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Autistic people, gelotophobia, gelotophilia and katagesticism: A narrative review

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Abstract:	<p>Gelotophobia (fear of being laughed at) is an under researched phenomenon in autistic people, yet can have a significant impact on autistic people's quality of life. A narrative review was undertaken to explore if gelotophobia and being autistic are related and what is currently known in the academic literature regarding gelotophilia (joy of being laughed at) and katagelasticism (excessively enjoying laughing at other) in autistic people. Only five studies were found, and the small evidence base describes autistic people as more likely to be gelotophobes. Most studies used theory of mind as an explanation for gelotophobia in autistic people, however the lack of focus on other relevant theories is highlighted and discussed, providing additional avenues for future research.</p>
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Order of Authors:	<p>Nathan Keates</p> <p>Krysia Emily Waldock</p>
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Author Comments:	<p>Dear Prof Jill C. Fodstad,</p> <p>Thank you for giving us the opportunity to submit a revised draft of our manuscript titled: 'Autistic people, gelotophobia, gelotophilia and katagesticism: A narrative review' to Review Journal of Autism and Developmental Disorders.</p> <p>We have accommodated all requests made so the review can be peer reviewed.</p> <p>Title Comment 1: Do you not include geotophilia or katagesticism in the title? - We have added these in.</p> <p>Introduction Comment 2: It is necessary to describe the clinical and academic significance of researching gelotophobia. By describing the reason of study gelotophobia, you will be able to engage the reader. - We have added this into the introduction, for improved clarity and greater flow.</p> <p>Comment 3: The description of the scale gives a slightly abrupt impression. It would be nice to have some background on why such scales was developed. - We have added this in.</p> <p>Comment 4: I didn't understand the relationship between gelotophobia, gelotophilia,</p>

and katagelasticism. It is necessary to describe how each concept is related to each other.

- We added this in.

Comment 5: This is the biggest point. What is the psychological phenomenon of gelotophobia? I had the impression that previous research was simply listed. If these previous studies are positioned within the models or processes in which gelotophobia arises, it will lead to a more detailed understanding of the reader.

- We added this in.

Comment 6: I wasn't sure what the reviews for Grennan (2018) and Leader and Mannion (2020) were like. These need to be described in a little more detail.

- We provided greater detail of these review and chapter.

Comment 7: It needs to be written firmly about the relationship between autism spectrum disorder and autistic people. I think you can include the description of the footnotes in the text.

- We have provided this clarity.

Comment 8: A definition of autism spectrum disorder should be written.

- We have altered the manuscript to address this along with comment 7.

Comment 9: I think the quote on the 6th line from the bottom of the 3rd page is wrong.

- The reference is from Green et al. We have stated: valuable contribution to the literature, which is directly stated in their paper: "Narrative overviews can be a valuable contribution to the literature if prepared properly." Thus, we presuppose that there is another quote, but cannot address this without further guidance.

Methods

Comment 10: PDD or PDD-NOS need to be explained in detail.

- We added this in.

Results

Comment 11: At the beginning of Results section, it is necessary to indicate from what perspective the contents of the preceding research will be reviewed.

- We added this in.

Discussion

Comment 12: I think it is necessary to write a little more about the results of the review from the perspective of TOM. Despite mentioning it in Introduction, I feel that the amount of description is small.

- We added this in.

Comment 13: If you're focusing on self-stigma in autistic people, the it is necessary to mention it in Introduction.

- We added this in.

Yours Sincerely,

Corresponding author

15.4.23

Autistic people, gelotophobia, gelotophilia and katagesticism: A narrative review

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The authors have no conflicts of interest to declare.

This study was unfunded.

Abstract

Gelotophobia (fear of being laughed at) is an under researched phenomenon in autistic people, yet can have a significant impact on autistic people's quality of life. A narrative review was undertaken to explore if gelotophobia and being autistic are related and what is currently known in the academic literature regarding gelotophilia (joy of being laughed at) and katagelasticism (excessively enjoying laughing at other) in autistic people. Only five studies were found, and the small evidence base describes autistic people as more likely to be gelotophobes. Most studies used theory of mind as an explanation for gelotophobia in autistic people, however the lack of focus on other relevant theories is highlighted and discussed, providing additional avenues for future research.

(118 words)

Keywords: gelotophobia; gelotophilia; katagelasticism; Autism; laughter; review

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Autistic people, gelotophobia, gelotophilia and katagesticism: A narrative review

Gelotophobia has been described as an individual difference or personality trait, whereby an individual has a substantial fear of being laughed at by other people (Ruch and Proyer 2008a; Ruch 2009). Originally conceptualised as a medical diagnosis by Titze (1996) where individuals demonstrated persistent worry about being laughed at, gelotophobia is now understood as a construct, and not a medical condition (Ruch et al. 2008; Ruch et al. 2014). Therefore, it is defined as a “pathological fear of appearing to social partners to be a ridiculous object” (Ruch and Proyer 2008a, p. 20). Gelotophobes are ‘agelotic’ (i.e., do not appreciate the benefits of laughter) and may not have experienced smiling faces in early childhood (Titze 2009). In turn, this is suggested by Titze (2009) to potentially cause less understanding about laughter being positive, and as a momentary “shared identity”. All social agents within any interaction may fear ridicule, however gelotophobes will experience fear across all social exchanges whereby laughter is always perceived as negative. The processes from which gelotophobia occurs seems to have the etiologic indicators based on early childhood trauma (Schneier et al. 2004; Sellschopp-Rüppell and von Rad 1977; Titze 1995). As with any form of clinical anxiety, the implication of perceptible imposition to one’s personhood or past, present or future self causes anxiety (Fischer 1970). Therefore, the associated consequences can be social anxiety and withdrawal (Titze 1996, 2009). This model of gelotophobia underpins how to consider this phenomenon.

In clinical settings, initially, gelotophobia was identified by single case studies (Titze 1995). Nowadays, in research, gelotophobia is measured using a few tools. It has been identified in the literature through measures such as the GELOPH and PhoPhiKat (Ruch and Proyer 2009). Both measures are reliable, standardised measurement instruments for scoring gelotophobia, gelotophilia (i.e., enjoying being laughed at) and katagelasticism (i.e., enjoying

1 laughing at others) (Ruch and Proyer 2009). The GELOPH is a self-assessment tool that was
2 created to detect gelotophobes (Ruch & Proyer, 2008a). Using the GELOPH, a cut-off of 2.0
3 has to be reached for an individual to be considered to be a gelotophobe (Ruch and Proyer
4 2008a). The self-report measure contains items related to gelotophobic symptomatology (e.g.,
5 “When people laugh in my presence I get suspicious”) and rated on a 4-point Likert scale (1
6 = ‘strongly disagree,’ 2 = ‘moderately disagree,’ 3 = ‘moderately agree,’ 4 = ‘strongly
7 agree’). The PhoPhiKat-45 is another subjective assessment, consisting of 15 statements
8 assessing gelotophobia (e.g., “When people laugh in my presence I get suspicious”),
9 gelotophilia (e.g., “I seek situations in everyday life in which I can make other people laugh
10 at me”), and katagelasticism (e.g., “Some people set themselves up for one to make fun at
11 them”) using a 4-point Likert scale. In rare cases, gelotophobia may lead to pathological fear
12 (Ruch and Proyer 2008a; 2008b).
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29 There is literature that sought to explain these three phenomena regarding laughter
30 (gelotophobia, gelotophilia, and katagelasticism). Each of these concepts of interest are
31 related through the impact of laughter; for example, both gelotophobia and gelotophilia are
32 about laughter’s impact on a person, the first being the fear of laughter and the latter being
33 enjoyment of being laughed at. Studies on gelotophobia have found gender differences only
34 occurred during adolescence (Wu et al. 2019), and it seems to be present across a variety of
35 cultures (Proyer, Ruch, et al. 2009). Recent studies on fear or enjoyment of laughter now
36 consider gelotophilia and katagelasticism (Ruch and Proyer 2009). The ability to create
37 humour was found to correlate to people with gelotophilia and katagelasticism (Ruch et al.
38 2009). Davies (2009) proposes that social variables may have explanatory power for
39 gelotophobia, such as shame, etiquette and embarrassment, and further so with hierarchy,
40 status divisions and power.
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1 The definition of autism has changed over time, after first being coined by Bleuler in
2 1911 (Evans, 2013) and conceived by Kanner (1943), with definitions being hotly contested
3 since the 1970s (Milton, 2012a). Walker (2021) describes autism as a developmental
4 phenomenon, with Milton (2012a) noting there often exists a focus on ‘behavioural deficit’.
5 This is visible within the current diagnostic criteria of the DSM-V (APA, 2013), which
6 defines autism as ‘persistent deficits in social communication and social interaction across
7 multiple contexts, and restricted, repetitive patterns of behaviour, interests, or activities,
8 currently or by history’. It has been argued that autistic people are a minority neurotype (as
9 described by Chapman 2021), and often autistic people identified using tools to identify and
10 diagnose the nebulous phenomenon we call autism. Furthermore traction is gaining in
11 academic spheres in regard to understanding being autistic as a social identity (Bury et al.,
12 2022; Perry et al., 2021). Although an autistic social identity c appears to be informed by the
13 phenomenon informing diagnostic criteria, the social identity notably includes autistic
14 people’s embodied experiences and community knowledge, thus making it distinct and
15 separate. Thus, this review will use ‘autistic person’ over ‘person with autism’ due to not
16 only preference from the autistic community (e.g., Kenny et al. 2016) but acknowledges the
17 stigma perpetuated through the use of person first language (Gernsbacher 2017; Gernsbacher
18 et al. 2017).

19 Autistic people may have more negative life experiences than non-autistic people
20 (Griffiths et al. 2020; Kildahl et al. 2020). Autistic people often are reported as having a poor
21 quality of life (QoL), with both research and autistic people themselves reporting experiences
22 of bullying (Cappadocia et al. 2015; Cresswell and Cage 2019; Humphrey and Hebron 2015)
23 and communication breakdowns (Milton 2012b; Morrison et al. 2020); both of which may be
24 considered traumatic events when considering potential causes of gelotophobia (Titze 2009).

25 Another consideration is that autistic people perceiving themselves through a medical lens

will form negative perspectives about themselves resulting in self-stigmatising views

(Nadesan 2005, p. 150).

One way in which the communication difficulties that exist between autistic and non-autistic people has been framed is through Theory of Mind (ToM) (Baron-Cohen et al. 1985). This theory explains autistic cognition and sociality through attributing a delay of, or deficit in mentalising as rationale (Baron-Cohen et al. 1985). A delay of or deficit in mentalising mechanism has been attributed to characteristics which some use to identify autism, such as lacking empathy, deficits in communication (i.e., figurative language, having prosody), and cannot understand complex humour (Samson 2013). Some of these characteristics have been associated with the perceived inability of autistic people to make and sustain friendships (Eaves and Ho 2008; Whitehouse et al. 2009), leading to isolation and loneliness (Sasson et al. 2017). However growing dialogue is emerging around the existence of an autistic sociality (Crompton et al. 2020a, 2020b; Davis and Crompton 2021) and the implications of this on interventions (Keates, 2022; Keates et al. 2022).

Therefore, the study of gelotophobia with autistic people may support understanding the rejection and pain that autistic people experience. It is a specific phenomenon, but may have connected variables of importance that provide reasons why gelotophobia happens. It is highly under-researched, which could be within other phenomena such as bullying. These other areas are important, however gelotophobia is equally helpful in understanding how autistic people experience the social world. Thus, it is an important area of study in order to understand more about it will assist those in clinical practice who support autistic people.

Two previous literature reviews have been by Grennan and colleagues (2018) and Leader and Mannion (2020). Grennan and colleagues (2018) provide an overview of the broad topic with limited focus on autistic people *and* gelotophobia due to the paucity of research specific to the topic; they propose a model which is applicable to all autistic people

Autistic people and gelotophobia review

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who have gelotophobia and suggest lower social skills as an important factor in being gelotophobic. The purpose of their review was to synthesise the literature explaining the relevance of gelotophobia for researchers interested in autistic people. Leader and Mannion (2020) similarly describe this phenomenon with the basis of autistic people having lower social skills in comparison to their non-autistic peers. They detail the relevant work indicating numerous key factors. For example, the higher frequency of autistic people being laughed at, and how autistic people different social systems equating to not understanding why they are being laughed at. The relationship between autistic people experiencing greater bullying and gelotophobia, autistic people not knowing the difference between bullying and 'good-natured' teasing, and its impact on quality of life. Some key research discussed was on the cultural differences of gelotophobia and autistic people. They further mentioned future directions of the research, such as investigating the association between peer attachment and gelotophobia.

Although one of the past literature reviews on this topic only occurred recently (Grennan et al. 2018), this review and its included studies framed autistic people using a medical model perspective. A synthesis and subsequent review would allow for framing through theories that include autistic people's experiences and perspectives (as exemplified through the field Critical Autism Studies; Woods & Waldock, 2020), to accommodate the growing academic literature which is framed using paradigms which are sensitive to framing autistic people as part of broader neurodiversity (e.g., Walker 2021). This gap in the literature was best overcome through this review study. In this review, the aim was to understand past research on autism and gelotophobia. Exploring the literature was best benefited from a narrative review with the current understanding about autistic people. The two research questions that guided the review were:

1. Are gelotophobia and being autistic related, and if so, how?

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2. What is known about gelotophilia and katagelasticism in autistic people?

Methods

We chose to undertake a narrative literature review, following the method set out by Green et al. (2006). Narrative literature reviews can be a ‘valuable contribution to the literature’ (Green et al. 2006), which is thought as appropriate given the small yet significant field of literature to date surrounding autistic people and gelotophobia (noted through an initial scoping search examining autistic people and gelotophobia, where only 5 articles were found). A database search was carried out between the 14th and 16th November 2021, using the following databases: SCOPUS, CINAHL Plus with Full Text, International Bibliography of Theatre & Dance with Full Text, MEDLINE, APA PsycInfo, Academic Search Complete, Arts Premium Collection, and International Bibliography of the Social Sciences (IBSS). Additionally, the use of Google Scholar, author and bibliography search were used to check for missing literature. Each database was searched using relevant key terms, including preceding and historic terminology (e.g., PDD-NOS). PDD-NOS used to be in the diagnosis provided when ‘autism’ was not an accurate or possible diagnosis to provide; it was a subtype of ‘autism’ that was removed from the DSM-V in 2013. An example of the search strategy is given below:

[Insert table 1]

The search terms were refined and the inclusion criteria were agreed upon by the authors. All articles which included autistic participants or discussed autistic people, and the key concepts of gelotophobia, gelatophilia or katagelasticism were included, and no time restrictions were imposed regarding included articles. These articles could include empirical studies, literature reviews and commentaries. Book chapters and grey literature were

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excluded from this search at this time. Hand searches were undertaken to ensure all relevant articles could be included.

Each article was read by both authors; the first time for general comments, and the second time for data extraction. The article title, author(s), year of publication, study design, participants, theoretical framing and findings were extracted. The data was synthesized qualitatively, with textual narrative synthesis being the chosen method (as given in Lucas et al. 2007), enabling synthesis of both quantitative and qualitative data.

Two approaches informed both our reviewing and synthesis of the included papers. Firstly, our approach was informed by critical realism, which critiques what could be perceived as the ‘shallow reality’ (according to Kourti, 2021). Whilst an observable world exists, what is observed may only be a surface level interpretation. In the case of autistic people, as Kourti (2021) argues, embodied experiences of autistic people may assist understanding what is beyond the observable. In the case of our review, we consider the implications of the neurodiversity paradigm and autistic people’s embodiment on the included papers. Second, our study appreciates autistic people as disabled rather than having impairments (see the social model of disability; Oliver, 1983). This distinction is important as it exemplifies where disability is situated in relation to other interlocutors and their social milieu, and one of the diagnostic criteria of the DSM-V being ‘social impairments’. Given gelotophobia is a social phenomenon, the role of interlocutors needs to be considered. It is also crucial to note other co-occurring conditions autistic people may have can be conceptualised under a different model of disability (e.g., gastrointestinal problems needing medical intervention).

Results

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Across the small number of papers that met our criteria, we found 4 empirical studies (Leader et al. 2018; Samson et al. 2011; Tsai et al. 2018; Wu et al. 2015) and 1 literature review (Grennan et al. 2018). As can be seen in Table 2 (below) 4 empirical studies all followed the same study design (cross sectional, between groups).

[INSERT TABLE 2]

The cross-sectional between group designs have varying sample sizes; from 40 (Samson et al. 2011) to 123 autistic participants (Tsai et al. 2018). Albeit that functioning labels are a misnomer in describing the support needs that autistic people may have (Alvares et al. 2019), most participants in the included studies were described as being ‘high-functioning’ or diagnosed with Asperger’s Syndrome (Leader et al. 2018; Samson et al. 2011) or no specific detail was given (Tsai et al. 2018; Wu et al. 2015). It remains unclear if any participants in these studies had intellectual disabilities at this time. Two studies (Leader et al. 2018; Samson et al. 2011) used the Autism Quotient (AQ) to verify that participants in the autism group were autistic. All empirical studies had a control group, which was of varying size; between 83 (Samson et al. 2011) and 163 non-autistic people (Wu et al. 2015). The included empirical studies came from three different countries across various cultures (both collectivist and individualist): Ireland (Grennan et al. 2018; Leader et al. 2018), Taiwan (Tsai et al. 2018; Wu et al. 2015) and Germany (Samson et al. 2011). Three of the empirical studies used the PhoPhiKat, with 2 (Tsai et al. 2018; Wu et al. 2015) using the PhoPhiKat-TC, and Samson et al. (2011) using the PhoPhiKat-45. The studies are limited by not including non-binary and non-speaking autistic people.

The autistic participants were reported to have higher gelotophobia in all included empirical studies (Leader et al. 2018; Samson et al. 2011; Tsai et al. 2018; Wu et al. 2015),

Autistic people and gelotophobia review

1 including 87% of the autistic sample scoring above cut-off for gelotophobia symptomatology
2 in Leader et al. (2018). Moreover, a greater number of autistic participants appeared to
3 experience gelotophobia even after controlling for potential confounding variables (Samson
4 et al. 2011). To expound upon these results further, no difference was found for 'extreme'
5 gelotophobia (Samson et al. 2011). In addition, three of the included papers found lower
6 gelotophilia in comparison to control (Samson et al. 2011; Tsai et al. 2018; Wu et al. 2015).
7 The results were less clear in regard to the difference for katagelasticism between groups, as
8 two studies found no difference (Samson et al. 2011; Wu et al. 2015) yet one paper found
9 lower katagelasticism (Tsai et al. 2018).
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24 All studies (Grennen et al. 2018; Leader et al. 2018; Samson et al. 2011; Tsai et al.
25 2018; Wu et al. 2015) frame autism within the medical model of disability; that is to say that
26 autistic people lack components in comparison to non-autistic controls (e.g., social skills,
27 humour). A medical model approach is further elucidated through the language used to
28 discuss autistic people, often utilising terminology focused on deficit and pathology (e.g.,
29 lack of a sense of humour in Wu et al. 2015; deficits in social functioning and communication
30 in Leader et al. 2018; autism spectrum disorder in Grennan et al. 2018). In regard to framing
31 the social skills that the autistic participants had, this was theoretically framed using ToM
32 (Baron-Cohen et al. 1985). All papers state autistic participants lacked ToM, and reported a
33 lack of ToM as directly impacting their social functioning (Grennen et al. 2018; Leader et al.
34 2018; Samson et al. 2011; Tsai et al. 2018; Wu et al. 2015).
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54 Furthermore, the deficit of social functioning can be noted within both the results and
55 discussions of Leader et al. (2018), Samson et al. (2011), and Tsai et al. (2018). One impact
56 of the autistic participants reported deficits in social functioning was upon their social
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1 interactions, notably in this case reports of bullying (e.g., through misunderstanding "good-
2 natured" teasing or prone to bullying, in Samson et al. 2011). In Samson et al. (2011), using
3 recalled times people laughed at the participants (the autistic persons), they found no
4 difference in findings for severity and frequency of being laughed at. These negative
5 experiences unsurprisingly triangulate findings from Leader et al (2018) reporting that their
6 autistic participants additionally had a poorer QoL.
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16 Three studies discuss possible mediating factors or suppressors in autistic participants
17 experiencing gelotophobia (Samson et al. 2011; Tsai et al. 2018; Wu et al. 2015). Mediators
18 and suppressors which were counted as factors included personality (Tsai et al. 2018),
19 parental attachment (Wu et al. 2015) and retrospective recall on being laughed at (Samson et
20 al. 2011). The different mediating and suppressing factors appeared to have varying impact
21 on the autistic participants experiencing gelotophobia, gelotophilia and katagelasticism.
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31 *Discussion*

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33 This review set out to explore gelotophobia, gelotophilia and katagelasticism in
34 autistic people. Although studies on this topic began in 2011, the number of studies meeting
35 inclusion criteria remains small. One of the key findings of this review has been that more
36 autistic people score higher for 'mild' or 'moderate' gelotophobia than a control group. Most
37 of the papers explain this as due to past social difficulties from an individual perspective.
38 Consequently, this framing of autistic people and their respective cognition is largely based
39 on the medical model of disability (e.g., as having lower social skills). Mediating variables
40 were also found; as could be expected, recalled traumatic experiences (e.g., being laughed at)
41 mediate gelotophobia. Importantly, personality may mediate gelotophobia more than
42 neurotype (research question 1). Autistic people scored lower on gelotophilia than controls,
43 and both being autistic and having lower extraversion predicted gelotophilia. However, there
44 are mixed findings about katagelasticism (research question 2).
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1 Previous reviews focused on using ToM as a basis for their theoretical framework.
2 However, with ToM not situating gelotophobia within the bi-directionality of social
3 communication, the theory has less use regarding the findings of this review. ToM cannot
4 provide a clear answer to why gelotophobia exists for autistic people, nor can ToM explain
5 social structures with which autistic people face. Therefore, this review focuses on alternative
6 explanations. Consequently, it should be stated that ToM is an older theory that seems to not
7 provide as much insight as how the following discussion has been positioned. This is one
8 reason to provide this update on these phenomena.
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Upon shifting the model of disability from a medical model approach to a context where autistic cognition is recognised as a minority neurotype, and recognising the mismatch in salience between autistic and non-autistic interlocutors (Milton 2012b), there is a slightly different implication when interpreting the findings of the papers. Ruch et al. (2009) suggests the three main causes of gelotophobia are an interpersonal bridge, being laughed at or bullied, and intense traumatic experiences. Autistic people may experience life events in a magnified or greater manner prospectively due to sensory profiles (Neil et al. 2016; Milton 2017) due to their minority cognitive type (i.e., more traumatic events, e.g., Cook et al. 1993; Mandell et al. 2005; Taylor and Gotham 2016, or adverse childhood experiences, Berg et al. 2016). Specifically, autistic people can be subject to high levels of bullying (Cappadocia 2012; Humphrey and Hebron 2015), exacerbated by a mismatch in salience (Milton 2012b) and poor thin slice judgements towards autistic people (Sasson et al. 2017). This social adversity may be prolonged into adulthood via prejudice and abuse (e.g., at work, with friends.; Morton et al. 2019; Nielsen et al. 2015). Nevertheless, Proyer, Hempelmann, et al. (2009) suggest that the intensity of recalled ridicule is key and may moderate the experience of gelotophobia. Autistic people may naturally experience life more intensely; for example, Bervoets et al. (2021) suggest autistic people may be sensitive to prediction errors and increase the

1 experience of uncertainty, which relates to the theory of monotropism (processing resources
2 attend to fewer ‘interests’ more intensely as in an ‘attention tunnel’; Murray et al. 2005).

3
4 Therefore, there is scope to understand the causes of gelotophobia in relation to these
5 traumatic experiences. Furthermore, Titze (2009) explains that shame-anxiety is the deeply
6 entrenched belief that there is something wrong with oneself, which is a primary
7 characteristic of gelotophobes. This corresponds with labelling theory (as per Scheff 1974).
8
9 Autistic people learning about themselves from a medical model of disability will adhere to
10 such labels and form negative perspectives about this personal identity; therefore, causing
11 self-stigmatising views (Nadesan 2005, p. 150). Furthermore, autistic people seem to have a
12 heightened experience of rejection, or in other words may be rejection sensitive (Venturini
13 and Parsons 2018). This is partially explained by perseverative thinking or rumination
14 (Keenan et al. 2018). Rejection sensitivity has been noted as conceptually close to
15 gelotophobia (termed rejection sensitivity in Papousek et al. 2014).

16
17 In addition, Milton’s (2012) theory of the double empathy problem (of which has
18 been increasingly supported with empirical research; e.g., Crompton et al. 2020a, 2020b;
19 Davis and Crompton 2021; Debrabander et al. 2021; Gernsbacher et al. 2017; Heasman and
20 Gillespie 2018; Morrison et al. 2020) would imply that the mismatch in salience results in the
21 possibility for autistic people to experience gelotophobia. This contrasts the narrative in the
22 included papers, whereby autistic people have been conceptualised as having a deficit of
23 social skills or functioning to some degree contributing to the likelihood of gelotophobia.

24
25 Nonetheless, the person’s neurotype may not be a main factor as per Tsai et al. (2018)
26 and instead personality might be central (i.e., lower extraversion whether or not autistic may
27 lead to greater level of gelotophobia). This begs a currently unanswerable question about the
28 recalled ridicule of non-autistic people that have lower extraversion, dependent on if these
29 mediating factors interrelate. Therefore, there is a possibility that both autistic and non-

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autistic are the same for gelotophobia (which is becoming an important discussion; Shah 2021). Similarly, the relation with a paternal figure (or both parental figures for non-autistic participants) and managing ridicule and/or lower extraversion would be an equally interesting line of enquiry in future research. Further research may consider qualitative explorations to deeper understand gelotophobia in autistic people and the implications of being a minority neurotype, or consider different study designs.

This review included a small number of studies and as such can draw provisional conclusions. Furthermore, only research clearly focused on the topic has been synthesised and other works mentioning gelotophobia, gelotophilia or katagelasticism within literature such on laughter have not been searched.

Conclusion

This review found the link between autistic lived experience and gelotophobia may be important due to the possibility for increased likelihood for trauma (e.g., through ridicule, shame-anxiety, etc.). However, it could be that personality is key instead of autism being the mediator for gelotophobia. More research to understand these possibilities would greatly improve understanding about this phenomenon.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Author.

Baron-Cohen, S., Leslie, A. M., & Frith, U. (1985). Does the autistic child have a “theory of mind”? *Cognition*, 21(1), 37-46. [https://doi.org/10.1016/0010-0277\(85\)90022-8](https://doi.org/10.1016/0010-0277(85)90022-8).

Berg, K. L., Shiu, C-S., Acharya, K., Stolbach, B. C., & Msall, M. E. (2016). Disparities in adversity among children with autism spectrum disorder: a population-based

study. *Developmental Medicine & Child Neurology*, 58(11), 1124-1131.

<https://doi.org/10.1111/dmcn.13161>

Bervoets, J., Milton, D., & Van de Cruys, S. (2021). Autism and intolerance of uncertainty: an ill-fitting pair. *Trends in cognitive sciences*, 25(12), 1009-1010.

<https://doi.org/10.1016/j.tics.2021.08.006>

Bury, S. M., Jellett, R., Haschek, A., Wenzel, M., Hedley, D., & Spoor, J. R. (2022). Understanding language preference: Autism knowledge, experience of stigma and autism identity. *Autism*, 13623613221142383.

Cappadocia, M. C., Weiss, J. A., & Pepler, D. (2012). Bullying experiences among children and youth with autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 42(2), 266–277. <https://doi.org/10.1007/s10803-011-1241-x>.

Chapman, R. (2021). Neurodiversity and the Social Ecology of Mental Functions. *Perspectives on Psychological Science*, 16(6), 1360–1372.

<https://doi.org/10.1177/1745691620959833>

Cook, E. H., Keiffer, J. E., Charak, D. A., & Leventhal, B. L. (1993). Autistic Disorder and Post-Traumatic Stress Disorder. *Journal of the American Academy of Child & Adolescent Psychiatry*, 32(6), 1292-1294. <https://doi.org/10.1097/00004583-199311000-00025>

Cresswell, L., & Cage, E. (2019). 'Who Am I?': An Exploratory Study of the Relationships Between Identity, Acculturation and Mental Health in Autistic Adolescents. *Journal of autism and developmental disorders*, 49(7), 2901–2912.

<https://doi.org/10.1007/s10803-019-04016-x>

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Crompton, C. J., Hallett, S., Ropar, D., Flynn, E., & Fletcher-Watson, S. (2020a). 'I never realised everybody felt as happy as I do when I am around autistic people': A thematic analysis of autistic adults' relationships with autistic and neurotypical friends and family. *Autism : the international journal of research and practice*, 24(6), 1438–1448.

<https://doi.org/10.1177/1362361320908976>

Crompton, C. J., Ropar, D., Evans-Williams, C. V., Flynn, E. G., & Fletcher-Watson, S. (2020b). Autistic peer-to-peer information transfer is highly effective. *Autism*, 24(7), 1704-

1712. <https://doi.org/10.1177/1362361320919286>

Davies, C. (2009). Humor theory and the fear of being laughed at. *Humor: International Journal of Humor Research*, 22(1-2), 49–62.

<https://doi.org/10.1515/HUMR.2009.003>

Davis, R., & Crompton, C. J. (2021). What Do New Findings About Social Interaction in Autistic Adults Mean for Neurodevelopmental Research? *Perspectives on Psychological Science*, 16(3), 649–653. <https://doi.org/10.1177/1745691620958010>

DeBrabander, K. M., Morrison, K. E., Jones, D. R., Faso, D. J., Chmielewski, M., & Sasson, N. J. (2019). Do first impressions of autistic adults differ between autistic and nonautistic observers? *Autism in Adulthood*, 1(4), 250-257.

<https://doi.org/10.1089/aut.2019.0018>

Eaves, L. C., & Ho, H. H. (2008). Young adult outcome of autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 38, 739–747.

<https://doi.org/10.1007/BF02172209>

1 Evans, B. (2013). How autism became autism: The radical transformation of a central
2 concept of child development in Britain. *History of the human sciences*, 26(3), 3-31.

3 <https://doi.org/10.1177/0952695113484320>
4

5
6
7
8 Fischer, W. F. (1970). *Theories of anxiety*. Center for Advanced Research in
9 Phenomenology, University Press of America.
10

11
12
13
14 Gernsbacher, M. A. (2017). Editorial perspective: The use of person- first language in
15 scholarly writing may accentuate stigma. *Journal of Child Psychology and Psychiatry* 58(7),
16 859-861. <https://doi.org/10.1111/jcpp.12706>
17
18
19

20
21
22
23 Gernsbacher, M. A., Stevenson, J. L., & Dern, S. (2017). Specificity, contexts, and
24 reference groups matter when assessing autistic traits. *PloS one*, 12(2), e0171931.
25
26
27 <https://doi.org/10.1371/journal.pone.0171931>
28
29

30
31
32 Green, B. N., Johnson, C. D., & Adams, A. (2006). Writing narrative literature
33 reviews for peer-reviewed journals: secrets of the trade. *Journal of chiropractic medicine*,
34 5(3), 101-117. [https://doi.org/10.1016/s0899-3467\(07\)60142-6](https://doi.org/10.1016/s0899-3467(07)60142-6)
35
36
37

38
39
40 Grennan, S., Mannion, A., & Leader, G. (2018). Gelotophobia and high-functioning
41 autism spectrum disorder. *Review Journal of Autism and Developmental Disorders*, 5(4),
42 349-359. <https://doi.org/10.1007/s40489-018-0144-6>
43
44
45

46
47
48 Griffiths, S., Allison, C., Kenny, R., Holt, R., Smith, P., & Baron-Cohen, S. (2019).
49 The Vulnerability Experiences Quotient (VEQ): A Study of Vulnerability, Mental Health and
50 Life Satisfaction in Autistic Adults. *Autism research : official journal of the International*
51 *Society for Autism Research*, 12(10), 1516–1528. <https://doi.org/10.1002/aur.2162>
52
53
54
55
56
57
58
59
60
61
62
63
64
65

1 Heasman, B., & Gillespie, A. (2018). Perspective-taking is two-sided:
2 Misunderstandings between people with Asperger's syndrome and their family members.
3
4
5 *Autism*, 22(6), 740-750. <https://doi.org/10.1177/1362361317708287>
6
7

8 Humphrey, N., & Hebron, J. (2015). Bullying of children and adolescents with autism
9 spectrum conditions: A 'state of the field' review. *International Journal of Inclusive*
10
11 *Education*, 19(8), 845–862. <https://doi.org/10.1080/13603116.2014.981602>
12
13
14
15

16 Kanner, L. (1943). Autistic disturbances of affective contact. *Nerv. Child* 2, 217–250.
17
18

19
20 Keates, N. (2022). A letter to the editor regarding Bambara et al.(2021),“Using peer
21 supports to encourage adolescents with autism spectrum disorder to show interest in their
22 conversation partners”. *Journal of Speech, Language, and Hearing Research*, 65(4), 1600-
23
24
25
26
27
28 1603. https://doi.org/10.1044/2022_JSLHR-22-00028
29
30

31 Keates, N., Waldock, K. E., & Dewar, E. (2022). Tensions between autistic sociality,
32 communication, and social skills research: A response to Bambara (2022) and Camarata
33
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66 Keenan, E. G., Gotham, K., & Lerner, M. D. (2018). Hooked on a feeling: Repetitive
67 cognition and internalizing symptomatology in relation to autism spectrum symptomatology.
68
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71
72
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115 Kildahl, A. N., Helverschou, S. B., Bakken, T. L., Oddli, H. W. (2020). “If we do not
116 look for it, we do not see it”: Clinicians' experiences and understanding of identifying post-
117 traumatic stress disorder in adults with autism and intellectual disability. *Journal of Applied*
118
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1 Kourti, M. (2021). A critical realist approach on autism: Ontological and
2 epistemological implications for knowledge production in autism research. *Frontiers in*
3 *psychology*, 12, 6051. <https://doi.org/10.3389/fpsyg.2021.713423>
4
5
6

7
8 Leader, G., Grennan, S., Chen, J. L., & Mannion, A. (2018). An investigation of
9 gelotophobia in individuals with a diagnosis of high-functioning autism spectrum disorder.
10 *Journal of autism and developmental disorders*, 48(12), 4155-4166.
11
12 <https://doi.org/10.1007/s10803-018-3661-3>
13
14
15

16
17 Lucas, P.J., Arai, L., Baird, Law, C., Roberts, H.M. (2007) Worked examples of
18 alternative methods for the synthesis of qualitative and quantitative research in systematic
19 reviews. *BMC Medical Research Methodology* 7(4). <https://doi.org/10.1186/1471-2288-7-4>
20
21
22
23
24
25
26

27
28 Mandell, D. S., Walrath, C. M., Manteuffel, B., Sgro, G., & Pinto-Martin, J. A.
29 (2005). The prevalence and correlates of abuse among children with autism served in
30 comprehensive community-based mental health settings. *Child Abuse & Neglect* 29, 1359–
31 1372. <https://doi.org/10.1016/j.chiabu.2005.06.006>
32
33
34
35
36
37

38
39 Milton, D. (2012a). So what exactly is autism?. *Autism Education Trust*.
40 <https://kar.kent.ac.uk/62698/1/So%20what%20exactly%20is%20autism.pdf>
41
42
43
44

45 Milton, D. E. M. (2012b). On the ontological status of autism: the ‘double empathy
46 problem’, *Disability & Society*, 27:6, 883-887.
47
48 <https://doi.org/10.1080/09687599.2012.710008>
49
50
51
52

53
54 Milton, D. E. M. (2017). *A Mismatch of Salience: Explorations of the Nature of*
55 *Autism from Theory to Practice*. Pavilion Press.
56
57
58
59
60
61
62
63
64
65

1 Morrison, K. E., DeBrabander, K. M., Jones, D. R., Faso, D. J., Ackerman, R. A., &
2 Sasson, N. J. (2020). Outcomes of real-world social interaction for autistic adults paired with
3 autistic compared to typically developing partners. *Autism : the international journal of*
4 *research and practice*, 24(5), 1067–1080. <https://doi.org/10.1177/1362361319892701>
5
6

7
8
9
10 Morton, H. E., Gillis, J. M., Mattson, R. E., & Romanczyk, R. G. (2019).
11 Conceptualizing bullying in children with autism spectrum disorder: Using a mixed model to
12 differentiate behavior types and identify predictors. *Autism*, 23(7), 1853–1864.
13
14
15

16
17
18
19 Murray, D., Lesser, M., & Lawson, W. (2005). Attention, monotropism and the
20 diagnostic criteria for autism. *Autism*, 9(2), 139-156.
21
22 <https://doi.org/10.1177/1362361305051398>
23
24

25
26
27
28 Nadesan, M. (2005). *Constructing autism : Unravelling the 'truth' and*
29 *understanding the social*. Routledge
30
31

32
33
34 Neil, L., Olsson, N.C., & Pellicano, E., (2016). The relationship between intolerance
35 of uncertainty, sensory sensitivities, and anxiety in autistic and typically developing children.
36 *Journal of autism and developmental disorders*, 46(6), 1962-1973.
37
38
39 <https://doi.org/10.1007/s10803-016-2721-9>
40
41

42
43
44
45 Nielsen, M. B., Tangen, T., Idsoe, T., Matthiesen, S. B., & MogerØy, N. (2015). Post-
46 traumatic stress disorder as a consequence of bullying at work and at school: A literature
47 review and meta-analysis. *Aggression and Violent Behavior*, 21, 17–24.
48
49
50

51
52
53 **Oliver, M. (1983). *Social Work with Disabled People*. Macmillan**
54
55

56
57 Papousek, I., Aydin, N., Lackner, H. K., Weiss, E. M., Bühner, M., Schuler, G.,
58 Charlesworth, C., & Freudenthaler, H. H. (2014). Laughter as a social rejection cue:
59
60
61

Gelotophobia and transient cardiac responses to other persons' laughter and

insult. *Psychophysiology*, 51(11), 1112-1121. <https://doi.org/10.1111/psyp.12259>

Perry, E., Mandy, W., Hull, L., & Cage, E. (2021). Understanding camouflaging as a response to autism-related stigma: A social identity theory approach. *Journal of Autism and Developmental Disorders*, 1-11.

Platt, T., & Ruch, W. (2010). Gelotophobia and age: Do disposition towards ridicule and being laughed at predict coping with age-related vulnerabilities? *Psychological Test and Assessment Modeling*, 52(2), 231-244.

Proyer, R., Hempelmann, C. F., & Ruch, W. (2009). Were they really laughed at? That much? Gelotophobes and their history of perceived derisibility. *Humor: International Journal of Humor Research*, 22(1-2), 213-231. <https://doi.org/10.1515/HUMR.2009.010>

Proyer, R., Ruch, W., Ali, N. S., Al-Olimat, H. S., Amemiya, T., Adal, T. A., Ansari, S. A., Arhar, Š., Asem, G., Baudin, N., Bawab, S., Bergen, D., Brdar, I., Brites, R., Brunner-Sciarra, M., Carrell, A., Dios, H. C., Celik, M., Ceschi, G., & Yeun, E. J., (2009). Breaking ground in cross-cultural research on the fear of being laughed at (gelotophobia): A multi-national study involving 73 countries. *Humor: International Journal of Humor Research*, 22(1-2), 253-279. <https://doi.org/10.1515/HUMR.2009.012>

Shah, P. (2021, 6 Dec). *Neurodiversity: similarities versus differences* [annual lecture]. Salvesen Lecture 2021 online. <https://youtu.be/quAEvSHWPIM>

Ruch, W. (2009). Fearing humor? Gelotophobia: the fear of being laughed at. Introduction and overview. *Humor: International Journal of Humor Research*, 22(1-2), 1-25. <https://doi.org/10.1515/HUMR.2009.001>

Autistic people and gelotophobia review

1 Ruch, W., Beermann, U., & Proyer, R. T. (2009). Investigating the humor of
2 gelotophobes: Does feeling ridiculous equal being humorless? *Humor: International Journal*
3 of Humor Research, 22(1-2), 111–143. <https://doi.org/10.1515/HUMR.2009.006>
4
5
6

7 Ruch, W., Hofmann, J., Platt, T., & Proyer, R. (2014). The state-of-the art in
8 gelotophobia research: A review and some theoretical extensions. *Humor: International*
9 *Journal of Humor Research*, 27(1), 23-45. <https://doi.org/10.1515/humor-2013-0046>
10
11
12
13
14
15

16 Ruch, W. & Proyer, R. (2008a). Who is Gelotophobic? Assessment Criteria for the
17 Fear of Being Laughed at. *Swiss Journal of Psychology* 67(1). [https://doi.org/10.1024/1421-](https://doi.org/10.1024/1421-0185.67.1.19)
18
19
20
21
22
23
24

25 Ruch, W. & Proyer, R. (2008b). The fear of being laughed at: Individual and group
26 differences in gelotophobia. *Humor: International Journal of Humor Research*, 21(1): 47–67.
27
28
29
30
31
32
33

34 Ruch, W. & Proyer, R. (2009). Extending the study of gelotophobia. *Humor:*
35 *International Journal of Humor Research*, 22(1-2): 183–212.
36
37
38
39
40
41

42 Ruch, W., Proyer, R. T., & Popa, D. E. (2008). The fear of being laughed at
43 (gelotophobia) and personality. *Anuarul Institutului de Istorie “G. Baritiu” din Cluj Napoca*
44 (Ed.), *Series Humanistica*, 6, 53. <https://doi.org/10.5167/uzh-4117>
45
46
47
48
49
50

51 Ruch, W., Hofmann, J., & Platt, T. (2015). Individual differences in gelotophobia and
52 responses to laughter-eliciting emotions. *Personality and Individual Differences*, 72: 117-121.
53
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Samson, A. C., Huber, O., & Ruch, W. (2011). Teasing, ridiculing and the relation to the fear of being laughed at in individuals with Asperger's syndrome. *Journal of Autism and Developmental Disorders*, 41(4), 475-483. <https://doi.org/10.1007/s10803-010-1071-2>

Samson, A. C. (2013). Humor (lessness) elucidated—Sense of humor in individuals with Autism Spectrum Disorders: Review and Introduction. *Humor: International Journal of Humor Research*, 26(3), 393-409. <https://psycnet.apa.org/doi/10.1515/humor-2013-0027>

Sasson, N. J., Faso, D. J., Nugent, J., Lovell, S., Kennedy, D. P., & Grossman, R. B. (2017). Neurotypical peers are less willing to interact with those with autism based on thin slice judgments. *Scientific Reports* 7: 1–10. <https://www.nature.com/articles/srep40700.pdf>

Sellschopp-Rüppell, A., & von Rad, M. (1977). Pinocchio—a psychosomatic syndrome. *Psychotherapy and Psychosomatics*, 28, 357–360.

Scheff, T. J. (1974). The labelling theory of mental illness. *American sociological review*, 444-452.

Schneier, F. R., Luterek, J. A., Heimberg, R. G., & Leonardo, E. (2004). Social Phobia. In D. J. Stein (ed.), *Clinical Manual of Anxiety Disorders*. Arlington, VA: American Psychiatric Publishing, 63–86.

Taylor, J. L., & Gotham, K. O. (2016). Cumulative life events, traumatic experiences, and psychiatric symptomatology in transition-aged youth with autism spectrum disorder. *Journal of Neurodevelopmental Disorders*, 8(1), 1-11. <https://doi.org/10.1186/s11689-016-9160-y>

Titze, M. (1996). The Pinocchio Complex: Overcoming the fear of laughter. *Humor and Health Journal* 5, 1–11.

1 Titze, M. (2009). Gelotophobia The fear of being laughed at. *Humor: International*
2 *Journal of Humor Research*, 22(1-2):27–48. <https://doi.org/0.1515/HUMR.2009.00>
3
4

5
6 Tsai, M. N., Wu, C. L., Tseng, L. P., An, C. P., & Chen, H. C. (2018). Extraversion is
7 a mediator of gelotophobia: A study of autism spectrum disorder and the big five. *Frontiers*
8 *in psychology*, 9, 150. <https://doi.org/10.3389%2Ffpsyg.2018.00150>
9
10

11
12
13
14 Walker, N. (2021). *Neuroqueer Heresies: Notes on the neurodiversity paradigm,*
15 *Autistic empowerment, and postnormal possibilities.* Autonomous Press.
16

17
18
19
20
21 Whitehouse, A. J. O., Watt, H. J., Line, E. A., & Bishop, D. V. M. (2009). Adult
22 psychosocial outcomes of children with specific language impairment, pragmatic language
23 impairment and autism. *International Journal of Language & Communication Disorders*,
24 44(4), 511–528. <https://doi.org/10.1080/13682820802708098>
25
26
27

28
29
30
31 Woods, R., & Waldock, K. E. (2020). Critical autism studies. In F. Volkmar (ed.),
32 *Encyclopedia of autism spectrum disorders* (pp. 1 - 9). [https://doi.org/10.1007/978-1-4614-](https://doi.org/10.1007/978-1-4614-6435-8_102297-2)
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Wu, C. -L., An, C. P., Tseng, L. P., Chen, H. C., Chan, Y. C., Cho, S. L., & Tsai, M.
L. (2015). Fear of being laughed at with relation to parent attachment in individuals with
autism. *Research in Autism Spectrum Disorders*, 10, 116-123.
<https://doi.org/10.1016/j.rasd.2014.11.004>

Wu, C.-L., Chan, Y.-C. and Chen, H.-C. (2019), Gender differences on laugh-related
traits: A cross-sectional study. *International Journal of Psychology*, 54(5): 621-627.
<https://doi.org/10.1002/ijop.12520>

Tables

Table 1: search strategy

Autism	Gelotophobia
autis* ASD autism spectrum disorder asperger's asperger's syndrome autistic disorder aspergers pdd pervasive developmental	gelotophobia laugh* AND fear gelotophilia enjoy* laugh* katagelasticism

Note: Search used Boolean terms and operators, such as 'AND' and 'OR' along with and asterisk (*) to search alternative endings to used terms.

Table 2 - Study Characteristics

Citation	Rationale for Inclusion (e.g., participant demographics)	Study design and methods used	Findings
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Autistic people and gelotophobia review

Grennan et al. (2018)

Includes autistic participants in Samson et al., (2011) - see data in adjacent row

Literature Review

- A model which can be applied to autistic people who have gelotophobia is suggested.
- Lower social skills and social functioning given as the rationale for potential cause of gelotophobia.
- Further research needed. Highly under researched area.

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Autistic people and gelotophobia review

Leader et al. (2018)

103 autistic (M=37.04, SD=12.38, range=18-64), n=66 females (binary); 137 non-autistic (M=20.31, SD=4.04, range=18-47), n=83 females (binary)

Cross sectional, between groups design

- Social functioning, past experiences of bullying, anxiety and life satisfaction were found to be predictors of gelotophobia
 - There were a higher number of autistic people in the sample who were gelotophobes (22.6% for non-autistic, 87.4% for autistic)
 - Autistic people had an overall poorer quality of life and life satisfaction
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Autistic people and gelotophobia review

Samson et al. (2011)

40 autistic, 83 non-autistic. Cross-sectional,
(control group: M = 31.78, SD = retrospective survey
11.68; autistic group: M =
28.72, SD = 9.34). Gender
broadly matching across both
groups.

- Good reliability was found for the measurement instruments (PhoPhiKat and REQ).
- Autistic people had greater frequency of retrospective recall on being laughed at, more than the control group
- Autistic people have a higher gelotophobia score (even after controlling for variables)
- Autistic people scored lower on gelotophilia than controls
- No differences in katagelasticism
- Autistic people are significantly more likely to have slight gelotophobia (based on cutoff scores), and controls did not have extreme nor moderate gelotophobia.
- AQ scores correlate with gelotophobia, but not frequency or severity of recalled being laughed at

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Autistic people and gelotophobia review

Tsai et al., 2018

123 autistic school students (M=15.67, SD=1.33, range=14-18), 156 non-autistic school students (M=15.84, SD=0.65, range=15-18),

Cross sectional, between groups design

- Significant difference between autistic and non-autistic students, but no difference between groups on extreme gelotophobia
- Autistic people had higher gelotophobia, lower gelotophilia, and katagelastacism
- Autistic people had lower level of extraversion and agreeableness (not conscientiousness, openness or emotional stability)
- Non-autistic people had lower extraversion that correlated to higher gelotophobia, higher agreeableness correlated with lower katagelastacism, and higher emotional stability correlated with lower gelotophilia.
- Autistic people had lower agreeableness that correlated with higher katagelastacism, and lower extraversion correlated with higher gelotophobia.
- Personality was a mediator, resulting in no group effects - mainly lower extraversion correlated with higher gelotophobia
- Both being autistic and lower extraversion predicted lower gelotophilia
- Contradictory predictive value was found in the path analysis for

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Autistic people and gelotophobia review

katagelasticism - autistic people had lower levels of katagelasticism and lower agreeableness, yet lower agreeableness was a suppressor for katagelasticism

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Autistic people and gelotophobia review

Wu et al. (2015)

101 autistic (M=13.57, SD=1.11, range=12-15), 163 non-autistic (M=13.43,SD=0.47, range=12-15)

Cross-sectional, between groups design

- Autistic students scored higher on gelotophobia, lower on gelotophilia, and both groups scored similarly for katagelasticism
 - Both groups had similar attachment to parents
 - Gelotophobia negatively correlated with paternal (not maternal) attachment for autistic students
 - Non-autistic students had more attachment to parental figures (both paternal and maternal) and less gelotophobia
 - Both groups had a tendency to have a negative correlation for katagelasticism and attachment to both parental figures
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Dear Prof Jill C. Fodstad,

Thank you for giving us the opportunity to submit a revised draft of our manuscript titled: 'Autistic people, gelotophobia, gelotophilia and katagesticism: A narrative review' to *Review Journal of Autism and Developmental Disorders*.

We have accommodated all requests made so the review can be peer reviewed.

Title

Comment 1: Do you not include geotophilia or katagesticism in the title?

- We have added these in.

Introduction

Comment 2: It is necessary to describe the clinical and academic significance of researching gelotophobia. By describing the reason of study gelotophobia, you will be able to engage the reader.

- We have added this into the introduction, for improved clarity and greater flow.

Comment 3: The description of the scale gives a slightly abrupt impression. It would be nice to have some background on why such scales was developed.

- We have added this in.

Comment 4: I didn't understand the relationship between gelotophobia, gelotophilia, and katagelasticism. It is necessary to describe how each concept is related to each other.

- We added this in.

Comment 5: This is the biggest point. What is the psychological phenomenon of gelotophobia? I had the impression that previous research was simply listed. If these previous studies are positioned within the models or processes in which gelotophobia arises, it will lead to a more detailed understanding of the reader.

- We added this in.

Comment 6: I wasn't sure what the reviews for Grennan (2018) and Leader and Mannion (2020) were like. These need to be described in a little more detail.

- We provided greater detail of these review and chapter.

Comment 7: It needs to be written firmly about the relationship between autism spectrum disorder and autistic people. I think you can include the description of the footnotes in the text.

- We have provided this clarity.

Comment 8: A definition of autism spectrum disorder should be written.

- We have altered the manuscript to address this along with comment 7.

Comment 9: I think the quote on the 6th line from the bottom of the 3rd page is wrong.

- The reference is from Green et al. We have stated: valuable contribution to the literature, which is directly stated in their paper: "Narrative overviews can be a valuable contribution to the literature if prepared properly." Thus, we presuppose that there is another quote, but cannot address this without further guidance.

Methods

Comment 10: PDD or PDD-NOS need to be explained in detail.

- We added this in.

Results

Comment 11: At the beginning of Results section, it is necessary to indicate from what perspective the contents of the preceding research will be reviewed.

- We added this in.

Discussion

Comment 12: I think it is necessary to write a little more about the results of the review from the perspective of TOM. Despite mentioning it in Introduction, I feel that the amount of description is small.

- We added this in.

Comment 13: If you're focusing on self-stigma in autistic people, the it is necessary to mention it in Introduction.

- We added this in.

Yours Sincerely,

Corresponding author

15.4.23