PREDICTORS OF AUTISM STIGMA IN A STUDENTS BRAZILIAN SAMPLE: A QUANTITATIVE STUDY

PREDITORES DO ESTIGMA DO AUTISMO EM UMA AMOSTRA BRASILEIRA DE ESTUDANTES: UM ESTUDO QUANTITATIVO

PREDICTORES DEL ESTIGMA DEL AUTISMO EN UNA MUESTRA DE ESTUDIANTES BRASILEÑOS: UN ESTUDIO CUANTITATIVO

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Abstract: Stigma is a complex phenomenon that involves prejudice, exclusion and negative stereotypes. Stigmas affect individuals with Autism Spectrum Disorder (ASD) and their families, which can lead to a decrease in life quality as well as mental health. The overall aim of this study is to investigate the predictors that may influence public stigma, self-stigma and affiliate stigma in a Brazilian sample. This is an exploratory and quantitative study, part of a larger project about neurodiversity, stigma and autism. The sample consisted of 532 participants. Questionnaires were used to collect sociodemographic data and measure attitudes towards autism. Data analysis included descriptive statistics, differentiation of group average and multiple regression. Results were analyzed using generalized linear models, with the independent variables being formal education about people with disabilities and inclusion and also the group category ([1] autistic participants, [2] has an autistic family member or friend, [3] does not know any autistic person), and the dependent variable being the average of attitudes towards autism on the stigma scale. The results indicated that taking classes related to autism and inclusion had no significant effect on the scores on the stigma scale, and in addition, the average of each group regarding the stigma scale did not present significant differences between them. As a limitation, we highlight that the way the information was collected (online and by self-report), the nature of the instruments, and the disproportionate sample size between the groups must have influenced the low power observed in the analysis, these aspects can be revisited and better explored in future studies.
Keywords: Analysis, Autism, Stigma, Predictors.

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Resumo: O estigma é um fenômeno complexo que envolve preconceito, exclusão e estereótipos negativos. Os estigmas afetam indivíduos com Transtorno do Espectro do Autismo (TEA) e suas famílias, o que pode levar a uma diminuição na qualidade de vida, bem como na saúde mental. O objetivo geral deste estudo é investigar os preditores que podem influenciar o estigma público, o autoestigma e o estigma associado em uma amostra brasileira. Este é um estudo exploratório e quantitativo, parte de um projeto maior sobre neurodiversidade, estigma e autismo. A amostra consistiu em 532 participantes. Questionários foram utilizados para coletar dados sociodemográficos e medir atitudes em relação ao autismo. A análise dos dados incluiu estatísticas descritivas, diferenciação da média do grupo e regressão múltipla. Os resultados foram analisados utilizando modelos lineares generalizados, com as variáveis independentes sendo educação formal sobre pessoas com deficiência e inclusão e também a categoria do grupo ([1] participantes autistas, [2] tem um membro da família ou amigo autista, [3] não conhece nenhuma pessoa autista), e a variável dependente sendo a média das atitudes em relação ao autismo na escala de estigma. Os resultados indicaram que frequentar aulas relacionadas ao autismo e inclusão não teve efeito significativo nos escores na escala de estigma, e além disso, a média de cada grupo em relação à escala de estigma não apresentou diferenças significativas entre eles. Como limitação, destacamos que a forma como as informações foram coletadas (online e por autorrelato), a natureza dos instrumentos e o tamanho da amostra desproporcional entre os grupos devem ter influenciado a baixa potência observada na análise, esses aspectos podem ser revisitados e melhor explorados em estudos futuros.
Palavras-chave: Análise, Autismo, Estigma, Preditores.

Resumen: El estigma es un fenómeno complejo que implica prejuicios, exclusión y estereotipos negativos. Los estigmas afectan a individuos con Trastorno del Espectro Autista (TEA) y sus familias, lo que puede llevar a una disminución en la calidad de vida, así como en la salud mental. El objetivo general de este estudio es investigar los predictores que pueden influir en el estigma público, el autoestigma y el estigma asociado en una muestra brasileña. Este es un estudio exploratorio y cuantitativo, parte de un proyecto más amplio sobre neurodiversidad, estigma y autismo. La muestra consistió en 532 participantes. Se utilizaron cuestionarios para recopilar datos sociodemográficos y medir actitudes hacia el autismo. El análisis de datos incluyó estadísticas descriptivas, diferenciación del promedio del grupo y regresión múltiple. Los resultados se analizaron utilizando modelos lineales generalizados, siendo las variables independientes la educación formal sobre personas con discapacidad e inclusión, así como la categoría del grupo ([1] participantes autistas, [2] tienen un miembro de la familia o amigo autista, [3] no conocen a ninguna persona autista), y la variable dependiente el promedio de actitudes hacia el autismo en la escala de estigma. Los resultados indicaron que tomar clases relacionadas con el autismo y la inclusión no tuvo un efecto significativo en los puntajes en la escala de estigma, y además, el promedio de cada grupo en relación con la escala de estigma no presentó diferencias significativas entre ellos. Como limitación, destacamos que la forma en que se recopilaron las informaciones (en línea y por autoinforme), la naturaleza de los instrumentos y el tamaño desproporcionado de la muestra entre los grupos deben haber influenciado en la baja potencia observada en el análisis, estos aspectos pueden ser revisados y mejor explorados en estudios futuros.
Palabras clave: Análisis, Autismo, Estigma, Predictores.

Stigma is a complex phenomenon that has dimensions that span the cognitive, emotional and behavioral and can count with a sense of guilt, prejudiced attitudes, negative stereotypes and several other forms of social exclusion and discrimination directed at a particular group. Liao, Lei and Li (2019) define stigma as a social identity that is perceived as a violation of social norms and orthodox values. It is possible to perceive that stigma arises from the determination and labeling of a social marker of difference. Therefore, unfavorable stereotypes are attributed to this group, so this relation between label and stereotype becomes a major influencer in the development of stigma (Turnock, Langley &

Jones, 2022). Concerning individuals with mental and behavioral disorders - a group that experiences stigmatization much more frequently than other groups in society - stigmatization has a centuries-old tradition, occurring transculturally (Bachmann et al., 2019).

It is called public stigma when the stigma is laden with negative attitudes, prejudice, stereotyping or discrimination by members of the population, generally against specific groups, and ends up producing a series of obstacles to their social inclusion. In other words, public stigma is characterized by individuals' reactions to people they perceive as being different from them (Bachmann et al., 2019; Aubé et al., 2021). Public stigma can also be internalized by individuals affected by it, which is called self-stigma or stigma internalized, and may include feelings of shame regarding the stigmatized characteristics, as well as fear of public stigma (Turnock, Langley & Jones, 2022). Besides affected individuals, their family members, caregivers or friends may suffer the impact of public stigma, which is termed affiliate stigma (Bachmann et al., 2019).

Stigmatization leads to the social exclusion of individuals affected by it, which can have negative impacts on their daily lives and life quality. Furthermore, public stigma of psychiatric disorders has the potential to negatively influence mental health, help-seeking behavior, treatment utilization, and suicidal tendencies (Bachmann et al., 2019).

Autism Spectrum Disorder (ASD) is defined by the American Psychiatric Association [APA] as a neurodevelopmental disorder that disposes of as symptoms the socio-communicative skills impairment and the presence of stereotyped behaviors and restricted interests, and may exhibit different degrees and symptomatological combinations (APA, 2022). Accordingly, the person within the autism spectrum may present difficulty in social interaction, changes in communication and limited or stereotyped patterns of behaviors and interests (Andrade, 2022).

ASD is a neurodevelopmental condition that imposes different characteristics and rhythms of learning and development on the individual, when compared to individuals who are not on the spectrum. There is no specific origin for the disorder, it is only understood that there are multiple factors that involve the interaction of neurobiological and environmental aspects, to which individuals are exposed during the perinatal and prenatal periods, with strong indications of genetic causes (Júlio-Costa &; Antunes, 2017; Paula, Belisásio, & Teixeira, 2016 cited by Araujo, 2021).

Although autistic people and their families have conquered many rights in recent years in Brazil (Law 12,764/2012; Law 9,394/1996; Law 13,146/2015), they still face many barriers.

Unfortunately, the lack of information and knowledge about autism in those considered neurotypical can contribute to them being victims of prejudice, violence, stigma and social segregation, just as it happens with people who have some type of mental or neurological illness (Kapp, Gillespie-Lynch, Sherman, & Hutman, 2013; Foster, Elischberger, & Hill, 2018).

Autistic children are more likely to be perceived negatively by other children and teachers than a child with neurotypical development, and discrimination experiences, such as bullying at school, are very frequent among children with ASD (Cappadocia et al. 2012; Hwang et al. 2018; Zablotsky et al 2013, cited by Aubé, Follenfant, Goudeau, & Derguy, 2021). On account of the absence of apparent physical differences between individuals with and without ASD, it is common for people to expect similar behaviors from autistic people, and the contrast between the expectation of how neurotypical children should act and how they behave can generate negative attitudes and social exclusion (Aubé et al., 2021).

Nevertheless, the public stigma of autism seems to be less negative than other mental disorders according to the few references found. In some studies, the public stigma of ASD was even considered positive compared to other disorders (Jensen et al., 2016; Thys et al., 2014 cited by Bachmann et al., 2019). There is also some evidence of intercultural differences regarding the level of public stigma towards autism, with lower stigma towards ASD and with that being potentially related to better availability of autism resources and greater public awareness in the respective country (Bachmann et al., 2019).

Studies indicate that living with autistic people, as well as interventions on the subject, are important to reduce the negative and distorted perception of those who have some kind of disability. Recent studies indicate that autistic people tend to have more knowledge about autism than non-autistic people, which is why some researchers supported by the neurodiversity paradigm have developed training that highlights the perspectives of autistic people (for example, Araujo et al., 2023; Gillespie-Lynch et al., 2022). In addition, it can be emphasized that the greater the knowledge about the disorder, the less the stigma will act on it (Foster et al., 2018), demarcating the importance of ASD being included in the curriculum of training courses for different professionals and awareness-raising interventions with different populations. Likewise, it is known that knowledge and stigma are variables influenced by different factors and that change according to the passage of time and different

sociocultural contexts, being a variable treated in some studies as dynamic and non-linear variables (Araujo et al., 2023).

Therefore, demarcating the importance of research about ASD stigma be developed in different contexts and with varied groups, especially considering countries with scarce studies on the topic, such as Brazil, and populations with different levels of familiarity with ASD. The overall aim of this study is to investigate the predictors that may influence public stigma, self-stigma and affiliate stigma in a Brazilian sample of university students. The research hypotheses were: 1) higher scores on the stigma score are related to having taken a subject on autism; and 2) The group with people within the autism spectrum (group 1) will score lower on the autism stigma scale than non-autistic groups (group 2 and group 3).

Methods

Delineation

This is an exploratory and quantitative research aimed at examining the relation between variables (Creswell & Creswell, 2021). This study is part of a larger project entitled "Neurodiversity, Stigma, and Autism: Evaluation of an Online Training in the Initial Teacher Education" (Araujo, 2021; Araujo et al., 2023). Therefore, participants were recruited from an existing database, collected exclusively online and from the Qualtrics platform. The original English versions of the autism stigma measures that were adapted to become the Attitudes Scale Towards Individuals with Autism (EARPA) were developed in collaboration with autistic people (Gillespie Lynch et al., 2022). In a previous study, the scale was translated and adapted to Brazilian Portuguese according to the recommendations of Borsa et al. (2012) and DuBay and Watson (2019).

Participants

The participants were invited by online media, such as WhatsApp and Facebook, and e-mails. The data was collected by a self-report questionnaire, which had open and multiple-choice questions.

The study sample consisted of 532 people, predominantly university students (81.4%, n= 433) and women (74.6%, n= 397), the other participants (18,6%, n=99) were average people from the country, not university students. It is also worth noting that most of the participants were Psychology students, representing 22.7% (n= 121) of the sample. Participants were from all regions of Brazil, namely: Midwest (29.1%, n= 155), Southeast (26.3%, n= 140), Northeast (21.9%, n= 117), South (11.2%, n= 60), and North (11%, n= 59).

Table 1.

Descriptive Statistics of the Participants.

Sociodemographic data	%, (n)
Education (N=532)	
University Students	81,4 (433)
Average People	18,6 (99)
Sex (N=532)	
Males	25,4 (135)
Females	74,6 (397)
Region (N=532)	
Midwest	29,1 (155)
Southeast	26,3 (140)
Northeast	21,9 (117)
South	11,2 (60)
North	11 (59)

The research project was approved by the CAAE 25231319.0.0000.5160 ethical committee, under protocol 3.746.046. Participants did not receive any compensation; participant compensation is illegal in Brazil.

Instruments

Regarding the instruments, a Questionnaire that contained questions about Sociodemographic Data and Characterization of Proximity to Autism was used. The focus of the questionnaire was to characterize the sample, aside from presenting questions related to stigma and knowledge about autism, being composed of 37 items with categorical answers. This questionnaire was developed specifically for the data collection of the larger project (Araujo, 2021; Araújo et al., 2023), in order to characterize the sample. In the present research, question 18 (Q18: Have you ever taken any subject related to Inclusion of People with Specific Educational Needs/Special Education?) was analyzed for purposes of characterization of the sample, and question 21 (Q21: Have you ever had contact with someone with autism/autism spectrum disorder?) was transformed into a 'group' variable with 3 levels (1: autistic participants, 2: has an autistic family member or friend, and 3: does not know any autistic person) to investigate the level of familiarity with Autism. So, in the model, we consider Q18 and the group as independent variables.

Regarding question 21, about contact or proximity with autistic individuals, the responses were multiple-choice containing statements such as 'you are autistic'; 'your sibling is autistic'; 'your university colleague is autistic'; 'your work colleague is autistic'; 'your teacher is autistic,' among others.

Were also used the Attitudes Scale Towards Individuals with Autism (EARPA) (Araujo et al, 2023), which was translated, adapted, and presented psychometric evidence for the Brazilian sample in a previous study (Araujo et al, 2023). It is a unidimensional instrument originally developed by Gillespie-Lynch et al. (2015; 2019), containing 9 items that assess stigma about autism in adults, investigating people's attitudes towards individuals on the autism spectrum, whose responses vary on a 5-point Likert scale between: 1. Strongly agree; 2. Agree; 3. Neither agree nor disagree; 4. Disagree; and 5. Strongly disagree.

Data analysis

The database was organized so that individuals were in the row and variables in the columns (wide mode). The groupings for analysis were: 1) autistic participants, 2) an autistic family member or friend, and 3) does not know any autistic person. A variável Q18 is question 18 of the Sociodemographic Data and Characterization of Proximity to Autism Questionnaire. The EARPA score

was calculated by the arithmetic mean, which ranged from 0 to 5. For the identification of autistic individuals, only the self-identification of participants in the sociodemographic questionnaire was taken into consideration.

Table 2.

Categorical Description Of The Groups.

Groups category	N
Group 1 - autistic participants	8
Group 2 - has an autistic family member or friend	231
Group 3 - does not know any autistic person	293

For the first and second hypothesis (1- higher scores on the stigma score are related to having taken a subject on autism; and 2 - The group with people within the autism spectrum will score lower on the autism stigma scale than non-autistic groups), generalized Linear Models [GzLM] was used, with question 18 of the Sociodemographic Data and Characterization of Proximity to Autism Questionnaire and group as the independent variables (IV's) and the mean EARPA score as the dependent variable (DV).

At first, an exploratory analysis was conducted to visually inspect the graph of the distribution of the dependent variable (DV - mean score on the EARPA scale). After verification, three continuous distributions for the DV with the identity link function were tested: Normal (Gaussian), Inverted Gaussian, and Gamma. Based on the Akaike Information Criterion (AIC), the distribution was determined to be Inverted Gaussian (AIC = 614 for the normal distribution; AIC = 557 for Gamma; and AIC = 537 for inverted Gaussian).

The data were analyzed using the statistical software, Jamovi version 2.3.18.

Results

The interpretations of the results for the generalized model are based on the betas, where categorical variables represent the mean difference, and continuous variables are interpreted as 'x units' for each 'beta units on average' on Y. For instance, a B = 1.5, for a categorical variable group,

would be interpreted as 'group 1 has an average stigma of 1.5 units compared to group 2.' Conversely, when obtaining negative betas, the reference is the opposite, meaning that group 2 would be higher than group 1. As for a continuous independent variable, such as age, for example, it would indicate that for every '1 year of age,' there is an increase of 1.5 units in the stigma score. The opposite sign follows the same rule ('decrease by 1.5 units...').

The mean of each group regarding the stigma scale did not manifest significant differences between them. It is noticed that in group 1 (n = 8) the mean was 1.29, in group 2 (n = 231) the mean was 1.51 and in the last group (n = 293) it was 1.50. Concerning the standard deviation in each group when relating to EARPA, close values are also noted, being in group 1: 0.432, in group 2: 0.470 and in group 3: 0.494. In general, it could be said that the averages of the 3 groups were low in terms of stigma. Regarding the number of participants per group, it can be seen that 1.5% of the participants (n= 8) self-declared pertaining to group 1 (with ASD).

Results from GzLM indicated that there is no significant effect of having taken autism-related subjects when observing the scores on the stigma scale (B = -0,05, 95% CI [-0,15; 0,04], p = 0,38). Therefore, hypothesis 1 is not confirmed. Regarding hypothesis 2, GzLM results indicated that the group had no influence on the scores of the stigma scale, which leads us to reject hypothesis 2 (group 2 compared to group 1: B = 0,21, 95% CI [-0,11; 0,44], p = 0,11; group 3 compared to group 1: B = 0,25, 95% CI [-0,07; 0,48], p = 0,06; group 2 compared to group 3: B = -0,03, 95% CI [-0,13; 0,05], p = 0,41)[5].

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[5] The Confidence Interval calculation of group comparison 2:3 was obtained manually by the formula: Superior Limit = B + z * SE; Inferior Limit = B - z * SE, for z ≅ 1.96.

Figure 1

Mean And SD Of Participants In Attitudes Scale Towards Individuals With Autism EARPA, By Group.
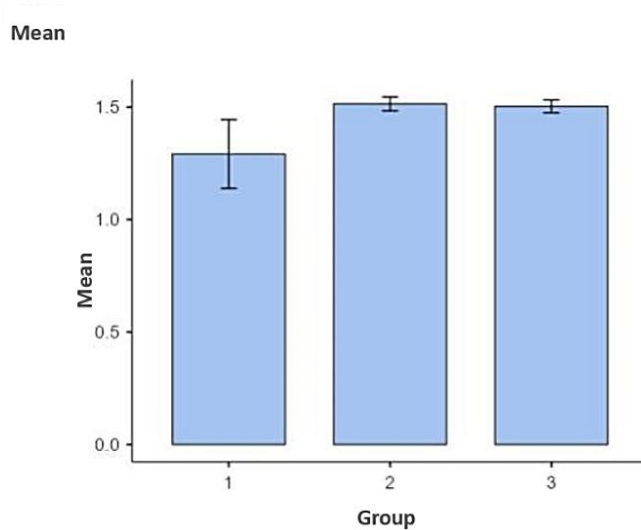
Discussion

This study sought to investigate 2 hypotheses regarding autism stigma in a Brazilian sample of university students. The first hypothesis would be the connection that exists between taking subjects that address the themes of inclusion, diversity and autism and having a less stigmatizing posture. The second hypothesis is that people on the autism spectrum have less stigma when compared to the other two groups.

As punctuated in the results, formal education about inclusion and people with disabilities, in higher education curricula, does not seem to impact the stigma within the sample studied. At the same time, descriptive data (mean and SD) showed that the stigma level was low in all investigated groups. Accordingly, the importance of spaces for education on themes related to diversity and inclusion in higher education is noted, as well as the importance of doing internships with autistic people and also the presence of colleagues or teachers with autism in the classroom and in society in general, variables that can be better deepened in future studies.

As previously stated, studies indicate that living with people on the autism spectrum can strongly assist in reducing stigma and reducing the distorted view of autism (Foster et al., 2018).In addition, it is thought that the low stigma score in the sample surveyed may represent both an

indicative of positive impacts of Brazilian public politics on health and education and knowledge about the disorder that has been disclosed in different contexts (Ferreira da Cunha, 2020), and the rights ensured by laws are important for autistic people, friends and family.

In summary, it was found that the variables evaluated in this study were not predictors of the highest scores on the stigma scale on autism. It is relevant to emphasize that the way the information was collected (online and by self-report) and the disproportionate sample size between group 1 (n= 8) and the others (group 2= 231 participants; group 3= 293 participants) may have influenced the low power observed in the analysis. These aspects can be revisited and better explored in future studies.

Regarding Q18: 'Have you ever taken any subject related to Inclusion of People with Specific Educational Needs/Special Education?', it doesn't focus solely on teaching about the inclusion of autistic individuals; it encompasses education on inclusion in general, covering other conditions and neurodevelopmental disorders as well. Therefore, it is suggested that in future studies, questions like this be more specific and focused within the scope of ASD (Autism Spectrum Disorder).

Likewise, the variable "Question 18" contains missings, which reduces its predictive power over scores. Evaluations on autism stigma with larger samples that seek to balance observations, gender and ethnicity are suggested, in addition to verifying whether the mentioned distribution (inverted Gaussian) is repeated in other samples, since the shape of this distribution differs from Normal due to its asymmetry. Considering an intervention context, it may have some practical significance to know how stigma values are distributed, given that predictors affecting its shape are known.

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