The Relationship of Perceived Stigma, Diagnosis Disclosure, and Mental Health in Autistic Students

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Abstract

Autistic students attending higher education are confronted with many obstacles every day, including social interactions, organizing, and overstimulation. In order to counteract those challenges, they may choose to not disclose their diagnosis in an attempt to blend in better and avoid stigmatization, which may have serious implications for their mental health. The current study aims to answer the question "Is there a relationship between perceived stigma and mental health in autistic students, and is this mediated by their diagnosis disclosure?". It is hypothesized that high perceived stigma is associated with worse mental health and that higher perceived stigma is associated with decreased diagnosis disclosure, which is associated with worse mental health. Using an online survey, perceived stigma, mental health, and diagnosis disclosure in autistic students attending Polish post-secondary education was investigated. The data of 76 diagnosed autistic students enrolled in post-secondary education (M = 22.2, SD = 1.76) was used. A mediation analysis using model 4 of Hayes' PROCESS macro for SPSS (Hayes, 2022) was conducted to test both hypotheses. The effect of perceived stigma on mental health was significant (b =0.882, p < 0.001). However, no mediation was found (B = 0.01, SE = 0.05, 95% CI[-0.07,0.12]). Additionally, identifying as a non-binary gender appeared to serve as a protective factor. Future replications using a more representative sample, with a better gender distribution, may be needed to clarify the role of diagnosis disclosure.

Keywords: autism, perceived stigma, diagnosis disclosure, mental health

Autistic students in higher education face a lot of challenges on a daily basis. These challenges may include social difficulties, issues with scheduling or planning, and overall sensory overload (van Hees et al., 2014). With the transition to post-secondary education as a part of the developmental stage of adolescence, students in higher education are expected to possess a high amount of independence, both in an educational setting, but also in their daily lives. However, these expectations weigh heavily on many autistic students as they typically struggle more with the transition to independence (van Hees et al., 2014; O'Hearn & Lynn, 2023).

Adolescents with autism spectrum disorder (ASD) report high levels of mental health problems such as anxiety, depression, and loneliness (Kuder et al., 2020). They are also more likely to become stigmatized if they show any disruptive behaviors – such as not waiting their turn, or interrupting others – compared to autistic students who appear rather socially detached and stick to themselves (Gillespie-Lynch et al., 2020). To minimize stigmatization, autistic students might choose not to disclose their diagnosis to others (Frost et al., 2019). Most of those who do disclose their diagnosis report only doing so amongst close friends and partners, or towards school staff for benefits in academic settings (Frost et al., 2019). However, some autistic students also believe that disclosure leads to increased acceptance and decreased judgmental behaviors of others (Frost et al., 2019). To investigate this relationship, the current study will focus on how the stigmatization perceived by autistic students may impact their mental health and whether diagnosis disclosure mediates this relationship.

According to the World Health Organization, adolescence covers the ages 10 to 19 (2019). However, many professionals believe that this should be extended to include the mid-twenties as a wider age range would be more representative of this life phase, due to the ongoing development of the brain, emotions, and overall transition towards adulthood (Cottone, 2021; Jaworska, 2015; Sawyer et al., 2018). Since this is especially true for autistic students, who often struggle with the transition to independence during adolescence (van Hees et al., 2014; O'Hearn & Lynn, 2023), the current study makes use of the latter definition.

Autism spectrum disorder is a neurodevelopmental disorder present in up to 2.8 percent of children, which stays with them throughout their whole lives (Centers for Disease Control and Prevention, 2023). The way they experience life differs vastly from that of neurotypical people, i.e., people that exhibit 'typical' neurodevelopment (Pellicano & den Houting, 2022). Autistic people may experience trouble when it comes to social interactions, such as interpreting nonverbal communication and knowing what to say or how to behave, but they also often experience sensory issues, require routines, intensely pursue special interests, or engage in repetitive behaviors (American Psychological Association, 2022). The latter one may include various forms of 'stimming', which refers to self-stimulation and includes behaviors such as flapping one's hands or clapping (Nolan & McBride, 2015). In

a world built to accommodate what is considered to be the 'norm', autistic people tend to be confronted with a stressful daily struggle (Hoeberichts et al., 2022). As previously mentioned, since post-secondary education commonly takes place during adolescence, this struggle is largely related to the increased independence of this developmental stage (van Hees et al., 2014; O'Hearn & Lynn, 2023).

Mental health in autistic students

A part of that daily struggle is represented in the amount of autistic students who experience mental health problems. About 40 to up to 70 percent of autistic people struggle with mental health problems (McMorris et al., 2019). In an online survey with 56 autistic post-secondary students, the relationship between autism symptom severity, mental health symptoms, and suicidality was investigated using a variety of questionnaires (Jackson et al., 2017). On average, the participants indicated that they experience "extremely severe" levels of depression and anxiety, and "severe" levels of stress based on their answers to the items of the DASS-21. Suicidal behaviors were reported by almost 75% of participants. High DASS-21 scores were predicted by the severity of ASD symptoms, loneliness, and by how comfortable autistic students felt at their academic institution. Suicidality was also predicted by these factors, as well as by high scores on the DASS-21. A literature review of 23 studies concerning mental health in autistic university students found that across multiple studies, at least 50% of autistic students reported having a mental health condition, compared to less than 20% of neurotypical students (Kuder et al., 2020). The reported mental health problems affect the concerned students immensely. According to self-reports of studies included in the literature review, autistic students experiences things such as feelings of being overwhelmed, exhaustion, and panic.

Stigma in autistic students

One factor that possibly influences just how severe autistic students' mental health problems are could be the stigmatization of these students. Stigma describes the negative attitude towards the traits associated with a certain group, stemming from the belief that it makes its members too different or inferior within society (Dudley, 2000). Autism-related stigma is likely the result of little knowledge on the topic of autism leading to a lack of understanding of autistic peers (Mazumder & Thompson-Hodgetts, 2019). This is highlighted by research in which 365 college students of the ages 18 to 55 participated in an online training about autism and several of them indicated that they believed autism to be a different disorder – such as a learning disorder – and, overall, had a more stigmatized version of the disorder in their heads before gaining more knowledge through the training (Gillespie-Lynch et al., 2015).

When this stigmatization is perceived by autistic people, it may cause them to distance themselves from their peers (Mazumder & Thompson-Hodgetts, 2019). Experienced stigmatization can

lead to its internalization when perceived (Houting et al., 2021). This can lead to a high level of persistent stress that may continue to disrupt the person when previous external stigmatization subsides. Over time, the effects of internalized stigma can negatively impact (mental) well-being and social life (Houting et al., 2021; Mazumder & Thompson-Hodgetts, 2019). Hence, it highlights the importance of the autistic person's perception of stigma from the outside.

Considering that many autistic adolescents already struggle with social skills, the further social isolation through the non-willingness of many neurotypical peers to approach autistic people or interact with them, based on stigma, provides another hurdle for autistic students in post-secondary education (Houting et al., 2021; Obeid et al., 2015). Higher education generally represents a very social environment. Students are expected to work in groups, organize presentations with others, and participate in lectures with their co-students. Evidently, this in itself poses a great challenge for many autistic students (Gurbuz et al., 2018). However, the active avoidance of autistic individuals through neurotypical peers likely makes the social aspect of post-secondary education even harder for students with ASD.

Autism and diagnosis disclosure

As a result of the stigma they perceive, autistic people might choose not to share their diagnosis with others (Mazumder & Thompson-Hodgetts, 2019). Therefore, autistic individuals may camouflage in order to avoid discrimination. 'Camouflaging' describes the use of strategies to hide one's autistic traits when interacting with others (Hull et al., 2019). Cook et al. (2022) clustered 38 self-reported camouflaging behaviors into four categories, including masking. Masking is defined by the act of suppressing autistic behaviors and/or avoidance of mentioning detailed personal information (Cook et al., 2022). Avoiding the disclosure of one's autism diagnosis was also deemed a masking behavior by Cook et al. (2022), although it has not been a topic of discussion in many studies so far.

The idea that the strategy of camouflaging is used to decrease the chance of being stigmatized is in line with the Social Identity Theory (SIT) approach from Perry et al. (2021) which states that autistic people might try to counteract the experience of autism-related stigma by camouflaging as an individualistic strategy in order to dissociate from the in-group. The SIT is based on the idea that members of stigmatized groups use individualistic and collective strategies to positively influence their own identity. When using individualistic strategies, group members avoid association with their in-group by trying to become a part of the more positively connotated out-group. In this case, the in-group would be the autistic community while the out-group would consist of neurotypical people. The use of collective strategies involves the reevaluation of the in-group towards an overall more positive image compared to the out-group. For example, autistic individuals might choose to join organizations advocating for the autistic community. High perceived stigma and the use of individualistic and collective strategies, were associated with high levels of camouflaging in autistic adults. Furthermore, camouflaging did not play a mediating role in the relationship between stigma and wellbeing. (Perry et al., 2021).

Furthermore, for autistic adolescents and adults, the choice of whether or not to disclose their diagnosis may be based on whether they perceived invalidating reactions related to autism stigma (Farsinejad et al., 2022). Neurotypicals might not believe those with ASD if they do not portray typically autistic traits. Autistic people may then start to dissociate from their in-group if they do not feel representative of the diagnosis. A systematic review of 27 studies focusing on research proposing that camouflaging and selective disclosure are strategies used by autistic people to negate the effects of stigma provided mixed results on whether these strategies benefit the individuals (Han et al., 2021).

Most autistic post-secondary education students only disclose their diagnosis to individuals very close to them, such as good friends or relationship partners, but also school staff (Frost et al., 2019). The decision whether or not to disclose their diagnosis to someone was based on whether they felt like the other person would understand them and their behaviors more afterwards. However, some autistic students might still struggle to disclose their diagnosis to those who are there to help them, such as academic support systems (Anderson et al., 2017). Reportedly, many autistic students in Australia delay disclosing their autism diagnosis to their university or other disability support. Consequently, they receive the appropriate support way later into their studies. A lack of support may cause autistic students to experience more struggles during their time at their post-secondary education institution. This could be caused by a lack of structure, deficits in social skills, or overstimulation.

Autistic adolescents who choose to camouflage may be significantly more at risk of developing internalizing symptoms including depression, stress, and anxiety. (Hull et al., 2020; Perry et al., 2021; Ross et al., 2022).

Gender differences

Although autistic people of any gender may choose to camouflage, women and nonbinary people on the spectrum show an increased likelihood to do so (Evans, 2022; Harmens et al., 2022; Hull et al., 2020). Autistic women have also been found to be more likely to develop internalizing problems and experience mental health problems than autistic men (Harmens et al., 2022). These mental health problems also include suicidality, which appears more likely in women with incredibly high levels of camouflaging. Additionally, women are also at a higher risk of being stigmatized as most ASD research has been done with predominantly male samples and their presentation of autism (Harmens et al., 2022). As a result, many women may face more stigma after the disclosure of their diagnosis. The role of gender is therefore important to keep in mind when discussing the stigmatization of autism, potential effects on the mental health of autistic people, and various strategies used by them.

Current study

Even though research into the mental health problems of autistic students is increasing, there are still a lot of issues that require more attention. Although previous research indicated the absence of a mediating role of camouflaging in the relationship between stigma and wellbeing (Perry et al., 2021), research about specific camouflaging strategies – such as diagnosis disclosure – and their particular effects on autistics people's quality of life, including mental health, is still lacking (Cook et al., 20222). A generalization of camouflaging strategies might prove dangerous as investigation into specific strategies could reveal important knowledge about their effects on autistic students' mental health and quality of life overall. With diagnosis disclosure being a relatively little discussed type of masking (Cook et al., 2022), the present study aims to investigate this specific form of masking behavior further. By examining this topic in more detail, the current study may provide pointers for support services offered by postsecondary education staff and for professionals to better understand the effects of specific camouflaging behaviors, such as diagnosis disclosure, in autistic students.

It is vital to fill this gap in the literature in order to determine more specific effects, recognize target behaviors for possible interventions, and contribute to the destigmatization of autism in society. This urgency is highlighted by the fact that autistic individuals are more prone to develop mental health issues (Togher & Jay, 2023; Kuder et al., 2020), especially with the reported increase in autistic adults participating in post-secondary education (McMorris et al., 2018; Jackson et al., 2017). In order to contribute to the needed research, the current study aims to answer the two question "Is there a relationship between perceived stigma and mental health in autistic students?" and "Is this relationship mediated by their diagnosis disclosure?" Based on these question, two hypotheses were conceived:

- 1. High perceived stigma is associated with worse mental health, after adjusting for gender. This assumption is based on research revealing that perceived stigma reportedly leads to internalized stigma in autistic individuals, potentially negatively impacting their mental health (Perry et al., 2021; Han et al., 2021).
- 2. The relationship between perceived stigma and mental health is mediated by students' autism diagnosis disclosure, with high perceived stigma being associated with a lower tendency to disclose one's diagnosis, which relates to worse mental health. Perceived stigma reportedly leads to reluctance regarding diagnosis disclosure in autistic people (Farsinejad et al., 2022), while diagnosis disclosure and perceived stigma were shown to negatively impact autistic adolescents' mental health (Houting et al., 2021; Mazumder & Thompson-Hodgetts, 2019; Ross et al., 2022).

The current study makes use of existing data collected by Pisula et al. (2024). Specifically, the data of 76 participants in the age range of 19 - 25 (M = 22.2, SD = 1.76) with an autism diagnosis was used.

Method

Participants

Overall, the data of 1994 participants in the age range of 18-52 (M = 23.6, SD = 5.6) was collected, with 80% of them being women. For the current study, anyone who was not diagnosed with ASD was excluded, leaving 120 participants. Upon excluding participants who did not answer the questions used to measure the variables, 101 participants were left. Afterwards, anyone who did not fall into the age range of 18 - 25 was excluded, meaning that 77 participants fulfilled the criteria. However, one case was determined to be an outlier in later analyses and was therefore excluded.

In total, 76 diagnosed autistic participants of the ages 19 - 25 (M = 22.2, SD = 1.76) were eligible for this study. Out of these 76 participants, 51 identified female, 15 identified as male, and ten identified as another gender. All 76 participants provided answers to all of the questionnaires used for this study and were not divided into subgroups for the purpose of this study. From the final sample, 17 students chose humanities as their field of study, 21 chose social sciences, 3 chose economics, 16 chose science, 5 chose natural or geographical sciences, 7 chose an artistic program, 3 chose medicine, and 5 chose a field of study that was not mentioned in the questionnaire.

Measures

Diagnosis Disclosure

The quantitative independent variable was determined by adding together the sum of answers selected in response to the multiple-choice question "Who at your university knows that you are on the autism spectrum?" (see Appendix A). Each answer possibility given was scored with one point, with the exceptions of "all or almost all of the lecturers I have classes with" and "most people I study with", which were worth two points. Additionally, the answer possibility "nobody" was scored with zero points. For students, who chose other answer possibilities alongside "nobody", it was assumed that they meant to indicate that they did not tell anyone besides the people they chose, so their data was still included in the analysis. This was the case for two participants. In total, there were ten answer possibilities, including "nobody" and the two possibilities worth a score of two. Overall, the lowest possible score was 0, while the highest possible score was 11. A higher score indicates a high diagnosis disclosure.

Perceived Stigma

The quantitative mediator was measured using the Perceived Public Stigma Scale (PPSS; Chan & Lam, 2017). The questionnaire contains eight items on a 6-point Likert scale, ranging from "strongly disagree (1)" to "strongly agree (6)". Items 5 through 7 were reverse-coded before the scores for all items were added together to form a total score. This score could range from 8 to 48. A higher score indicates high perceived stigma. Internal consistency was acceptable ($\alpha = 0.75$).

Mental Health

The quantitative dependent variable was measured using the Depression Anxiety and Stress Scale 21 (DASS-21; Lovibond and Lovibond, 1995). The questionnaire contains 21 items on a 4-point Likert scale, ranging from "Did not apply to me at all (never; 0)" to "Applied to me very much or most of the time (almost always; 3)". Usually, the DASS-21 is used to calculate total scores for depression, anxiety, and stress. However, for the purpose of this study, all total scores were added up to create one big total score. This score could range from 0 to 63. A higher score indicates more mental health problems. Internal consistency was high ($\alpha = 0.94$).

Gender

The covariate was determined by means of a simple demographic question, asking participants which gender they identified as. This resulted in three levels (female/male/other gender). A forth level (prefer not to say) was not included in this study as the only eligible participant was deemed an outlier during the analysis phase.

Procedure

Participants of the original study were recruited via student governments/associations, university staff such as deans and teachers, and student groups on social media. It was directed towards any student participating in higher education in Poland. All participants had to give informed consent before they could fill out the online survey on Qualtrics XM. To that end, they were shown an information letter providing information about the study they were about to take part in. Afterwards, participants agreed to participate by means of a consent form. If they agreed, the survey continues on to the questionnaire part. The participation occurred anonymously, but involved the storage of participants' emails within a secured database if they indicated that they wanted to partake in the next wave of the study. Participants were also given an opportunity to enter a raffle for a shopping voucher worth PLN 50 (11,70 Euros).

At the beginning of the survey, participants were asked to indicate their gender and information about their studies. Throughout the study, participants answered questions regarding their health, support at the educational institution, mental health, functioning at the educational institution, autistic personality traits, perceived social situation including stigma and discrimination, and further demographic information such as age. The surveys' questions adapted depending on the answers participants gave. For example, only students who indicated to be autistic received questions regarding autism.

The original study by Pisula et al. (2024) was approved by the University of Warsaw's Ethics Committee of the Faculty of Psychology and by Utrecht University's Ethics Committee of the Faculty of Social and Behavioural Sciences. The current study was approved by Utrecht University's Ethics Committee of the Faculty of Social and Behavioural Sciences (number 24-0341).

Data Analysis

An a priori power analysis using G*Power ($f^2 = 0.15$, $\alpha = 0.05$, $I - \beta = 0.80$; Cohen, 2013; Cicchetti et al., 2010) revealed a required total sample size of 55. Therefore, the sample size of the current study (N = 76) was suitable.

The data used for the current study was retrieved from a secure environment for research data by Utrecht University, called YoDa. Any data that was not needed was deleted from the file, including the results of other questionnaires. Additionally, non-autistic participants as well as participants over 25 years of age were excluded from the file. Total scores of the DASS-21 and PPSS questionnaires, as well as a total score for diagnosis disclosure, were calculated using Excel. Due to the covariate *gender* having three levels, the variable was dummy-coded in SPSS using the extension "SPSS tutorials – Create Dummy Variables" (van den Berg, n.d.) and with "female" being the reference group, as it was the most represented gender (Female: male = 0, other = 0; Male: male = 1, other = 0, Other: male = 0, other = 1).

The data was analyzed using the SPSS PROCESS macro model 4 by Hayes (2022) to test both hypotheses by investigating the effect of perceived stigma (PPSS score from 7 to 42) on mental health (DASS-21 score from 0 to 63), as well as the mediating effect of diagnosis disclosure (score from 0 to 11), with gender (female/male/other) serving as a covariate. Additionally, a linear regression analysis was conducted to test for assumptions for additivity, normality, linearity, and homoscedasticity by examining the correlations, histogram, P-P plot and scatterplot in SPSS.

Results

Preliminary Results

In order to identify possible outliers, a linear regression model was used. One participant showed a strikingly high Mahalanobis distance ($d_M > 16.27$), one participants' Cook's distance was above the cut-off ($D_i > 0.055$), and nine participants had high leverage values ($h_{ii} > 0.104$). Only one participant scored above the cut-off for two of these measures of distance and would be considered an outlier according to the two-out-of-three-rule (Buchanan, 2018). Since that person in particular was the only one within the

sample who answered to rather not disclose their gender and it was assumed that this possibly influenced the analysis for outliers, the mediation analysis was done once including and excluding the person in order to see the extent to which the results would be influenced by the inclusion or exclusion of the person's data. Overall, this specific person's data showed a lot of deviation when comparing it to the rest of the dataset and appeared to have a relatively large effect on the p-values of the mediation analysis. Therefore, this person's data was excluded and the analysis was conducted using three levels of *gender*, instead of four.

The assumptions for additivity, normality, linearity, and homoscedasticity were tested. Additive assumptions showed low, non-significant correlations for most predictors. However, diagnosis disclosure and identifying as a non-binary gender showed a higher, significant correlation ($\rho = 0.24$. p = .035) indicating that identifying as another gender is positively correlated with higher diagnosis disclosure, compared to identifying as female. Overall, the assumptions appeared to be fulfilled.

Primary Results

When investigating predictors of diagnosis disclosure, no significant effect was found for perceived stigma. For the covariate gender, identifying as another gender besides male or female revealed a significant result (b = 1.26, t(72) = 2.31, p = .024), indicating a positive correlation. Therefore, participants of another gender appeared more likely to disclose their diagnosis, compared to women.

When investigating predictors of mental health, perceived stigma revealed a significant result (b = 0.88, t(71) = 4.14, p < .001), indicating a positive correlation. No significant effect was found for diagnosis disclosure. For the covariate gender, identifying as another gender besides male or female revealed a nigh significant result (b = -8.39, t(71) = -1.76, p = .084).

When investigating whether the interaction between perceived stigma and diagnosis disclosure is predictive of mental health, a significant effect was found (b = 0.89, t(72) = 4.17, p < .001), indicating a positive correlation. When investigating whether the interaction between gender and diagnosis disclosure is predictive of mental health, no significant effect was found.

Overall, the direct effect of perceived stigma on mental health in presence of the mediator was found to be significant (b = 0.882, p < 0.001), indicating a positive relationship. However, the indirect effect of perceived stigma on mental health reveals that no mediation is present because the confidence interval includes 0 (*Indirect* = 0.01, *SE* = 0.05, 95% CI[-0.07,0.12]).

Table 1

Model Coefficients Assessing Diagnosis Disclosure as a Mediator Between Perceived Stigma and Mental Health.

| | Consequent | | | | | | | | |
|--------------------|----------------------------|-------------|-------|------|-------|----------------------------|-------|-------|--|
| | M (Diagnosis Disclosure) | | | | | Y (Mental Health) | | | |
| Antecedent | | Coefficient | SE | р | | Coefficient | SE | р | |
| X(PS) | а | 0.007 | 0.025 | .788 | C' | 0.882 | 0.213 | <.001 | |
| $M(\mathrm{DD})$ | | _ | _ | _ | b | 1.221 | 0.997 | .224 | |
| <i>CV</i> (m vs f) | | 0.509 | 0.468 | .281 | | -2.251 | 3.989 | .574 | |
| CV (other vs f) | | 1.26 | 0.545 | .024 | | -8.387 | 4.777 | .084 | |
| constant | i_M | 1.64 | 0.783 | .04 | i_Y | 1.259 | 6.821 | .854 | |
| | $R^2 = 0.074$ | | | | | $R^2 = 0.237$ | | | |
| | F(3, 72) = 1.928, p = .133 | | | | | F(4, 71) = 5.506, p < .001 | | | |

Note. Adapted from Hayes (2013). Coefficient = unstandardized coefficient (B); SE = standard error; PS = perceived stigma; DD = diagnosis disclosure; m = male; f = female.

Discussion

The current study aimed to fill a gap in the literature by investigating the relationship between perceived stigma and mental health in autistic students, as well as the possible mediating role of diagnosis disclosure. It was hypothesized that high perceived stigma would be associated with worse mental health. Additionally, it was hypothesized that high perceived stigma would lower the likelihood of disclosing one's diagnosis, which would be associated with worse mental health. The results of this study show a positive association between perceived stigma and mental health: Higher levels of perceived stigma are associated with worse mental health. Therefore, the first hypothesis was confirmed. However, diagnosis disclosure did not appear to mediate this relationship. For that reason, the second hypothesis could not be confirmed.

The increase in mental health problems in relation to an increase in perceived stigma was expected and is in line with literature stating that stigma is positively associated with mental health (Houting et al., 2021; Mazumder & Thompson-Hodgetts, 2019). A mediating role of diagnosis disclosure was not found. This is against the expectations set for the current study, but in line with the results of Perry et al. (2021), which indicated the absence of a mediating role of camouflaging in general when investigating the relationship between perceived autism stigma and mental health.

Previous research indicated that increases in stigma were associated with increases in camouflaging techniques (Perry et al., 2021). This was not the case for the current study, as the results proved non-significant. This might be the case due to the majority of participants using collective strategies, instead of individualistic ones, as proposed by Perry et al. (2021). Therefore, the results of the current study go against the SIT approach by Perry et al. (2021). This might be influenced be the type of

culture people grow up in, and not purely the thought of (avoiding) identification with the in-group. In the study by Perry et al. (2021), a majority of participants indicated to be from the UK. However, the current study uses a Polish sample. According to a comparison between the UK and Poland, based on Hofstede's (1984) dimensions of national culture, the UK appears to clearly prefer individualism while Poland's society seems to have no specific preference (The Culture Factor Group, n.d.). Therefore, it is likely that the SIT may not be applicable to autistic adolescents who are part of a culture that is not obviously individualistic.

In contrast to previous research indicating that autistic non-binary people are less likely to disclose their diagnosis (Evans, 2022), the current study found that participants identifying as a nonbinary gender seemed more likely to disclose their diagnosis. They also appeared to potentially benefit from better mental health. This could potentially be due to them already receiving more support in relation to their gender identity, such as sessions with a therapist to help them work through possible hurdles that come with belonging to two minority groups. Therefore, they might be more resilient than the rest of the sample and find more strength in identification with the in-group. However, it could also be that the little amount of participants identifying as another gender led to an underrepresentation of the group and therefore the results might not be representative of the actual population.

Limitations

It is possible that the current study was affected by confounds that were not taken into account, such as the additional support students might be receiving and the extent of autistic traits. Upon paying further attention to the representation of students from various fields of study, it becomes clear that many students chose a study program within the field of humanities, social sciences, or science. Out of 76 participants, 54 were enrolled for a program in one of those three domains. As all of these fields thematize societal and/or health-related issues to an extent, it is possible that autistic students within those fields are more aware of potential negative effects of diagnosis disclosure, hence opting not to use strategies such as camouflaging. It might be worth investigating whether the choice of field of study is associated with diagnosis disclosure.

Additionally, autistic students who participated may have been more accepting of their diagnosis overall and those who potentially do not want to identify with the autistic in-group might not have participated to begin with, in order to avoid confrontation. As a power analysis indicated that the sample size would produce reliable results, the sample size itself is unlikely to be a possible limitation of the study. However, the gender distribution might have distorted the results as over 65% of participants were female.

Due to the lack of previous research on this topics in particular, more research is needed to identify possible protective factors or confounds. Furthermore, a replication with a well-balanced sample might be needed in order to have the results be more representative of the general population, as the gender distribution of the current study might have influenced the outcome.

Conclusion

Even though the expected mediation effect was not found, this study provides further proof of the relationship between perceived stigma and mental health problems in autistic students. This result highlights the importance of destigmatization of autism within academic institutions. To that end, post-secondary education institutions should plan educational programs for their students in order to decrease the discrepancy and social distance between autistic students and their neurotypical peers. In doing so, knowledge regarding autism will hopefully reduce the stigmatized views of others and therefore also the perceived stigma in autistic students.

To conclude, the destigmatization of autism is incredibly important in order to support autistic students in their journey throughout adolescence. By providing or attending simple and easily accessible educational programs regarding autism, everyone would be able to do their part towards a better, less stigmatized future for autistic adolescents.

References

Allison, C., Auyeung, B., & Baron-Cohen, S. (2012). Toward brief "red flags" for autism screening: The short autism spectrum quotient and the short quantitative checklist in 1,000 cases and 3,000 controls. *Journal of the American Academy of Child and Adolescent Psychiatry*, *51*(2), 202-212.e7. https://doi.org/10.1016/j.jaac.2011.11.003

American Psychiatric Association. (2022). Neurodevelopmental disorders. In *Diagnostic and statistical manual of mental disorders* (5th ed., text rev.).
<u>https://dsm.psychiatryonline.org/doi/10.1176/appi.books.9780890425787.x01_Neurodevelopmen tal_Disorders</u>

- Anderson, A. H., Carter, M., & Stephenson, J. (2017). Perspectives of university students with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 48(3), 651–665. <u>https://doi.org/10.1007/s10803-017-3257-3</u>
- Botha, M., Dibb, B., & Frost, D. M. (2020). "Autism is me": An investigation of how autistic individuals make sense of autism and stigma. *Disability & Society*, 37(3), 427–453. https://doi.org/10.1080/09687599.2020.1822782
- Buchanan, E. M. [Statistics of DOOM]. (2018, June 16). SPSS Mediation with PROCESS and covariates (model 4) [Video]. YouTube.

https://www.youtube.com/watch?v=D7wt9s0siNY&t=1377s

Cage, E., Monaco, J., & Newell, V. (2018). Understanding, attitudes and dehumanisation towards autistic people. *Autism*, 23(6), 1373–1383. <u>https://doi.org/10.1177/1362361318811290</u>

Centers for Disease Control and Prevention. (2023, March 22). Autism prevalence higher, according to data from 11 ADDM communities. CDC Newsroom. https://www.cdc.gov/media/releases/2023/p0323-autism.html

Chan, K. K. S., & Lam, C. B. (2017). Trait mindfulness attenuates the adverse psychological impact of stigma on parents of children with autism spectrum disorder. *Mindfulness*, 8(4), 984–994. <u>https://doi.org/10.1007/s12671-016-0675-9</u>

- Cicchetti, D. V., Koenig, K., Klin, A., Volkmar, F. R., Paul, R., & Sparrow, S. (2010). From Bayes through marginal utility to effect sizes: A guide to understanding the clinical and statistical significance of the results of autism research findings. *Journal of Autism and Developmental Disorders*, 41(2), 168–174. <u>https://doi.org/10.1007/s10803-010-1035-6</u>
- Cohen, J. (2013). *Statistical power analysis for the behavioral sciences* (2nd ed.). Routledge. https://doi.org/10.4324/9780203771587
- Cook, J., Crane, L., Hull, L., Bourne, L., & Mandy, W. (2021). Self-reported camouflaging behaviours used by autistic adults during everyday social interactions. *Autism*, 26(2), 406–421. https://doi.org/10.1177/13623613211026754
- Cottone, J. G., PhD. (2024, May 21). Adolescence should extend into the mid-20s. *Psychology Today*. https://www.psychologytoday.com/intl/blog/the-cube/202107/why-25-could-be-the-new-18
- Dudley, J. R. (2000). Confronting stigma within the Services System. *Social Work*, 45(5), 449–455. https://doi.org/10.1093/sw/45.5.449

Evans, J. A. (2022). Autism camouflaging in relation to views about autism, mental health, and gender identity. *Global Tides, 16*, Article 10.

https://digitalcommons.pepperdine.edu/globaltides/vol16/iss1/10

- Farsinejad, A., Russell, A., & Butler, C. (2022). Autism disclosure The decisions autistic adults make. *Research in Autism Spectrum Disorders*, 93, 101936. <u>https://doi.org/10.1016/j.rasd.2022.101936</u>
- Frost, K. M., Bailey, K., & Ingersoll, B. (2019). "I just want them to see me As. . .Me": Identity, community, and disclosure practices among college students on the autism spectrum. *Autism in Adulthood*, 1(4), 268–275. <u>https://doi.org/10.1089/aut.2018.0057</u>
- Gillespie-Lynch, K., Daou, N., Obeid, R., Reardon, S., Khan, S., & Goldknopf, E. J. (2020). What contributes to stigma towards autistic university students and students with other diagnoses? *Journal of Autism and Developmental Disorders*, *51*(2), 459–475. https://doi.org/10.1007/s10803-020-04556-7

- Gurbuz, E., Hanley, M., & Riby, D. M. (2018). University students with autism: The social and academic experiences of university in the UK. *Journal of Autism and Developmental Disorders*, 49(2), 617–631. <u>https://doi.org/10.1007/s10803-018-3741-4</u>
- Han, E., Scior, K., Avramides, K., & Crane, L. (2021). A systematic review on autistic people's experiences of stigma and coping strategies. *Autism Research*, 15(1), 12–26. <u>https://doi.org/10.1002/aur.2652</u>
- Harmens, M., Sedgewick, F., & Hobson, H. (2022). Autistic women's diagnostic experiences: Interactions with identity and impacts on well-being. *Women's Health*, 18, 174550572211374. <u>https://doi.org/10.1177/17455057221137477</u>
- Hoeberichts, K., Roke, Y., Niks, I., & van Harten, P. N. (2022). Use of a mHealth mobile application to reduce stress in adults with autism: A pre-post pilot study of the Stress Autism Mate (SAM).
 Advances in Neurodevelopmental Disorders, 7(2), 268-276. <u>https://doi.org/10.1007/s41252-022-00304-3</u>
- Hodges, H., Fealko, C. & Soares, N. (2020). Autism spectrum disorder: Definition, epidemiology, causes, and clinical evaluation. *Translational Pediatrics*, 9(S1), S55–S65.

https://doi.org/10.21037/tp.2019.09.09

- Hofstede, G. (1984). *Culture's consequences: International differences in work-related values*. SAGE. <u>https://doi.org/10.1177/017084068300400409</u>
- Houting, J. D., Botha, M., Cage, E., Jones, D. R., & Kim, S. Y. (2021). Shifting stigma about autistic young people. *The Lancet Child & Adolescent Health*, 5(12), 839–841. https://doi.org/10.1016/s2352-4642(21)00309-6
- Hull, L., Lai, M., Baron-Cohen, S., Allison, C., Smith, P., Petrides, K. V., & Mandy, W. (2019). Gender differences in self-reported camouflaging in autistic and non-autistic adults. *Autism*, 24(2), 352– 363. https://doi.org/10.1177/1362361319864804
- Jackson, S., Hart, L., Brown, J. N., & Volkmar, F. R. (2017). Brief report: Self-reported academic, social, and mental health experiences of post-secondary students with autism spectrum disorder. *Journal*

of Autism and Developmental Disorders, 48(3), 643–650. <u>https://doi.org/10.1007/s10803-017-</u> 3315-x

- Jaworska, N., & MacQueen, G. (2015). Adolescence as a unique developmental period. *Journal of Psychiatry & Neuroscience*, 40(5), 291–293. <u>https://doi.org/10.1503/jpn.150268</u>
- Kapp, S. K., Steward, R., Crane, L., Elliott, D., Elphick, C., Pellicano, L., & Russell, G. (2019). 'People should be allowed to do what they like': Autistic adults' views and experiences of stimming. *Autism*, 23(7), 1782–1792. https://doi.org/10.1177/1362361319829628
- Kuder, S. J., Accardo, A., & Bomgardner, E. M. (2020). Mental health and university students on the autism spectrum: a Literature Review. *Review Journal of Autism and Developmental Disorders*, 8(4), 421–435. <u>https://doi.org/10.1007/s40489-020-00222-x</u>
- Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33*(3), 335–343. <u>https://doi.org/10.1016/0005-7967(94)00075-</u> <u>u</u>
- Mazumder, R., & Thompson-Hodgetts, S. (2019). Stigmatization of children and adolescents with autism spectrum disorders and their families: A scoping study. *Review Journal of Autism and Developmental Disorders*, 6(1), 96–107. <u>https://doi.org/10.1007/s40489-018-00156-5</u>
- McMorris, C. A., Baraskewich, J., Ames, M. A., Shaikh, K. T., Ncube, B. L., & Bebko, J. M. (2019).
 Mental health issues in post-secondary students with autism spectrum disorder: Experiences in accessing services. *International Journal of Mental Health and Addiction*, 17(3), 585–595.
 https://doi.org/10.1007/s11469-018-9988-3
- Nolan, J., & McBride, M. (2015). Embodied semiosis: Autistic 'stimming' as sensory praxis. In *Springer eBooks* (pp. 1069–1078). <u>https://doi.org/10.1007/978-94-017-9404-6_48</u>
- Obeid, R., Daou, N., DeNigris, D., Shane-Simpson, C., Brooks, P. J., & Gillespie-Lynch, K. (2015). A cross-cultural comparison of knowledge and stigma associated with autism spectrum disorder

among college students in Lebanon and the United States. *Journal of Autism and Developmental Disorders*, 45(11), 3520–3536. <u>https://doi.org/10.1007/s10803-015-2499-1</u>

- O'Hearn, K., & Lynn, A. (2023). Age differences and brain maturation provide insight into heterogeneous results in autism spectrum disorder. *Frontiers in Human Neuroscience*, 16. https://doi.org/10.3389/fnhum.2022.957375
- Osman, A., Bagge, C. L., Gutierrez, P. M., Konick, L. C., Kopper, B. A., & Barrios, F. X. (2001). The Suicidal Behaviors Questionnaire-Revised (SBQ-R):Validation with clinical and nonclinical samples. *Assessment*, 8(4), 443–454. <u>https://doi.org/10.1177/107319110100800409</u>
- Pellicano, E., & Houting, J. D. (2021). Annual Research Review: Shifting from 'normal science' to neurodiversity in autism science. *Journal of Child Psychology and Psychiatry*, 63(4), 381–396. <u>https://doi.org/10.1111/jcpp.13534</u>
- Perry, E., Mandy, W., Hull, L., & Cage, E. (2021). Understanding camouflaging as a response to autismrelated stigma: A Social Identity Theory approach. *Journal of Autism and Developmental Disorders*, 52(2), 800–810. https://doi.org/10.1007/s10803-021-04987-w
- Pisula, E., Płatos, M., Banasiak, A., Danielewicz, D., Gosztyła, T., Podgórska-Jachnik, D., Pyszkowska,
 A., Rumińska, A., Winczura, B. (2024). Neuroróżnorodność na polskich uczelniach.
 Doświadczenia osób studiujących: w spektrum autyzmu, z ADHD i z dysleksją. Impuls.
- Ross, A., Grove, R., & McAloon, J. (2022). The relationship between camouflaging and mental health in autistic children and adolescents. *Autism Research*, 16(1), 190–199. https://doi.org/10.1002/aur.2859

Sawyer, S. M., Azzopardi, P. S., Wickremarathne, D., & Patton, G. C. (2018). The age of adolescence. *The Lancet Child & Adolescent Health*, 2(3), 223–228. <u>https://doi.org/10.1016/s2352-</u> <u>4642(18)30022-1</u>

The Culture Factor Group. (n.d.). *Country comparison tool*. Hofstede Insights. Retrieved July 17, 2024, form <u>https://www.hofstede-insights.com/country-comparison-</u>

tool?countries=poland%2Cunited+kingdom

- Thompson-Hodgetts, S., Labonté, C., Mazumder, R., & Phelan, S. (2020). Helpful or harmful? A scoping review of perceptions and outcomes of autism diagnostic disclosure to others. *Research in Autism Spectrum Disorders*, 77, 101598. <u>https://doi.org/10.1016/j.rasd.2020.101598</u>
- Togher, K. L., & Jay, S. (2023). Disclosing an autism diagnosis: A social identity approach. *Autism Research*, *16*(10), 1934–1945. <u>https://doi.org/10.1002/aur.2990</u>
- Underhill, J. C., Clark, J. D., Hansen, R. S., & Adams, H. (2022). Exploring autistic college Students' perceptions and management of peer stigma: An interpretative phenomenological analysis. *Journal of Autism and Developmental Disorders*, 54(3), 1130–1142. <u>https://doi.org/10.1007/s10803-022-05867-7</u>
- van den Berg, R. G. (n.d.). SPSS: Create dummy variables tool. *SPSS Tutorials*. <u>https://www.spss-tutorials.com/spss-create-dummy-variables-tool/</u>
- van Hees, V., Moyson, T., & Roeyers, H. (2014). Higher education experiences of students with autism spectrum disorder: Challenges, benefits and support needs. *Journal of Autism and Developmental Disorders*, 45(6), 1673–1688. <u>https://doi.org/10.1007/s10803-014-2324-2</u>
- World Health Organization: WHO. (2019, November 26). *Adolescent health*. <u>https://www.who.int/health-topics/adolescent-health#tab=tab_1</u>

Appendix A

Question regarding diagnosis disclosure

Who at your university knows that you are on the autism spectrum? (you can select more

than one answer)

 \Box Office dedicated to supporting students with disabilities (1)

□ Vice-Dean for Student Affairs/ Head of the Teaching Unit or another person from

the authorities of the Faculty/Institute (2)

 \Box Some lecturers (3)

 \Box All or almost all of the lecturers I have classes with (4)

 \Box A few people closest to me with whom I study (5)

 \Box Most people I study with (6)

 \Box Other students on the autism spectrum (10)

 \Box Assistant, tutor or another person who supports me from the Faculty (7)

 \Box Other people (what?) (8)

 \Box Nobody (9)