotophobia have been lacking. The purpose of this study was to identify the characteristics of gelotophobia in individuals with autism and to determine how these characteristics are connected to parental attachment. This study was conducted on 101 students of average intelligence with autism and 163 without autism, with homogeneous ages and gender ratios between the groups. The methods of research consisted of the PhoPhiKat-TC questionnaire and the Inventory of Parent and Peer Attachment (IPPA). Compared to students without autism, students with autism were found to exhibit a higher level of fear and dislike of being laughed at but showed no difference from students without autism in enjoying laughing at others. In addition, gelotophobia in students with autism was related to attachment to the student’s father but not attachment to the mother, thereby implicating a role for paternal interactions in its development. To decrease the tendency that adolescents with autism have towards exhibiting gelotophobia, this study suggests improving child–father interactions through parent education.

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Gelotophobia is the characteristic wherein individuals fear being laughed at (Ruch & Proyer, 2008a) and therefore feel anxious or worried; its putative causes include individuals’ being repeatedly ridiculed or laughed at in childhood and adolescence (Ruch, 2004; Titze, 2009; Ruch, Proyer, & Ventis, 2010; Proyer, Monica, Platt, & Ruch, 2012) and failing to develop interpersonal relationships with significant others in infancy (Proyer, Estoppey, & Ruch, 2012; Proyer & Monica, 2013). Individuals with autism have severe difficulties with social interaction and communication (APA, 2013), and studies

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show that these difficulties result in being laughed at by peers and experiencing increased worry about being laughed at. However, one of the putative causes of gelotophobia, child–parent attachment, requires further empirical studies to be verified. This study thus proposes identifying the connection between gelotophobia and attachment to parents in individuals with autism to have a fuller understanding of the causes of gelotophobia.

1. Being laughed at induces fear

Most people do not like being laughed at, and emotions such as anger, shame, and anxiety emerge from these experiences (Platt and Ruch, 2009); however, most of the time, people know how to handle such situations (Chen, Chan, Ruch, & Proyer, 2011). Gelotophobes, however, cannot distinguish the differences between playful teasing and ridicule; they consider all types of laughing hostile and worry that their behaviour was placed under the microscope (Titze, 2009), which leads them to social withdrawal, low self-esteem, and lack of sense of humour.

To quantify the degree to which one feels being laughed at, Ruch and Proyer (2008b) developed a self-report inventory with 15 items, the GELOPH Use angular brackets (15). They consequently extended another two concepts of “laugh”—gelotophilia (i.e., the joy of being laughed at) and katagelasticism (i.e., the joy of laughing at others). Ruch and Proyer (2009) further developed the PhoPhiKat (45) questionnaire to evaluate the tendency of an individual towards gelotophobia; gelotophobia correlates negatively with gelotophilia but positively with katagelasticism. For Chinese-speaking regions, Chen et al. (2011) translated the PhoPhiKat into Traditional Chinese and validated the correlation between gelotophobia and other personality features. The results of an empirical study showed that gelotophobia was positively correlated to positive humour styles (Chen et al., 2011) but negatively correlated to some Big Five traits such as extraversion, agreeableness, emotional stability, and openness to experience (Chen et al., 2011; Ruch & Proyer, 2009; Ruch, Harzer, & Proyer, 2013). According to the results of cross-cultural studies, Chinese individuals tend to fear being laughed at more than Swiss individuals do, and a significant difference in the tendency towards gelotophobia has been found comparing Eastern and Western cultures.

In conclusion, one’s tendency towards gelotophobia differs individually. However, why are some people more afraid of being ridiculed than others? The model of the putative causes and consequences of gelotophobia suggests that gelotophobia originates from individuals’ being unable to feel loved or appreciated in their interactions with parents during early development and consequently failing to acquire a sense of belongingness; it may also result from traumatic experiences of repeated ridicule or bullying in childhood and adolescence. This model is continuously supported by the results of relevant studies. Ruch (2004) showed that personal experiences and issues with attachment relationships in childhood or adolescence lead to social withdrawal and gelotophobia. By focusing on the parent–child interaction, Proyer et al. (2012) showed that the style of the parent–child relationship could be an index of a child’s fear of being laughed at, insofar as children tend to be afraid of being teased when the parenting style is rooted in discipline and control. Weibel and Proyer (2012) noted that children have a diminished tendency towards gelotophobia when they receive more support from parents. Moreover, Platt (2008) first investigated the relationship between bullying experience and gelotophobia, which were found to be positively correlated ($r = 0.47$). In a study by Samson, Huber, and Ruch (2011), gelotophobia was found to correlate positively with past social experiences of being laughed at, meaning that, for adults, the level of gelotophobia increases with the frequency and seriousness of such experiences in the past.

2. The causes of worries about mocking and ridicule experienced by individuals with autism

Autism is a neurodevelopmental syndrome resulting in difficulties in behavioural performance, social interaction, and communication; autism also leads to difficulties with learning and routine activities (APA, 2013). According to theory of mind, individuals with autism lack the skills needed to interpret social and emotional information (Baron-Cohen et al., 1999; Baron-Cohen, Wheelwright, Hill, Raste, & Plumb, 2001; Bowler, 1992; Wu et al., 2014). Having little of the necessary understanding of communication skills, social cues and norms, individuals with autism, although eager to form friendship with others, often act in a strange or awkward manner, sometimes even exhibiting emotional outbursts because of their neurotic disposition and thus become the targets of peer pranks, ridicule, and bullying (Carter, 2009; Myles & Simpson, 2003). These repeated traumatic experiences lead to a higher level of gelotophobia in individuals with autism.

Another cause of gelotophobia in individuals with autism may involve interactions with significant others in early life (Samson et al., 2011), that is, attachment to the primary caretaker (Ainsworth, 1969; Bowlby, 1977). Individuals’ attachment to parents, however, does not only exist in childhood but continues through adolescence to adulthood (Ainsworth, 1989; Bowlby, 1988). This argument is supported by numerous studies that have found that individuals with autism show no differences from people without autism with regard to attachment to parents; this is especially true for those with high-functioning autism (Germbscher et al., 2005; Haltigan, Ekas, Seifer, & Messinger, 2010; Rutgers, Bakermans-Kranenburg, van Ijzendoorn, & van Berckelaer-Onnes, 2004; Sigman & Ungerer, 1984; Shapiro, Sherman, Calamari, & Koch, 1987), and the results of this series of studies pioneered by Sigman et al. (1987) have been stable and highly replicable. A meta-analytic review of 16 empirical studies was conducted by Rutgers et al. (2004), in which no difference in attachment relationships with significant others was detected between children with autism and children without autism, indicating that individuals with autism have evident difficulties with communication and social interactions but that these difficulties do not influence attachment relationships with significant others. Parental attachment of individuals with autism may therefore be connected to gelotophobia in a manner identical to that of people without autism.
People with autism feel that their parental attachments are not different than the parental attachments of others; however, the parents of people with autism might not feel the same about their children. Sabrina and David (2012) argued that mothers of individuals with autism felt less attached than the individuals’ fathers did; thus, the relationship between mothers and their children with autism is likely to be tense and negatively affect education. This latter relationship might be a potential cause of the tendency for individuals with autism who experience gelotophobia to perceive differences in attachment to their fathers and mothers.

3. The present study

The causes of gelotophobia for people without autism have been discussed in previous studies. Samson et al. (2011) has noted that people with autism are more obviously afraid of being laughed than people without autism, which raises the concern of causes of gelotophobia for people with autism. The study of Samson et al. (2011) primarily discussed the relationship between past experiences of being mocked and the tendency towards gelotophobia and focused less on the link between parental attachment and gelotophobia. Hence, to find out the potential causes of gelotophobia, the present study aimed to understand the connection between the tendency towards gelotophobia for individuals with autism and attachment to their parent(s). For subjects, we recruited junior high school students and increased the sample size.

First, we duplicated past research establishing groups (students with autism versus those without autism as the control group) and attachment (paternal versus maternal) as independent variables. We hypothesised that students with autism would have a greater tendency towards gelotophobia and would more dislike being laughed at than the members of the control group. However, students with autism and those in the control group did not differ in their tendencies towards exhibiting gelotophilias. Second, as in a series of studies by Sigman et al., the present study also assumed that the parental attachments for the students with autism would be the same as those for the control group (Gernsbacker et al., 2005; Halitgan et al., 2010; Rutgers et al., 2004; Sigman & Ungerer, 1984; Shapiro et al., 1987). Last, we calculated the correlation between the tendency towards gelotophobia and parental attachment for the students with autism.

We also assumed that the tendency towards gelotophobia is significantly related to maternal attachment but not to maternal attachment in students with autism, consistent with empirical work modelling the putative causes and consequences of gelotophobia (Chen et al., 2011; Platt, 2008; Proyer et al., 2012; Ruch, 2004; Samson et al., 2011; Titze, 2009; Weibel & Proyer, 2012) and work noting differences in attachment as perceived by parents of individuals with autism (Sabrina & David, 2012).

4. Materials and methods

4.1. Participants

The participants of the study were 264 Taiwanese junior high school students, consisting of 101 students with autism and 163 students without autism (the control group), aged between 12 and 15 years, with a mean of 13.43 and no difference in age between the two groups (students with autism: $M = 13.57$ and $SD = 1.11$; students without autism: $M = 13.43$ and $SD = 0.47$). To match the gender ratio of individuals with autism, the male-to-female ratio of participants in both groups were adjusted to 6 to 1. All students with autism and IQs of 70 or above had previously been evaluated using the Clancy Behavior Scale (Hsieh, Sung, & Hsu, 1969) or the behavioural rating scale for children with autism (Chang & Wang, 2005) and diagnosed by doctors or by the municipal special education identification and counselling committees composed of special education professionals to confirm using DSM-IV that the student had (1) notable impaired verbal and non-verbal communication, (2) notable impaired social interaction, and (3) restricted and repetitive behaviour and that they possessed a Disability Manual issued by the authorities. Students without autism but similar in age and intelligence were selected by teachers simultaneously as the control group to produce the same gender ratio as the autism group. All students received a set of stationery upon finishing the questionnaires.

The research qualifications of the present study were certificated by the Institution Review Board (IRB) of Taipei Medical University. All participants received the information and content of the research well and provided their written consent prior to participation.

4.2. Materials and procedure

The PhoPhiKat–TC questionnaire (Ruch & Proyer, 2009; Chen et al., 2011) is a 45-item questionnaire for the assessment of gelotophobia, gelotophilia, and katagelasticism, with 15 items in each dimension and a four-point score scale for all items. The higher one scores in any particular dimension, the higher one’s tendency towards the said type. Cronbach’s $\alpha$ coefficients of internal consistencies are all 0.85, and the retest reliability ranges from 0.87 to 0.92. Ruch and Proyer (2008b) divided the intensity of gelotophobia into three levels: slight, marked, and extreme. The cutting points are 2.5–3.0, 3.0–3.5, and 3.5 and above, respectively, and if scored lower than 2.5, the individual being evaluated will not be considered a gelotrophobe (Table 1).

The Inventory of Parent and Peer Attachment (IPPA) is a self-report questionnaire for the assessment of students’ attachment to parents and peers (Armsden & Greenberg, 1987). The IPPA contains three forms: attachment to father,
attachment to mother, and attachment to peers, with 25 items in each form and a score scale of 1–5, and three factors are to be evaluated: trust, communication, and alienation. In the study, only the first two forms were incorporated. Calculating the sums and averages of the scores of attachment to the fathers and mothers was acquired. Cronbach’s α coefficients of internal consistencies were all 0.93, and the factor loadings ranged from 0.45 to 0.75.

Per counterbalancing rules, half of the participants filled out the PhoPhiKat-TC and then the IPPA, whereas the other half of the participants filled out the IPPA and then the PhoPhiKat-TC.

5. Results

5.1. Differences in Pho–Phi–Kat and Attachment scores

Table 2 presents the values of the means, standard deviations, skewness coefficients, and kurtosis coefficients of the ratings of the IPPA and of the PhoPhiKat-TC administered to students with and without autism. The ratings of the PhoPhiKat-TC to both groups were positively skewed, with only the rating of gelotophilia tendency for students with autism forming a bell curve; the ratings of parental attachment to both groups were negatively skewed, which showed that most participants have good attachment to their parents. With respect to the kurtosis coefficient, the responses on the self-report questionnaire in both groups were platykurtically distributed; only the tendency towards gelotophobia was leptokurtically distributed.

Then, the differences in the Pho–Phi–Kat scores were compared between the two groups. First, the result of the homogeneity of variance test showed that the two groups share similar distributions in every dimension of the Pho–Phi–Kat (Fs(1262) < 1.69, ps > 0.05). Students with autism scored much higher on gelotophilia (F(1263) = 7.99, p = 0.005, η² = 0.03) and lower on gelotophilia (F(1263) = 10.79, p = 0.001, η² = 0.04); for katagelasticism, both groups scored the same (F(1263) = 0.01, p = 0.946, η² = 0.00). In the Taiwanese sample, students with autism are more afraid of being laughed at and dislike being mocked by others than are members of the control group; nevertheless, the tendency of ridiculing others exists with respect to the control group.

Regarding parental attachment in these two groups, the result of a homogeneity of variance test between two groups shows that only paternal attachment was consistent with the hypothesis but maternal attachment was not. The Welch method was thus applied, and its results shows that both groups showed no significant differences between attachment to father (F(1263) = 0.03, p = 0.856, η² = 0.00) and attachment to mother (F(1263) = 0.31, p = 0.574, η² = 0.00), meaning in this sample of students in the Asian region, compared to those without autism, students with autism had a similar tendency towards parental attachments (Table 3).

Next, we examined the number of students considered gelotophobes in both groups. For the control group, 26% of the participants sat above the cutting point of 2.5, whereas in the autism group, the value rose to a much higher 40% (χ²(df = 3, n = 264) = 10.33, p = 0.01). In addition, only 5% of the control group crossed the threshold to the level of “marked”, whereas only 10% of the autism group crossed this experience. In addition, 4% of the autism groups reached the level of “extreme” in gelotophobia. It again shows that students with autism have a significant tendency towards Gelotophobia than the control group (Fig. 1).

Table 2
Ratings of the PhoPhiKat and of the IPPA by students with autism and those without autism (control) (N = 264).

<table>
<thead>
<tr>
<th></th>
<th>Autism (N = 101)</th>
<th>Control (N = 163)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>PhoPhiKat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gelotophobia</td>
<td>2.36</td>
<td>0.50</td>
</tr>
<tr>
<td>Katagelasticism</td>
<td>1.98</td>
<td>0.57</td>
</tr>
<tr>
<td>Parent attachment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attachment to father</td>
<td>3.40</td>
<td>0.69</td>
</tr>
<tr>
<td>Attachment to mother</td>
<td>3.66</td>
<td>0.68</td>
</tr>
</tbody>
</table>
Table 3
Correlations between attachment to parents and either gelotophobia, gelotophilia, or katagelasticism in the autism group and the control group.

<table>
<thead>
<tr>
<th></th>
<th>Phi</th>
<th>Kat</th>
<th>IPPA-D</th>
<th>IPPA-M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autism group (N = 101)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pho</td>
<td>0.05</td>
<td>0.41*</td>
<td>−0.16*</td>
<td>−0.08</td>
</tr>
<tr>
<td>Phi</td>
<td>0.36*</td>
<td>−0.01</td>
<td>−0.24*</td>
<td>−0.23</td>
</tr>
<tr>
<td>Kat</td>
<td></td>
<td></td>
<td>−0.23*</td>
<td></td>
</tr>
<tr>
<td>IPPA-D</td>
<td></td>
<td></td>
<td></td>
<td>0.71*</td>
</tr>
<tr>
<td>Control group (N = 163)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pho</td>
<td>−0.16*</td>
<td>0.28*</td>
<td>−0.21**</td>
<td>−0.29*</td>
</tr>
<tr>
<td>Phi</td>
<td>0.34*</td>
<td></td>
<td>−0.12</td>
<td>0.07</td>
</tr>
<tr>
<td>Kat</td>
<td></td>
<td></td>
<td>−0.23*</td>
<td>−0.22*</td>
</tr>
<tr>
<td>IPPA-D</td>
<td></td>
<td></td>
<td></td>
<td>0.56*</td>
</tr>
</tbody>
</table>

* p < .05.
** p < .01.

5.2. Correlations between Pho–Phi–Kat and attachment to parents

In the autism group, the participants’ tendency towards gelotophobia had a notably negative correlation with paternal attachment ($r = -0.16$, $p < 0.05$), but it did not cord with attachment to mother ($r = -0.08$, $p = 0.41$), and all the relative coefficients were lower than those in the control group ($t = -1.70, p < 0.05$). On the other hand, in the control group, the participants’ tendency towards gelotophobia correlated negatively with both attachment to father ($r = -0.21, p < 0.01$) and attachment to mother ($r = -0.29, p < 0.01$), suggesting that students without autism had a lower tendency towards gelotophobia if they had a better attachment relationship with both parents. Additionally, in both groups, tendency towards katagelasticism correlated negatively with both attachment to father and attachment to mother ($rs > -0.22, ps < 0.01$).

6. Discussion

6.1. Difference in Pho–Phi–Kat scores and attachment in individual individuals with autism

The results of the present study show that individuals with autism have a higher tendency towards gelotophobia and dislike being laughed at, which is in line with past studies. It also shows that gelotophobia in individuals with autism still occurs even among Asian sample. As for the tendency towards gelotophilia, individuals with autism were the same with control group, which is consistent with the results of a study by Samson et al. In a study of humour style by Samson et al. (2011), results showed that individuals with autism have the same tendency of using aggressive humour with a control group. In the study with a Taiwanese sample by Wu et al. (2014), the results were similar, although individuals with autism were more afraid of being mocking but were fond of ridiculing others as control group was.

With respect to cross-cultural issues, comparing the outcome to a Western sample by Samson et al. (2011), the result of present study reveals that 26% of the control group reached the threshold of level of “marked” in the Asian sample, which was 20% more than the result of previous study in a non-Asian sample, whereas 6% of the participants crossed the threshold (Samson et al., 2011). The result of our study also indicates that the tendency towards gelotophobia and gelotophilia were positively correlated among the Asian sample, which supports the argument made by Chen et al. (2011) that, to protect their self-respect, Asians tend to laugh at others, because laughter is a way of self-defence. On the other hand, this situation is not found in the study by Samson et al. (2011); therefore, the tendency towards gelotophobia is different across cultures.

![Fig. 1. Percentages of individuals with no fear, at least a slight fear, at least marked fear, and an extreme form of fear of being laughed at in the autism (N = 101) and control groups (N = 163).](image-url)
Furthermore, individuals with autism have a similar tendency towards attachment to their parents, in line with the findings of previous studies (Gernsbacher et al., 2005; Rutgers et al., 2004) that individuals with autism are not close to or far from the parents due to psychological syndrome. This outcome could be duplicated even in the Asian sample; hence, we discuss the link between the tendency towards gelotophobia in individuals with autism and their parental attachments in next section.

6.2. The negative relationship between the fear of being laughed at and attachment with fathers in autism

We explore the relationship between the tendency towards gelotophobia and attachment to fathers as well as to mothers by, first, investigating a parental interaction. To achieve the stability of the study results, we sampled almost a hundred set of parents and children. It was obvious from the results that students with autistic tendencies towards gelotophobia decrease as the quality of attachment to one’s father increased but that mothers were not influential, whereas in the control group, unlike the autism group, a tendency towards gelotophobia correlated negatively with both attachment to father and attachment to mother (Chen et al., 2011; Ruch, 2004). It is, therefore, obvious that for individuals with autism the quality of the interaction with father plays an important role in the future tendency towards gelotophobia.

The causes of these correlations stated above may be influenced by the following factors: First of all, the gender ratio of autistic people is 6 males to 1 female, meaning there are 6 males in every 7 autistic people, males being the majority. It is also known that the gender of attachment figures affects the quality of attachment of adolescents to parents; the quality is better when they share the same gender as the attachment figure (Buist, Deković, Meeus, & van Aken, 2002). The father–son attachment relationship is especially important in a son’s development of self-esteem and mental health (Wilkinson, 2006). Furthermore, in research by Gray (2003), fathers were found to cope better with the disability or illness of their children; in fact, they perform in a similar way to how fathers of children without autism do. We can thus conclude from these arguments that, for individuals with autism, the quality of attachment to fathers inhibits the tendency towards gelotophobia.

Interestingly, in the autism group of this study, the level of the correlation between the tendency towards gelotophobia and attachment to the mother was much lower than that of the control group. Mother is the primary caretaker in the family whether there are children with or without autism, so why does this difference between the two groups exist? It most likely lies in the physical health and state of mind of mothers with autistic children. Mothers bear more responsibilities in parenting and invest more efforts in living with and correcting children’s deviant behaviour; consequently, they pay relatively less attention to children’s attachment to them, which can be incredibly stressful (Hastings et al., 2005; Phetrasuwan & Miles, 2009). This could be the reason why, although an individual with autism may have a strong attachment relationship to his or her mother, it does not influence his or her tendency towards gelotophobia.

6.3. Implications and directions for future research

The results of this study suggest that students with autism are more gelotophobic and gelotophilic than students without autism, but both groups share an identical tendency towards katagelasticism. The study focused on junior high school students, but the results correspond with those drawn from the study of Samson et al. (2001); evidently, gelotophobia in individuals with autism is a common phenomenon, regardless of age. However, individuals with autism may also experience comorbid social phobia or social anxiety (Kuukkonen et al., 2008; Leyfer et al., 2006). It is advisable that, in future research, we investigate whether study participants have symptoms of social or other anxiety disorders; by removing the overlapping fears, it may be possible to ascertain the facts regarding pure gelotophobia. Moreover, in this study, the findings on the attachment to significant others of individuals with autism successfully replicated those of past studies by Gernsbacher et al. (2005), Rutgers et al. (2004), and Sigman and Ungerer (1984). In addition to attaching to fathers and mothers, individuals with autism may also form attachments to peers, especially during adolescence (Armsden & Greenberg, 1987; Buist et al., 2002). It is therefore worth investigating the connection between gelotophobia and attachment to peers.

This study demonstrated that individuals with autism are more gelotophobic when their attachment to fathers is low, but no significant correlation was detected between gelotophobia and attachment to mothers. In the control group, the tendency towards gelotophobia correlated negatively with both the attachment to father and attachment to mother, and this finding offers empirical support to the model of putative causes and consequences of gelotophobia in different samples, thereby providing a better understanding of gelotophobia among individuals with autism. As regards clinical applications, it may be advisable to enhance interactions between fathers and children through parenting courses, thereby decreasing the likelihood that individuals with autism need to fear being laughed at. Furthermore, parenting guidance and psychological counselling are suggested to mothers of individuals with autism to relieve the mothers’ from the pressure of child rearing; again, such intervention could rein in the fear of being mocked that is experienced by children with autism.

6.4. Limitations

The method of purposive sampling was used in this study, which could have restricted the generalisability of the findings, and the methods for research were all self-report questionnaires for individuals with autism. The incorporation of other
approaches, such as evaluation by parents and peers, field observation, and one-on-one interviewing, is recommended to acquire more information. Also recommended is the use of random sampling methods so the results may be re-verified and re-evaluated.

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