

**The relationship between Discrimination, Identity Nondisclosure, and Mental Distress in
Gender and Sexual Minorities across Millennials and Generation Z**

Josie Marie de Boer

Faculty of Behavioural, Management, and Social Sciences

Department of Psychology, University of Twente

202000384: BSc Thesis Psychology

First Supervisor: Dr. Tessa Dekkers

Second Supervisor: Dr. Anne van Dongen

June 25, 2024

Abstract

Individuals who are part of sexual or gender minorities (SGM) experience health disparities, including more mental distress. Research suggests that this is due to exposure to minority stress. Based on the Minority Stress Theory by Meyer (2003), this paper investigated the relationship between proximal and distal minority stressors and mental distress. Particularly the stressors of discrimination and identity nondisclosure were examined to close existing research gaps. In addition, it was also researched whether there is a moderation of generation (Millennials or Generation Z).

Using an online survey with 68 participants, the potential relationships and moderation were investigated. In line with the Minority Stress Theory, discrimination was indeed moderately positively associated with mental distress ($\rho = 0.41$, $p = .00$, $df = 66$). Identity nondisclosure, however, did not show any statistical significance. Likewise, there was no significant moderation of generation in this relationship. The only exception was found in an exploratory analysis, where gender minority Millennials did experience more identity nondisclosure than Generation Z ($\tau = 0.26$, $p = 0.21$, 95% CI: 0.06, 0.358).

The findings of the current study suggest that it is worthwhile to primarily focus on preventing discrimination, and they highlight the need for future research on similar topics. Especially this study's finding about identity nondisclosure of Millennials in gender minorities requires more research. The major limitations of this study were the small sample size and the method of convenience sampling. Additionally, there was no control variable measuring other forms of social stress. It is suggested that future research should examine other variables, like the broader concept of internalized stigma, which identity nondisclosure is a part of, and other generations than Millennials and Generation Z.

Keywords: Minority Stress, Sexual and gender minorities, Discrimination, Identity nondisclosure, Mental distress, Generations, Age, Millennials, Generation Z, LGBTQI+, SGM

Introduction

Health disparities in sexual and gender minorities

Recent research revealed that 67% of young sexual or gender minority individuals experienced symptoms of anxiety, while 54% experienced depressive symptoms (The Trevor Project, 2023). An even more shocking fact from that study is that 41% considered taking their lives within the past year. These statistics illustrate the serious inequality in mental health, that sexual and gender minorities face. The term sexual and gender minorities (SGM) (alternatively, LGBTQI+) is used to describe ‘a variety of gender and sexual identities and expressions that differ from cultural norms’ (Rodrigues et al., 2017, p. 848). To be more specific, sexual minorities comprise of individuals who do not identify as straight or heterosexual (Wall, 2021). Likewise, individuals who do not identify as cisgender are part of gender minorities. ‘Cisgender’ stands for those individuals who identify with the sex they were assigned at birth (Zambon, 2021).

Mental health in general can be defined as a ‘state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community’ (World Health Organization, 2022, Concepts in mental health section). A study by Williams (2021) found similar statistics about health disparities as the Trevor Project (2023). Williams’ (2021) study could add that while only 6% of the general population engages in self-harm, this number is much higher for SGM. To be specific, 48% of lesbian, gay, or bisexual people, 35% of transgender people, and 41% of non-binary people included in Williams’ (2021) study have stated to have self-harmed in the past year. Both studies refer primarily to anxiety and depression, which are often summarised as ‘psychological distress’, or ‘mental distress’ (APA Dictionary Of Psychology, 2018). Hence, there seem to be particular differences in the mental distress of SGM individuals, when compared to others.

While the health inequalities have long been recognized, homosexuality itself has historically been considered the cause of them. Nowadays, it is acknowledged that the increased health risks are not related to gender or sexual identity itself, but rather to the ubiquitous effects of minority stress (Meyer, 2003). The high mental health disparities between individuals of SGM and cisgender heterosexual people can be accounted for by the emotional distress that comes from deviating from the perceived norm of cisgender heterosexuality (Moagi et al., 2021). This emotional distress causes minority stress, in terms of prejudice and discrimination (Williams, 2021).

Minority Stress

Minority stress, in general, can be defined as the ‘excess stress to which individuals from stigmatised social categories are exposed to as a result of their social, often a minority, position’ (Meyer, 2003). Three terms are described by Meyer (2003) when investigating the assumptions underlying the concept of minority stress. The first of these is ‘unique’, which describes the fact that minority stress is cumulative, meaning that it adds up to the normal stress, experienced by everyone regardless of one’s affiliation to a minority or majority group. The second term is ‘chronic’. This means that minority stress is associated with the stable fundamental structures of cultures. Finally, minority stress is ‘socially based’, which states that it is due to structures, organisations, and social processes that are external to the individual it is directed to. To understand how the experience of minority stress affects the health of SGM, the Minority Stress Theory (MST) was proposed.

Minority Stress Theory

Meyer (2003) proposed the MST, which can be used to understand how minority stress can lead to health disparities between people who are part of SGM, and those who are cisgender and heterosexual. It is based on the hypothesis that these health inequalities are due to excessive societal stress that is based on stigma and prejudice. In this theory, minority stressors can be differentiated from general stressors, based on the prejudicial motivation behind them.

The MST clearly distinguishes between two types of stressors, namely distal and proximal stressors. Distal stressors are prejudicial events or acts stemming from external people or organizations, whereas proximal stressors can be described as the internal evaluation of that act or event (Douglass & Conlin, 2020). However, proximal stressors can also be internal perceptions of oneself, based on the assessment of the distal stressors (Herrick et al., 2021). Concerning SGM, examples of distal stressors are being discriminated against while openly kissing a person of the same sex or losing a job solely because of one’s gender or sexuality. Also, public laws that negatively impact SGM are distal stressors (Frost & Meyer, 2023). Since proximal stigmata stem from the internalization of the perceived stigma, these could be shown as identity nondisclosure (hiding that one is part of an SGM) or having expectations of being rejected by others (Frost & Meyer, 2023).

The distal stressor that this study will particularly focus on is ‘discrimination’, while the proximal stressor that will be specifically investigated in this paper is ‘identity nondisclosure’.

Discrimination

It is strongly suggested that discrimination impacts humans' bodily functions leading to distress. This was tested in a study where SGM people were asked questions by interviewers who were either believed to have made positive comments regarding the SGM or were believed to be homophobic (Goodman, 2021). The results of this study were that speaking to a possibly homophobic interviewer increases systolic blood pressure and heart rate. Additionally, the levels of cortisol, which is a stress hormone, rose only during the interviews in the homophobic-interviewer group. Frequent exposure to stress is indicated to cause changes in glucocorticoid signalling, which may lead to a higher vulnerability to psychopathology (Cattaneo & Riva, 2016). It was also found that lifetime discrimination, as well as discrimination in the past 12 months, is related to mental distress (Caldwell et al., 2023). Hence, research suggests that there is an association between discrimination and mental distress.

The incidence of discrimination is very high. In a study about transgender-related discrimination in the United States of America, almost half of the participants reported having experienced discrimination, especially in the fields of employment, healthcare, and housing (Bradford et al., 2013). Very similar findings were found amongst homosexual and bisexual cisgender people, where 48% of them received negative job evaluations, or were denied a promotion, 60% of them were fired or denied from jobs, 15% were unable to buy or rent houses, and 41% were bullied at school (The Williams Institute at UCLA School of Law, 2021). Both of these studies only comprise data from the United States of America, but a study which investigated discrimination against SGM people in the EU found similar results as well (European Union Agency for Fundamental Rights, 2020). Here, 19% of the SGM people felt discriminated against at work, but 66% perceived that there was a general negative attitude towards them at their workplace. 10% of lesbian, gay, or bisexual people and 19% of transgender people felt discriminated against in health care. The European Union Agency for Fundamental Rights (2020) study adds to the previous research and investigated that 32% of the participants felt discriminated against in public settings like restaurants or pubs, while 18% felt discriminated against by school or university personnel. Due to the high prevalence of discrimination against SGM, it seems essential to establish the extent to which it contributes to the occurrence of mental distress.

Identity nondisclosure

As previously stated, identity nondisclosure is the act of hiding one's identity. It is estimated that 83% of sexual minorities hide their sexual orientation from most or all other people (Poitras, 2019). Reasons for not disclosing are often related to the expectation of

negative reactions, changes in relationships, as well as a fear of rejection and stigmatization (Schrimshaw et al., 2016). While there is not yet a lot of research on the exact term of identity nondisclosure, there is research on a very similar construct: identity concealment. Several studies on identity concealment suggest an association with higher depression rates, as well as generalized anxiety (Feinstein et al., 2020; Pachankis et al., 2020; Riggle et al., 2017). This is in line with findings about the opposite of identity nondisclosure, which is identity disclosure. For example, Beals et al. (2009) found that the disclosure of one's identity leads to more life satisfaction and more positive feelings in general. This suggests that hiding one's identity is associated with mental distress, while the opposite is not.

However, there are also contradictory findings. Research suggests that negative reactions to disclosing one's identity contribute to the experience of mental distress (Camacho et al., 2020). A study by Fox et al. (2020) found that disclosing one's SGM identity in all areas of social life was related to a three-fold increase in the likeliness of developing psychological distress. Hence, while there seems to be a relation between not discussing one's SGM identity and mental distress, there also seems to be one between discussing one's SGM identity and mental distress. Due to these conflicting findings on identity concealment and identity disclosure, it seems important to further explore the direction of the relationship between identity nondisclosure and mental distress.

Generational differences in SGM minority stress

A further interesting point of research is the fact that young people nowadays are more open when it comes to publicly identifying as part of an SGM (Mastroianni, 2022). Reasons for the higher number of people disclosing their identity as part of an SGM could be related to the experience of different events (stressors) while growing up (Goldsen, 2022). Research strongly suggests that older people who grew up in times when there was a criminalisation of homosexuality are more scared of coming out (Hurd et al., 2022). Particularly differences between Millennials (1981-1996) and Generation Z (1997-2012) can be investigated. These are the second and third youngest generations existing. It is estimated that 10.5% of all Millennials identify as part of SGM, while this number doubled for Generation Z (20.8%) (Chinni, 2022). Even though individuals from these two generations might be close to each other in terms of age, it is still the case that different stressors might have influenced each generation.

It is suggested that Millennials are heavily influenced by events like the AIDS epidemic, which was followed by an increased number of events of homophobic attacks

during the 1990s (Ambassadors, 2023). A further event that influenced the Millennials was the first legalisation of same-sex marriages in the Netherlands, in 2001 (Vondráčková, 2021). Generation Z is more influenced by media representation of the SGM community, or cyberbullying (Abreu & Kenny, 2017). A further impactful event is the Covid-19 pandemic, where most of Generation Z lived at home during the lockdown. In a study, Gonzales et al (2020) investigated the mental health of queer college students, that were sent home due to the closing of their universities. The results of this study were that 60% of their participants experienced symptoms of anxiety, stress, or depression, while 45.7% stated they had stayed home with families that were either unaware or unsupportive of their SGM identity. Further research on generations and age shows that people are disclosing their sexual orientation and/or gender identity at a younger age. Coming out before the age of 13, however, comes with a higher prevalence of discrimination (Mastroianni, 2022). This suggests that Generation Z might be exposed to even more discrimination than Millennials, due to openly disclosing their sexual or gender minority identity earlier in life.

Regarding internalized stressors, it is important to mention that there are now several policies to combat discrimination against SGM people. Especially when shifting the attention to the context of Europe, compared to a global scale, the EU is relatively SGM friendly (Shreeves, 2020). Every EU citizen has fundamental rights, and the EU even has one of the most comprehensive anti-discrimination laws worldwide. Moreover, research shows clear upward trends in the acceptance of homosexuality in almost every country of the world (Greenwood, 2020). These findings suggest that Generation Z may experience less internalized minority stress, due to a perception of positive attitudes. Since Millennials grew up at times when some of these laws did not exist, and the general acceptance of SGM people was not as high, it can be suggested that they experience more internalized stigma than Generation Z.

However, it is important to note that regardless of these laws and attitudes, there is still a lot of discrimination against the SGM community. To state an example, the legalization of same-sex marriages and adopting children in France in 2013, caused reactions of the ‘biggest rightwing street demonstrations in decades’ (Chrisafis, 2017). Based on all of these contradictory findings, it seems that generation could play a role in the experience of minority stress. However, it is not clear yet whether it improves or worsens minority stressors. It therefore appears relevant to close this research gap by further investigating the direction of this influence.

Comparing Millennials and Generation Z

The author is aware of one current study that examined these potential differences in minority stress related to age. This study by Reinka et al (2024) replicated a previous study by Quinn and Chaudoir (2009) about the stigmatization of concealable stigmatised identities. When comparing the current results to those from 2009, changes in acceptance or discrimination against SGM were identified. Particularly, both distal and proximal stress were reported less frequently by young people in 2024. Moreover, distal stress no longer predicted mental distress independently ($\beta = .005$, $p = .89$; total model $R^2 = .07$).

The current study will further investigate these generational differences from a cross-sectional perspective, in a European context. The goal is to examine the differences in distal and proximal stress and the extent to which these relate to mental health in a current sample of younger people from Generation Z, and young Millennial people. The specific stressors that will be focused on in this study are discrimination, which is a distal stressor, and identity nondisclosure, a proximal stressor. Following Reinka et al (2024)'s study, mental health will be investigated by assessing levels of mental distress.

Research question and hypotheses

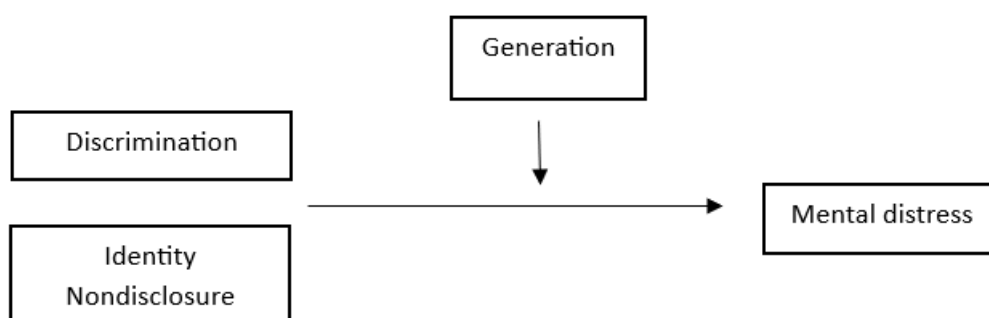
The research question of this paper is: To what extent are discrimination and identity nondisclosure (distal and proximal stressors) associated with mental distress? A further research question is: In how far is there a moderation of generational differences between Millennials and Generation Z? Based on the MST, the first hypothesis is that the experience of both distal and proximal stressors is associated with mental distress. This hypothesis can be divided into two parts: (a) The experience of discrimination (distal stressor) is associated with mental distress, and (b) The experience of identity nondisclosure (proximal stressor) is associated with mental distress.

Since Reinka et al (2024) found medium-to-large reductions in proximal stress when compared to the results of Quinn and Chaudoir (2009), a smaller amount of identity nondisclosure is hypothesized to be experienced by Generation Z when compared to Millennials. Even though some studies (e.g. Reinka et al., 2024) found reductions in discrimination as well, other studies suggest that Generation Z experienced discrimination earlier, and to a higher extent than older generations (Mastroianni, 2022). Hence, the second hypothesis is that Generation moderates the relationship between the experience of discrimination, identity nondisclosure and mental distress. Again, this hypothesis has two parts: (a) proximal stress is experienced more by Millennials and less by Generation Z, while (b) distal

stress is experienced more by Generation Z and less by Millennials. The conceptual model of this research is shown in Figure 1.

Figure 1

Conceptual model



Methods

Study design

This cross-sectional study is based on quantitative research, in an online survey research design. The independent variables are the types of stressors (discrimination or identity nondisclosure), and the generation (Millennials or Generation Z) is the moderator. Perceived mental distress is the dependent variable. The study of this thesis is part of a larger study on the well-being of SGM, at the University of Twente in Enschede, the Netherlands. This larger study was approved by the BMS Ethics Committee with request number 240516.

Participants & Procedure

The questionnaire was disseminated through convenience sampling. Participants were recruited via SONA (an online website of the university to recruit participants for research studies), email, social media, local queer communities, and personal networks of the researchers. The recruitment material can be found in Appendix A and Appendix B. To be included, participants needed to be part of a gender or sexual minority and either Generation Z (1997-2012) or a Millennial (1981-1996). Additionally, they needed to live in Europe. The exclusion criterion was that participants needed to be at least 16 years old, due to possible ethical issues.

In total, 112 people took part in the survey. Due to missing values, data from 43 out of a total of 112 participants (38.39%) were excluded. Another 0.89% of the participants were excluded since they did not meet the inclusion criteria. Hence, the data of 68 participants was

included in the final analysis. The mean age of the participants was 24.04 years (SD = 4.95), while the youngest participant was 16 years old, and the oldest one was 40 years old. Table 1 presents the sociodemographic characteristics of the participants in detail. Out of the 7% (n = 5) participants who identified as ‘Other’ on the gender question, 60% (n = 3) responded to identify as genderfluid, 20% (n = 1) as genderqueer, and 20% (n = 1) as ‘mostly female but does not mind being called other genders’. Regarding sexual identity, 10% (n = 7) identified as ‘Other’. Here, 29% (n = 2) stated that they were not sure yet, 43% (n = 3) identified as demisexual, 14% (n = 1) as queer, and 14% (n = 1) preferred not to label their sexual identity.

Table 1

Sociodemographic Characteristics of Participants at Baseline

Baseline characteristic	Full sample	
	n	%
Generation		
Generation Z	56	82.35
Millennials	12	17.65
Gender		
Male	15	22.06
Female	40	58.82
Non-binary	16	23.53
Still exploring	6	8.82
Other	5	7.35
Transgender	5	7.35
Intersex	0	0
Sexual orientation		
Heterosexual	8	11.76
Bi	23	33.82
Homosexual	9	13.24
Lesbian	10	14.71
Pansexual	16	23.53
Asexual	9	13.24
Other	7	10.29
Preferred not to say	1	1.47

Occupation		
Psychology student	16	23.53
Other student	27	39.71
Working	25	36.76
Country of residence		
The Netherlands	43	63.24
Germany	22	32.35
Other in Europe	3	4.41

Measures

The questionnaire consists of 99 items in total. However, only 21 items were relevant to this thesis about the relationship between discrimination and identity nondisclosure on distress, and the moderation of generations. First, 5 demographic questions from the English translation of the Dutch version of the Diversity Minimal Item Set (DiMIS) (Stadler et al., 2023) were asked, including the birth month- and year, gender, sex assigned at birth, intersexuality, and sexual orientation. The generation was calculated based on the birth year of each participant (Generation Z 1997-2012; Millennials 1981-1996). In addition, 2 further demographic questions were asked. The first of these was about one's country of residence, and the second one was about the participants' occupation or study.

The experience of discrimination was measured using the 5 questions related to this variable on the Queer Minority Stress and Resilience Scale (QMSR) (Behrens & Dekkers, 2023), which is an adaptation of the Gender Minority Stress and Resilience Scale from Testa et al. (2015), for general queer populations. This scale measures discrimination on a 6-point scale, from 'never' to 'always' (one of the six options here is 'not applicable'). An example question is 'I have had difficulty getting medical or mental health treatment (gender-affirming, sexual health-related, or other) because of my queer identity or expression.' This scoring is not in line with the original scale from Testa et al. (2015), who scored this on a scale with answers 'Never', 'Yes, before age 18', to 'Yes, after age 18', and 'Yes, in the past year'. The adaptation of the questionnaire is scored by summing each subscore from 0 ('Never') to 4 ('Always'). Testa et al.'s (2015) version of this questionnaire obtained a Cronbach's α of 0.61. In the current study, the internal consistency reliability was 0.87, which is interpreted as good.

Identity nondisclosure was assessed using the QMSR (Behrens & Dekkers, 2023) as well. Again, 5 questions were measured on a 6-point scale, which in this case will rise from 'strongly disagree' to 'strongly agree'. One of these items is 'Because I don't want others to know my queer identity, I don't talk about certain experiences from my past or change parts of what I will tell people.' This questionnaire is also scored from 0 ('strongly disagree') to 4 ('strongly agree'). Again, the final value is the sum of each subscore of the variable. Identity nondisclosure received a Cronbach's α of 0.93, indicating excellent reliability. In the current study, it was 0.87, indicating good reliability.

In order to measure the mental distress of the participants, the same scale was used as in the study by Reinka et al (2024). The Patient Health Questionnaire-4 (Kroenke et al. (2009), which is a short 4-item (2 items each) combination of the PHQ-9 (Kroenke et al., 2002) measuring depression, and the GAD-7 (Spitzer et al., 2006) measuring anxiety. The PHQ-4 assesses the level of anxiety and depression over the past 2 weeks with items like 'feeling nervous, anxious, or on edge', or 'little interest or pleasure in doing things' on a 4-point scale (from 'not at all' (0) to 'nearly every day' (3)). The scores of the four items were added to a total score. A total score of 0-2 is normal, a score of 3-5 is mild, 6-8 is moderate, and 9-12 is severe. In previous studies, the GAD-4 had a Cronbach's α of >0.75 , and the PHQ-2 and GAD-2 both have criterion and construct validity as individual scales. In the current study, Cronbach's α was 0.86, meaning that the internal consistency was again, considered as good.

Data analysis plan

The data was analysed using the statistical programme 'R', version 4.3.3. with the interface 'R studio'. To test the two hypotheses 'The experience of both distal and proximal stressors is associated with perceived mental distress' and 'Generation moderates the relationship between the experience of discrimination, identity nondisclosure and mental distress, a linear model was tested. The independent variables were discrimination and identity nondisclosure, the moderator was the generation, while the dependent variable was mental distress. The R script is presented in Appendix G. As an estimate for the relevant sample size, a G-power analysis resulted in a sample size of 119. Since only 68 participants were included in the final analysis, this study is thus underpowered. For the interpretation of the analyses, this means that the true effect cannot be proven reliably, and true effects could be overlooked. Thus, the results of this study should only be interpreted with caution.

To prepare data, participants with partial missing values were removed from the data set. Also, columns or rows including data irrelevant to this paper's specific research questions

were excluded. The next step was to calculate the mean sum scores for each variable, to determine the scores on each (sub)scale. Then, the means and standard deviations of the variables were computed. Additionally, Cronbach's alpha was calculated to assess the internal consistency of each instrument in the survey. A further step that was taken in the data preparation was to dummy code the generation. Generation Z was coded as 0, and Millennials as 1.

The next step in the analysis was the examination of Spearman's correlations between the variables: generation, identity nondisclosure, and mental distress. The associations between generation and the other variables were tested using a t-test. Afterwards, the multivariate analysis followed. A single linear regression model, including moderation, was used to determine the relationship between the independent variables of discrimination and identity non-disclosure and the dependent variable of mental distress, as moderated by generation. The four assumptions of linearity, independence, homoscedasticity, and normality were examined to thoroughly investigate this relationship.

In the linear regression model, three out of four assumptions were violated. The first one is the assumption of linearity, as the histogram is skewed to the right (see Appendix C). The assumption of homoscedasticity is also violated since the residuals are not spread out equally (see Appendix C). The final violated assumption was linearity because there is no clear pattern of the residuals (see Appendix C). The independence assumption is met with a DW statistic of 1.90 and a p-value of 0.36. Transformations like Square Roots or Box-Cox were used to attempt to correct these violations. However, none of these transformative methods was able to correct all three of the violated assumptions (see Appendix D, Appendix E).

Therefore, non-parametric testing was conducted. Specifically, Spearman's rank correlation coefficient was utilized for hypotheses 1a and 1b. Bootstrapping was used to assess the general moderation in hypothesis 2, while Kendall's rank-order correlation coefficient τ was calculated to test hypotheses 2a and 2b.

Results

Descriptive results

Table 2 provides insight into the mean sum scores for discrimination, identity nondisclosure, and mental distress for Generation Z and Millennials. Regarding discrimination, it becomes obvious that the mean sum score for Generation Z is 1.42 higher

than that of Millennials. The same observation can be made about the scores of identity nondisclosure. The mean score here was 1.25 higher.

Table 2

Descriptive results table for Generation Z and Millennials

Measure	Generation Z		Millennials		F
	M	SD	M	SD	
Discrimination	2.73	4.54	1.31	2.81	1.17
Identity nondisclosure	5.79	5.36	4.54	5.46	0.57
Mental distress	4.86	3.22	4.00	3.06	0.76

Note. M = estimated marginal mean; SD = standard deviation; F = F-statistic; η^2 = eta squared; the theoretical range for discrimination is 20; the theoretical range for identity nondisclosure is 20; the theoretical range for mental distress is 12.

When investigating the individual sum scores of each participant, it becomes obvious that the data for both, discrimination, and identity nondisclosure, is skewed to the right (see Figure 2, Figure 3).

Figure 2

Total Discrimination scores derived from the QMSR-D

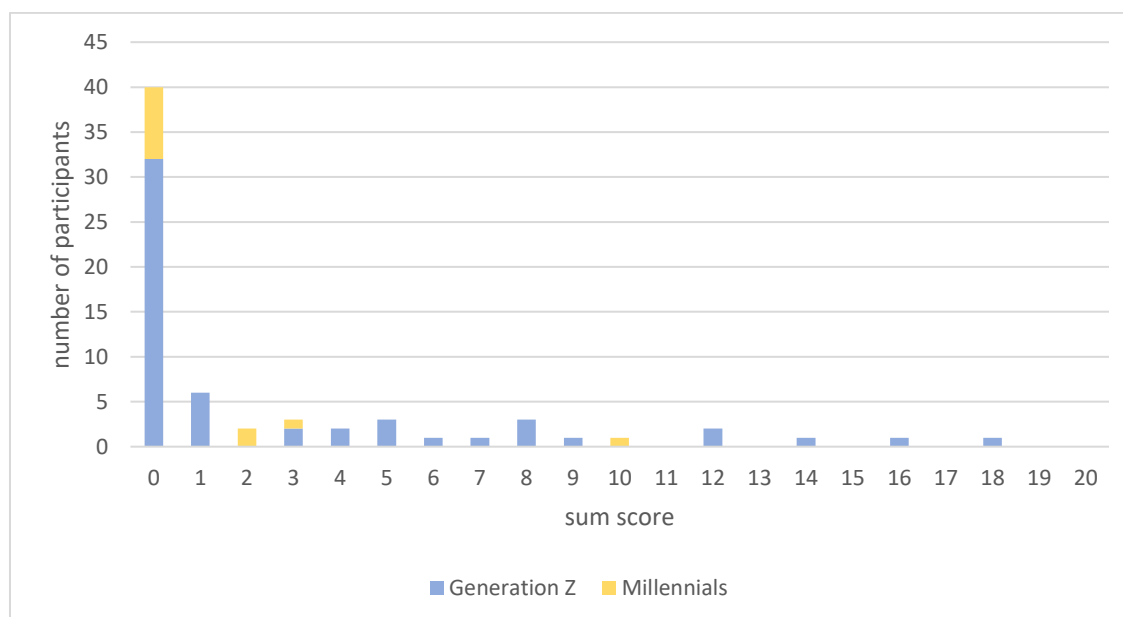
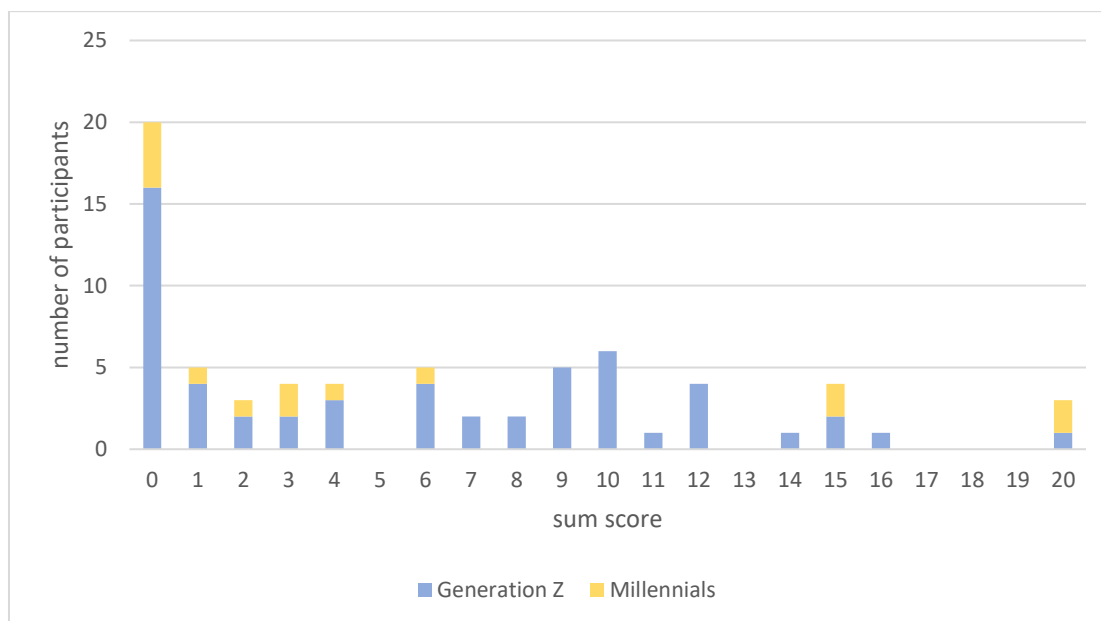


Figure 3

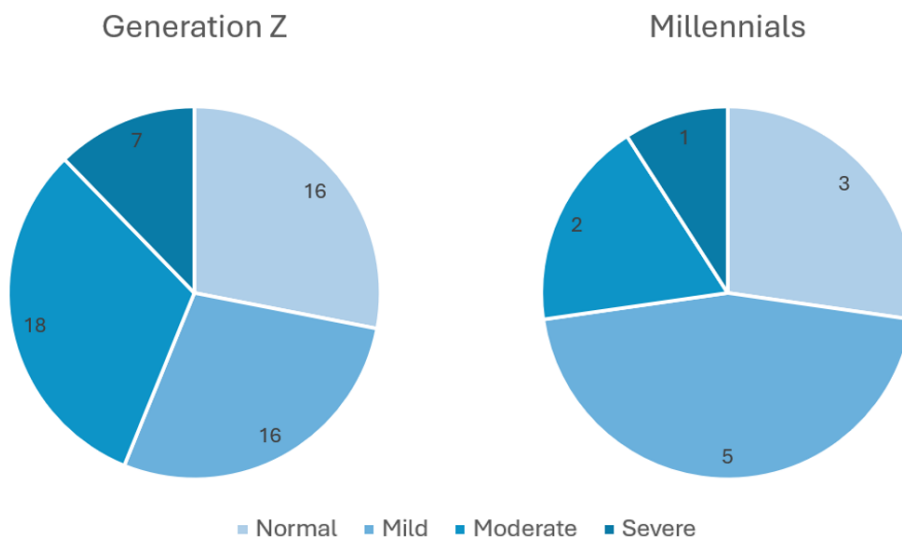
Total Identity nondisclosure scores derived from the QMSR-IND



The average mental distress score for Generation Z was 4.86, which indicates mild mental distress. For Millennials, the average score was 4, which is also considered as mild mental distress. Figure 4 provides insight into how many participants received the respective score for each category (normal/mild/moderate/severe). It becomes obvious that in the current underpowered sample, the most frequently scored level of mental distress for Generation Z is moderate distress (31.58), while for Millennials it is mild distress (45.45).

Figure 4

Level of mental distress derived from the PHQ-4 in Generation Z



Correlation analysis

The correlation coefficients of the variables discrimination, identity nondisclosure, and mental distress are displayed in Table 3. The correlation between discrimination and identity nondisclosure indicates a moderate positive relationship ($r^2 = 0.49$, $p = <0.001$, 95% CI = 0.312,0.676). This was also the case for the relation of discrimination and mental distress ($r^2 = 0.40$, $p = <0.001$, 95% CI = 0.175,0.587). The low positive association between identity nondisclosure and mental distress was statistically insignificant ($r^2 = 0.22$, $p = 0.07$, 95% CI = -0.039,0.448). The associations with generation were assessed using a t-test. None of the relations with discrimination ($t(28.672) = 1.44$, $p = 0.16$), identity nondisclosure ($t(17.774) = 0.75$, $p = 0.47$), or mental distress ($t(18.723) = 0.90$, $p = 0.38$) were statistically significant. This means that there is no indication of a relationship between the variables and the moderator.

Table 3

Correlations between discrimination, identity nondisclosure, generation and mental distress

	Discrimination	Identity nondisclosure	Mental distress
Discrimination	1.00	-	
Identity nondisclosure	0.49*	1.00	-
Mental distress	0.40*	0.22	1.00

Note. $P < .01$.

Linear regression analysis

The first hypothesis assumes that discrimination and identity nondisclosure are associated with mental distress. Spearman's rank correlation coefficient revealed a statistically significant, positive monotonic relationship between discrimination and mental distress ($\rho = 0.40$, $p = .00$, $df = 66$). Monotonic in this context means that as discrimination increases, mental distress tends to increase as well. There was no statistically significant relation between identity nondisclosure and mental distress ($\rho = 0.22$, $p = .07$, $df = 66$). Based on these findings, hypothesis 1a (The experience of discrimination (distal stressor) is associated with perceived mental distress) is retained with a moderate positive correlation, while 1b (The

experience of identity nondisclosure (proximal stressor) is associated with perceived mental distress) is rejected.

Table 4

Linear regression model with mental distress as the dependent variable and generation as moderator

	Estimate	Std. Error	T value	Pr (> t)	95% CI
(Intercept)	4.86	0.45	10.68	8.11e-16 ***	[3.95,5.77]
Discrimination	1.68	0.57	2.96	.004	[0.54,2.82]
Generation	-0.35	1.08	-0.33	.745	[-2.52,1.81]
Identity nondisclosure	-0.26	0.47	-0.55	.585	[-1.19,0.68]
Generation: Discrimination	-2.54	2.71	-0.94	.353	[-7.97,2.89]
Generation: Identity nondisclosure	1.90	1.15	1.66	.103	[-0.40,4.20]

Moderation analysis

Hypothesis 2 presumes that generation moderates the relationship between the experience of discrimination, identity nondisclosure and mental distress. Due to the aforementioned violations of the regression model (see Table 4, Appendix C), bootstrapping was used to check for regression. Based on the output there is no statistical significance of the moderation of generation on the other variables with an estimate of -0.06 (bootBias = 0.02, bootSE = 0.51, bootMed = 0.01, 95% CI = -3.172, 5.858).

The more specific hypothesis 2a assumes that proximal stress (Identity Nondisclosure) is experienced more by Millennials than by Generation Z. Due to the linear regression model violations, this hypothesis was tested using Kendall's rank-order correlation coefficient τ . Kendall's τ coefficient ($\tau = -0.08$) did not appear statistically significant at a 95% significance level ($p = 0.50$, 95% CI: -0.257, 0.147). If the result were significant, it would imply that as

generation increases (from Generation Z to Millennials), identity nondisclosure decreases, and vice versa.

Hypothesis 2b predicts that distal stress (discrimination) is experienced more by Generation Z and less by Millennials. Again, Kendall's τ coefficient ($\tau = -0.10$) did not meet statistical significance ($p = 0.35$, 95% CI: $-0.278, 0.132$). Hence, both hypotheses 2a and 2b were rejected.

Discussion

This study has provided insight into the relationship between the minority stressors discrimination and identity nondisclosure, mental distress, and generation, in a European context. The first research question is 'To what extent are discrimination and identity nondisclosure (distal and proximal stressors) associated with mental distress?'. This question can be answered by stating that there is a moderately positive association between discrimination and mental distress. There is, however, no significant association between identity nondisclosure and mental distress. Hence, hypothesis 1a was retained, while hypothesis 1b was rejected. The second research question is 'In how far is there a moderation of generational differences between Millennials and Generation Z?'. Regarding this question, no significant moderation was found in the general sample. This led to the rejection of hypotheses 2a and 2b.

The findings showed that discrimination is indeed associated with mental distress. This supports the idea of the MST (Meyer, 2003), that distal stressors lead to the experience of distress, and is also in line with the studies from Goodman (2021), Cattaneo & Riva (2016), and Caldwell et al. (2023). However, in the current study, identity nondisclosure was not directly associated with the occurrence of mental distress. Clearly, this contrasts the idea of Meyer (2003) that identity nondisclosure, as a proximal stressor, directly results in minority stress as well. This finding also contradicts other studies, like the one of Reinka et al. (2024), where proximal stress was a significant predictor of distress, but distal stress was not.

While it was expected that generation moderates the relation between stressors and mental distress, this was not found to be the case. Despite a lot of research suggesting that generation or age either improves or worsens the experience of minority stress (e.g. Gonzales et al, 2020; Mastroianni, 2022; Reinka et al., 2024; Shreeves, 2020), the current study did not provide further support for this idea. The support for hypothesis 2a, that 'proximal stress is experienced more by Millennials and less by Generation Z' was also not statistically

significant in the current research. Hypothesis 2b, that ‘distal stress is experienced more by Generation Z and less by Millennials’, was based on the Trevor Project (2022) and Mastroianni (2022), who both suggested that Generation Z experiences more discrimination, beginning from an earlier age than other generations. The current study did not provide any support for this idea. This is however not surprising, since prior research results have been mixed. As stated in the introduction, other studies (e.g. Reinka et al., 2024) found that discrimination was experienced less by young people in 2024, than by those in 2009.

Additional exploratory analyses were conducted on subsamples of sexual and gender minorities (see Appendix F). These further analyses were not part of the original research questions or the hypotheses. They were however conducted to gain further understanding of the specific patterns and directions of the relationships between the variables among SGM. The main reason for including additional analyses in the research was that studies such as that by Williams (2021) have found differences in the health disparities between groups. It became apparent that some nuances of the relationships could not be discovered in the general SGM sample. Examining the subgroups provided the necessary insight into differences of minority stress experiences and their effect on mental distress between sexual and gender minorities.

The only statistically significant finding in the explorative analyses was that hypothesis 2a (‘proximal stress is experienced more by Millennials and less by Generation Z’) was retained in the context of only gender minorities. In the current study, Millennials were more likely not to disclose their identities than Generation Z. This is consistent with existing findings, like the one from Chinni (2022), and theories such as that of Mastroianni (2022) which state that Generation Z is more open about their identities. However, this finding must be considered with caution. First of all, the sub-analysis was conducted using a very small sample of 17 participants, meaning that the sample might not be representative of the whole population. Hence, the findings cannot be generalized. Additionally, there could be alternative explanations for this finding in the current study. The small sample size suggests the finding could have been up to chance (Deziel, 2019) since the significance level of 95% was chosen. This means that there is a 5% chance that the result is due to random variation. It must also be mentioned that the association which was found was only weak. These facts underline the need for further research on the specific frame of identity nondisclosure in gender minority Millennials, to confirm these findings.

Explanations as to why gender minority Millennials might actually disclose their identity less than Generation Z could be related to the visibility of gender minorities

throughout time. Research suggests that individuals selectively decide whether or not to disclose, depending on anticipated reactions or consequences (Brady et al., 2020; Rengers et al., 2021). This is because disclosing one's identity can increase the risk or danger of discriminatory responses or actions (Beagan et al., 2022). Millennials grew up in the 1990s when lesbian, gay and bisexual people became more visible (Morris, 2023). However, a shift in the visibility of trans or intersexuality only began towards the end of the 1990s. This could have led gender minority Millennials to perceive a higher risk, due to less visibility and acceptance, leading to the choice of nondisclosure. Further factors contributing to the feeling of non-acceptance could be the difficulty of legally changing one's name. In Germany, for example, psychological reports and even district court were required for this procedure (Euronews, 2023). This makes it seem like gender minorities were treated as if they had an illness. A proposal to simplify this procedure has only now been accepted.

Implications

The findings of this study about the relationship between minority stressors on mental distress in SGM across Generation Z and Millennials provide partial support for the MST, that distal (and proximal) minority stressors lead to significant distress. Hence, these findings contribute to explaining why these health disparities between SGM and straight, cisgender people exist.

Based on the study's findings that discrimination leads to greater mental distress, while identity nondisclosure does not, it may be worthwhile to focus on reducing distal stigma rather than proximal stigma. This study also emphasizes the importance of conducting further research on the topic of minority stress in SGM. Especially the finding that gender minority Millennials tend to engage more in identity nondisclosure needs to be researched more closely.

Strengths

One particular strength of this study is the newly applied scoring system of the QMSR discrimination scale. As explained in the methods section of this thesis, the scoring of the measure by Testa et al (2015) contains the answers: 'Never', 'Yes, before age 18', to 'Yes, after age 18', and 'Yes, in the past year'. Since this thesis used the adaptation from Behrens and Dekkers (2023), the scoring system applied to this research ranged from 'Never' to 'Always'. This new scoring system has significantly enhanced the reliability of the QMSR discrimination scale. Cronbach's α increased from indicating questionable reliability to

displaying a high level of internal consistency. Changing the scoring system to the five-point scale from 0 to 4 allows for more valid and robust data. It can also be used as an example for other researchers seeking to improve other scales.

Limitations

Despite the relevant findings of this study, there are some limitations which must be addressed. The most obvious one is the small sample size. After excluding participants containing missing or irrelevant data, only 68 participants were included in the final analysis. Important to add here is that only 17.65% of those participants were Millennials. This means that the study was underpowered, which limits especially the generalizability of the findings towards Millennials. The sample size poses an even bigger issue when investigating the findings about the subgroup of gender minorities. Here, only 17 gender minority people were included in the analysis. Limitations within the data were also presented by the violations of the three assumptions of the linear regression model.

Furthermore, the sampling technique used was convenience sampling, resulting in most participants being related to the researchers in some way. For this reason, the majority of participants were students who resided in the Netherlands or Germany, and individuals who identify as female. This makes it even more difficult to generalize the findings of this study to the entire European context of SGM. Instead, these findings could only be applied (if at all, due to the small sample size) to students who identify as female, in Germany and the Netherlands. Hence, follow-up research should analyse a more diverse range of participants, from all over Europe, based on a bigger sample using probability sampling.

Additionally, future research should also consider studying this topic using longitudinal research. This will enable insight into how minority stress changes throughout one's life. In the current study, it can only be observed how Millennials and Generation Z experience minority stress and mental distress at this particular point in time. A longitudinal study will allow conclusions regarding increasing or diminishing effects, which will also make it considerably easier to compare generations.

A further limitation of this study is that there was no control variable to test whether the mental distress score was actually due to minority stress. Now, it is complicated to state that the mental distress has no other cause. Given the high student rate in the sample, it would seem reasonable to assume that academic pressure could also play a role here. A study by Olivera et al. (2023) discovered that moderate academic stress can also lead to anxiety and

depression, which are the indicators of mental distress. Reisbig et al. (2012) have found a similar result but added that transitional stress was also an influencing factor for university students. It becomes clear that minority stress may not be the only factor influencing mental distress in the current sample. While this study only investigated minority stressors, which could only explain a part of the mental distress, future research should expand the examination and control for other social stressors in their data collection.

Another point is that distal stress was solely measured by discrimination and proximal stress by identity nondisclosure. However, these are only examples of each stressor. This study only provided new research on a small proportion of the comprehensive concept of minority stress. It must be acknowledged that people who experience only little identity nondisclosure, for example, could still suffer from different kinds of proximal stress. Hence, future research should study further stressors, especially proximal ones. A suggestion is to examine internalized stigma, i.e. the transfer of other's negative beliefs or feelings towards SGM onto oneself (Earnshaw et al., 2024). Internalized stigma is a broader concept that contains identity nondisclosure, as well as other variables. Studies suggest that internalized stigma lowers self-esteem and self-worth (Burch, 2022), and predicts depression and anxiety (Lloyd et al., 2019). While there is not yet a lot of research on the concept of internalized stigma in Generation Z, research does suggest that younger generations experience more internalized stigma (Wickham et al., 2019). By conducting future studies on this variable one could close the research gap on this topic even further.

Furthermore, hypothesis 2a assumes that Millennials experience less identity nondisclosure than Generation Z. While this relation only showed statistical significance in the context of gender minorities, possible limitations must be mentioned. The hypothesis is based on the suggestion that Millennials tend to be less open with their identities than Generation Z (the Trevor Project, 2022). However, people who are less open with their identity will probably be less likely to participate in such a study. Therefore, individuals who tend to disclose their identities less could be underrepresented in the sample of the current study. Hence, the results could have underreported identity nondisclosure.

Another suggestion for future research is to also consider different generations than Millennials and Generation Z. This is because even though these two generations did grow up with different influences, they are still quite close in age. Investigating older generations and comparing these findings to younger generations like Millennials or Generation Z could lead

to further insight into the impact of minority stress on mental distress. This could expand the knowledge about different generational influences.

Finally, future research should aim to gain more insight into whether, and why gender minority Millennials are more likely to experience identity nondisclosure than Generation Z individuals in gender minorities.

Conclusion

This study highlighted the impact of discrimination in SGM on mental distress, emphasizing the urgency to address and prevent discriminatory practices. Regarding the first research question, the current study found that discrimination is moderately positively associated with mental distress, while identity nondisclosure is not. The answer to the second research question is that there is no moderation of generation. However, the gender minority Millennials in this study were more likely not to disclose their identity. This finding indicates that different subgroups must be considered when conducting future studies and gathering input for possible interventions. Future research should further explore the exposures and experiences of SGM in different generations, and relate them to different impacts on mental health, such as mental distress.

References

- A Guide to Sexual Orientation and Gender Diversity Terms. (2022, May).
<https://www.apa.org>. <https://www.apa.org/ed/precollege/psychology-teacher-network/introductory-psychology/diversity-terms>
- Abreu, R. L. & Kenny, M. C. (2017). Cyberbullying and LGBTQ Youth: A Systematic Literature Review and Recommendations for Prevention and Intervention. *Journal Of Child & Adolescent Trauma*, 11(1), 81–97. <https://doi.org/10.1007/s40653-017-0175-7>
- Ambassadors, G. (2023, 4. October). The Homophobic Response to the AIDS Crisis in the 1980s - The Gale Review. *The Gale Review*. <https://review.gale.com/2017/05/17/the-homophobic-aids-crisis-of-the-1980s/>
- APA Dictionary of Psychology. (2018, 19. April). <https://dictionary.apa.org/psychological-distress>
- Beagan, B. L., Bizzeth, S. R., Pride, T. M. & Sibbald, K. R. (2022). LGBTQ+ identity concealment and disclosure within the (heteronormative) health professions: “Do I? Do I not? And what are the potential consequences?”. *SSM. Qualitative Research in Health*, 2, 100114. <https://doi.org/10.1016/j.ssmqr.2022.100114>
- Beals, K. P., Peplau, L. A. & Gable, S. L. (2009). Stigma Management and Well-Being: The Role of Perceived Social Support, Emotional Processing, and Suppression. *Personality & Social Psychology Bulletin*, 35(7), 867–879.
<https://doi.org/10.1177/0146167209334783>
- Behrens, J. & Dekkers, T. (2023). “Experience Sampling Survey to Measure Daily Experiences of Minority Stress and Resilience in Transgender and Gender Non-Conforming people. Think with Pride UT.
<https://www.utwente.nl/en/thinkwithprideut/resources/>
- Bradford, J., Reisner, S. L., Honnold, J. A. & Xavier, J. (2013). Experiences of Transgender-Related Discrimination and Implications for Health: Results From the Virginia Transgender Health Initiative Study. *American Journal Of Public Health*, 103(10), 1820–1829. <https://doi.org/10.2105/ajph.2012.300796>
- Brady, B., Asquith, N. L., Ferfolja, T. & Hanckel, B. (2020). Fear of Heterosexism Among Sexuality and Gender Diverse Staff and Students. *Journal Of Interpersonal Violence*, 37(3–4), NP1908–NP1938. <https://doi.org/10.1177/0886260520928648>
- Burch, K. (2022, 23. März). *What is Self-Stigma?* Verywell Health.
<https://www.verywellhealth.com/self-stigma->

- [5219508#:~:text=We%20often%20think%20of%20stigma%20as%20a%20judgment,s elf-efficacy%2C%20the%20belief%20that%20you%20can%20accomplish%20things.](#)
- Burton, N. (2023, 3. July). *When Homosexuality Stopped Being a Mental Disorder*. Psychology Today. <https://www.psychologytoday.com/us/blog/hide-and-see/201509/when-homosexuality-stopped-being-a-mental-disorder>
- Caldwell, J. A., Borsa, A., Rogers, B. A., Roemerman, R. & Wright, E. R. (2023). Outness, Discrimination, and Psychological Distress Among LGBTQ+ People Living in the Southern United States. *LGBT Health*, 10(3), 237–244. <https://doi.org/10.1089/lgbt.2021.0295>
- Camacho, G., Reinka, M. A. & Quinn, D. M. (2020). Disclosure and concealment of stigmatized identities. *Current Opinion in Psychology*, 31, 28–32. <https://doi.org/10.1016/j.copsyc.2019.07.031>
- Cattaneo, A. & Riva, M. A. (2016). Stress-induced mechanisms in mental illness: A role for glucocorticoid signalling. *The Journal Of Steroid Biochemistry And Molecular Biology*, 160, 169–174. <https://doi.org/10.1016/j.jsbmb.2015.07.021>
- Chinni, D. (2022, 3. July). *1 in 5 adult members of Gen Z self-identify as LGBTQ*. NBC News. <https://www.nbcnews.com/meet-the-press/news/one-five-adult-members-gen-z-self-identifies-lgbtq-rcna36147>
- Chrisafis, A. (2017, 1. December). Gay marriage protest draws thousands to Paris. *The Guardian*. <https://www.theguardian.com/world/2013/may/26/gay-marriage-protest-paris>
- Deziel, C. D. (2019, 2. März). *How to Determine the Sample Size in a Quantitative Research Study*. Sciencing. <https://sciencing.com/determine-size-quantitative-research-study-8072459.html>
- Douglass, R. P. & Conlin, S. E. (2020). Minority stress among LGB people: Investigating relations among distal and proximal stressors. *Current Psychology*, 41(6), 3730–3740. <https://doi.org/10.1007/s12144-020-00885-z>
- Earnshaw, V. A., Logie, C., Wickersham, J. A. & Kamarulzaman, A. (2024). LGBTQ stigma. In *Springer eBooks* (S. 15–44). https://doi.org/10.1007/978-3-031-36204-0_2
- Euronews. (2023, 23. August). German government approves law to make legal gender change easier for trans, intersex, non-binary. *Euronews*. <https://www.euronews.com/2023/08/23/german-government-approves-law-to-make-legal-gender-change-easier-for-trans-intersex-non-b>

- European Union Agency for Fundamental Rights. (2020). *A long way to go for LGBTI equality* [Report]. Publications Office of the European Union.
<https://doi.org/10.2811/582502>
- Feinstein, B. A., Hall, C. D. X., Dyar, C. & Davila, J. (2020). Motivations for Sexual Identity Concealment and Their Associations with Mental Health among Bisexual, Pansexual, Queer, and Fluid (Bi+) Individuals. *Journal Of Bisexuality*, 20(3), 324–341.
<https://doi.org/10.1080/15299716.2020.1743402>
- Fish, J. N. (2022). Health disparities affecting LGBTQ+ populations. *Communications Medicine*, 2(1). <https://doi.org/10.1038/s43856-022-00128-1>
- Fox, S. D., Griffin, R. H. & Pachankis, J. E. (2020). Minority stress, social integration, and the mental health needs of LGBTQ asylum seekers in North America. *Social Science & Medicine*, 246, 112727. <https://doi.org/10.1016/j.socscimed.2019.112727>
- Fredriksen-Goldsen, K. I., Emlet, C. A., Kim, H. J., Muraco, A., Erosheva, E. A., Goldsen, J. & Hoy-Ellis, C. P. (2012). The Physical and Mental Health of Lesbian, Gay Male, and Bisexual (LGB) Older Adults: The Role of Key Health Indicators and Risk and Protective Factors. *The Gerontologist*, 53(4), 664–675.
<https://doi.org/10.1093/geront/gns123>
- Frost, D. M. & Meyer, I. H. (2023). Minority stress theory: Application, critique, and continued relevance. *Current Opinion in Psychology*, 51, 101579.
<https://doi.org/10.1016/j.copsyc.2023.101579>
- Goldsen, K. F. (2018). Shifting Social Context in the Lives of LGBTQ Older Adults. *Public Policy & Aging Report*, 28(1), 24–28. <https://doi.org/10.1093/ppar/pty003>
- Gonzales, G., De Mola, E. L., Gavulic, K. A., McKay, T. & Purcell, C. (2020). Mental Health Needs Among Lesbian, Gay, Bisexual, and Transgender College Students During the COVID-19 Pandemic. *Journal Of Adolescent Health*, 67(5), 645–648.
<https://doi.org/10.1016/j.jadohealth.2020.08.006>
- Goodman, B. G. (2021, 21. June). Exposure to homophobic attitudes linked to higher stress levels among sexual minorities. <https://www.apa.org>.
<https://www.apa.org/news/press/releases/2021/06/homophobic-attitudes-higher-stress>
- Greenwood, S. (2020, 27. October). *Views of Homosexuality Around the World* | Pew Research Center. Pew Research Center’s Global Attitudes Project.
<https://www.pewresearch.org/global/2020/06/25/global-divide-on-homosexuality-persists/>

- Herrick, S., Rocchi, M., Sweet, S. N. & Duncan, L. R. (2021). Exploring Proximal LGBTQ+ Minority Stressors Within Physical Activity Contexts from a Self-determination Theory Perspective. *Annals Of Behavioral Medicine*, 56(6), 551–561. <https://doi.org/10.1093/abm/kaab052>
- Hurd, L., Mahal, R., Wardell, V. & Liang, J. (2022). “There were no words”: Older LGBTQ+ persons’ experiences of finding and claiming their gender and sexual identities. *Journal Of Aging Studies*, 60, 100999. <https://doi.org/10.1016/j.jaging.2022.100999>
- Kroenke, K. & Spitzer, R. L. (2002). The PHQ-9: A New Depression Diagnostic and Severity Measure. *Psychiatric Annals*, 32(9), 509–515. <https://doi.org/10.3928/0048-5713-20020901-06>
- Kroenke, K., Spitzer, R. L., Williams, J. B. W. & Löwe, B. (2009). An Ultra-Brief Screening Scale for Anxiety and Depression: The PHQ-4. *Psychosomatics*, 50(6), 613–621. [https://doi.org/10.1016/s0033-3182\(09\)70864-3](https://doi.org/10.1016/s0033-3182(09)70864-3)
- Lloyd, J., Chalklin, V. & Bond, F. W. (2019). Psychological processes underlying the impact of gender-related discrimination on psychological distress in transgender and gender nonconforming people. *Journal Of Counseling Psychology*, 66(5), 550–563. <https://doi.org/10.1037/cou0000371>
- Mastroianni, B. (2022, 11. October). LGBTQ Youth Coming Out at Earlier Ages but Face Greater Challenges. *Healthline*. <https://www.healthline.com/health-news/lgbtq-youth-coming-out-at-earlier-ages-but-face-greater-challenges#A-look-at-stigma-and-threats-facing-LGBTQ-youth>
- Meyer, I. H. (2003). Prejudice, social stress, and mental health in lesbian, gay, and bisexual populations: Conceptual issues and research evidence. *Psychological Bulletin*, 129(5), 674–697. <https://doi.org/10.1037/0033-2909.129.5.674>
- Moagi, M. M., Van der Wath, A. E., Jiyane, P. M. & Rikhotso, R. (2021). Mental health challenges of lesbian, gay, bisexual and transgender people: An integrated literature review. *Health Sa Gesondheid*, 26. <https://doi.org/10.4102/hsag.v26i0.1487>
- Morris, B. J. (2023, 16. March). A brief history of lesbian, gay, bisexual, and transgender social movements. <https://www.apa.org>. <https://www.apa.org/topics/lgbtq/history>
- Olivera, P. C., Gordillo, P. G., Mejía, H. N., La Fuente Taborga, I., Chacón, A. G. & Unzueta, A. S. (2023). Academic stress as a predictor of mental health in university students. *Cogent Education*, 10(2). <https://doi.org/10.1080/2331186x.2023.2232686>

- Pachankis, J. E., Mahon, C. P., Jackson, S. D., Fetzner, B. K. & Bränström, R. (2020). Sexual orientation concealment and mental health: A conceptual and meta-analytic review. *Psychological Bulletin*, 146(10), 831–871. <https://doi.org/10.1037/bul0000271>
- Peters, L., Sunderland, M., Andrews, G., Rapee, R. M. & Mattick, R. P. (2010). Development of a short form Social Interaction Anxiety (SIAS) and Social Phobia Scale (SPS) using nonparametric item response theory: The SIAS-6 and the SPS-6. *Psychological Assessment*. <https://pubmed.ncbi.nlm.nih.gov/21744971/#>
- Poitras, C. (2019, 13. Juni). *The 'Global Closet' is Huge—Vast Majority of World's Lesbian, Gay, Bisexual Population Hide Orientation, YSPH*. Yale School Of Medicine. <https://medicine.yale.edu/news-article/the-global-closet-is-hugevast-majority-of-worlds-lesbian-gay-bisexual-population-hide-orientation-ysph-study-finds/>
- Quinn, D. M., & Chaudoir, S. R. (2009). Living with a concealable stigmatized identity: The impact of anticipated stigma, centrality, salience, and cultural stigma on psychological distress and health. *Journal of Personality and Social Psychology*, 97(4), 634–651. <https://doi.org/10.1037/a0015815>
- Reinka, M. A., Chaudoir, S. R. & Quinn, D. M. (2024). Millennials versus Gen Z: Have perceptions and outcomes of concealable stigmatized identities changed over time? *Stigma And Health*. <https://doi.org/10.1037/sah0000515>
- Reisbig, A. M., Danielson, J. A., Wu, T., Hafen, M., Krienert, A., Girard, D. & Garlock, J. (2012). A Study of Depression and Anxiety, General Health, and Academic Performance in Three Cohorts of Veterinary Medical Students across the First Three Semesters of Veterinary School. *Journal Of Veterinary Medical Education*, 39(4), 341–358. <https://doi.org/10.3138/jyme.0712-065r>
- Rengers, J. M., Heyse, L., Wittek, R. P. M. & Otten, S. (2021). Interpersonal Antecedents to Selective Disclosure of Lesbian and Gay Identities at Work. *Social Inclusion*, 9(4), 388–398. <https://doi.org/10.17645/si.v9i4.4591>
- Riggle, E. D. B., Rostosky, S. S., Black, W. W. & Rosenkrantz, D. E. (2017). Outness, concealment, and authenticity: Associations with LGB individuals' psychological distress and well-being. *Psychology Of Sexual Orientation And Gender Diversity*, 4(1), 54–62. <https://doi.org/10.1037/sgd0000202>
- Rodrigues, M. C. C., Leite, F. L. & Queirós, M. (2017). Sexual minorities: The terminology. *European Psychiatry*, 41(S1), s848. <https://doi.org/10.1016/j.eurpsy.2017.01.1680>
- Rose, G. M. & Tadi, P. (2022, 25. October). *Social anxiety disorder*. StatPearls - NCBI Bookshelf. <https://www.ncbi.nlm.nih.gov/books/NBK555890/>

- Schrimshaw, E. W., Downing, M. J. & Cohn, D. J. (2016). Reasons for Non-Disclosure of Sexual Orientation Among Behaviorally Bisexual Men: Non-Disclosure as Stigma Management. *Archives Of Sexual Behavior*, 47(1), 219–233.
<https://doi.org/10.1007/s10508-016-0762-y>
- Shreeves, R. (2020, November). *The rights of LGBTI people in the European Union*. EPRS | European Parliamentary Research Service.
[https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/651911/EPRS_BRI\(2020\)651911_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/651911/EPRS_BRI(2020)651911_EN.pdf)
- Stadler, G., Chesaniuk, M., Haering, S., Roseman, J., Straßburger, V. M., Martina, S., Aisha-Nusrat, A., Maisha, A., Kasia, B., Borde, T., Pichit, B., Marc, D., Sally, D. M., Ruth, D., Ilona, E., Marina, F., Paul, G., Gerstorf, D., Grittner, U., . . . Mine, W. (2023). Diversified innovations in the health sciences: Proposal for a Diversity Minimal Item Set (DiMIS). *Sustainable Chemistry And Pharmacy*, 33, 101072.
<https://doi.org/10.1016/j.scp.2023.101072>
- Spitzer, R. L., Kroenke, K., Williams, J. B. W. & Löwe, B. (2006). A Brief Measure for Assessing Generalized Anxiety Disorder. *Archives Of Internal Medicine (1960)*, 166(10), 1092. <https://doi.org/10.1001/archinte.166.10.1092>
- Testa, R. J., Habarth, J., Peta, J., Balsam, K. F. & Bockting, W. (2015). Development of the Gender Minority Stress and Resilience Measure. *Psychology Of Sexual Orientation And Gender Diversity*, 2(1), 65–77. <https://doi.org/10.1037/sgd0000081>
- The Trevor Project. (2022). *National Survey on LGBTQ Youth Mental Health*.
<https://www.thetrevorproject.org/survey-2022/>
- The Trevor Project. (2023). *2023 U.S. National Survey on the Mental Health of LGBTQ Young People*. https://www.thetrevorproject.org/survey-2023/assets/static/05_TREVOR05_2023survey.pdf
- The Williams Institute at UCLA School of Law. (2021, 14. May). *Experiences of Discrimination Among Lesbian, Gay and Bisexual People in the US - Williams Institute*. Williams Institute. <https://williamsinstitute.law.ucla.edu/publications/lgb-discrimination-experiences/>
- Vondráčková, J. (2021, 1. April). 20 years ago today, the Netherlands became the first country to legalize same-sex marriage. *DutchReview*.
<https://dutchreview.com/news/twenty-years-gay-marriage/>

- Wall, D. (2021, 19. June). *Sexual and Gender Minority Populations*. ABCT - Association For Behavioral And Cognitive Therapies. <https://www.abct.org/fact-sheets/sexual-and-gender-minority-populations/>
- Wickham, R. E., Gutierrez, R., Giordano, B. L., Rostosky, S. S. & Riggle, E. D. B. (2019). Gender and Generational Differences in the Internalized Homophobia Questionnaire: An Alignment IRT Analysis. *Assessment*, 28(4), 1159–1172. <https://doi.org/10.1177/1073191119893010>
- Williams, A. (2021). Health inequalities among LGBTQ+ communities. *The British Student Doctor Journal*, 5(2), 88. <https://doi.org/10.18573/bsdj.267>
- World Health Organization. (2022, 17. June). *Mental health*. <https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>
- Zambon, V. (2021, 28. January). *What does cisgender mean?* <https://www.medicalnewstoday.com/articles/what-does-cisgender-mean#definition>

Appendices

Appendix A

Recruitment material for the survey: flyer



Appendix B

Recruitment material for the survey: text message

'Good evening!

We are 4 students writing our bachelor theses about topics related to minority stress in sexual and gender minorities.

We are currently looking for sexual and/or gender minority people (=non-heterosexual and/or non-cisgender) who would like to take part in our research study. Further information about the study can be found within the survey. We would be very grateful if you could take a look and help us with our Bachelor theses! 🎓

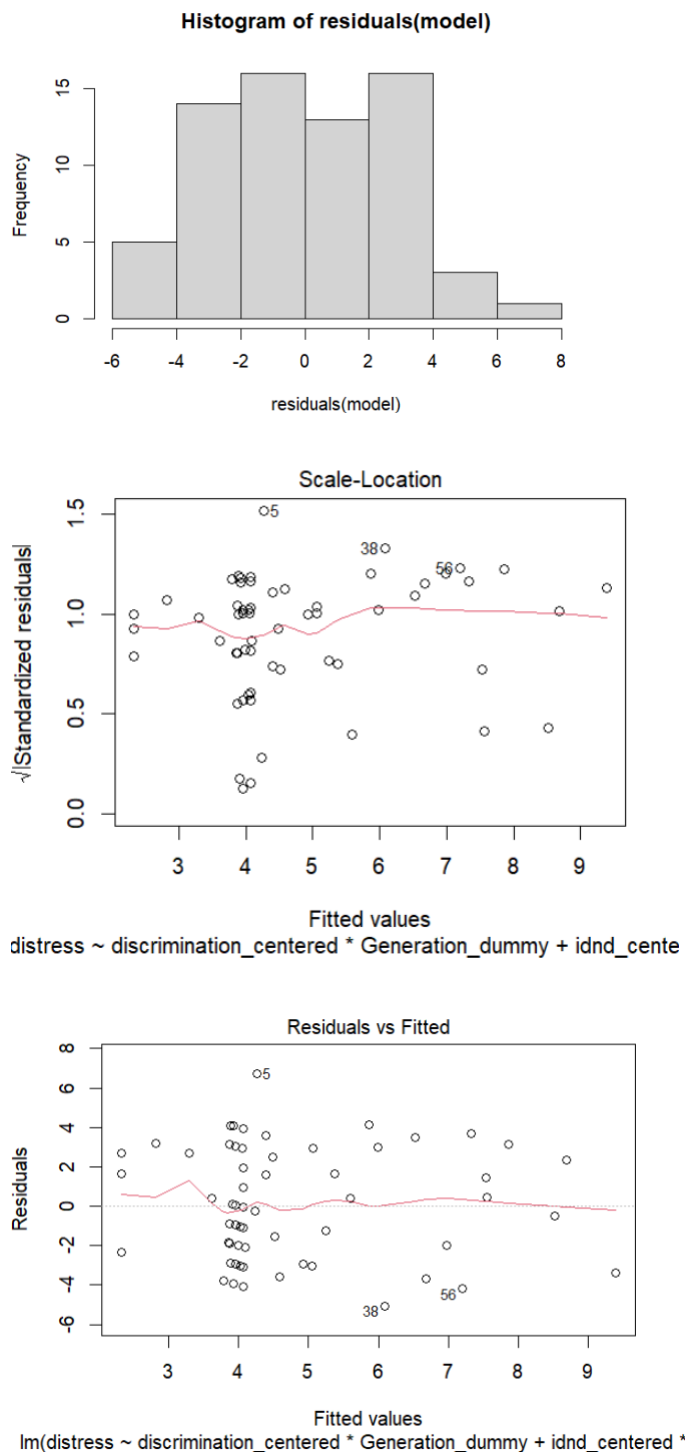
The survey takes about 15 minutes, and it is completely anonymous.

You can access the questionnaire via the link below. 😊

[https://utwentebbs.eu.qualtrics.com/jfe/form/SV_39mk5EM5mls1Nae'](https://utwentebbs.eu.qualtrics.com/jfe/form/SV_39mk5EM5mls1Nae)

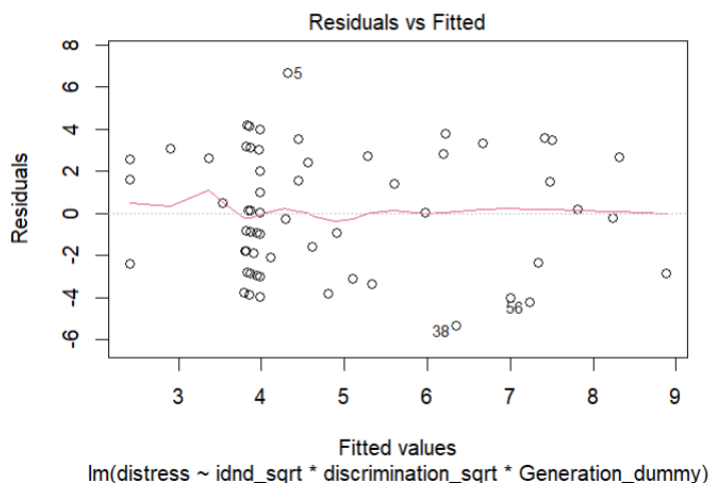
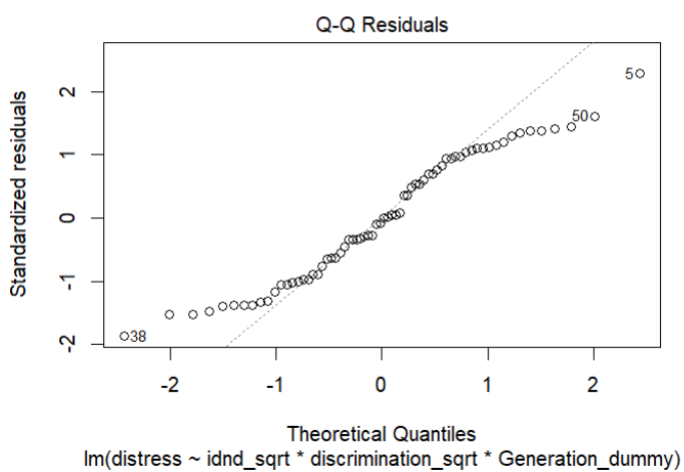
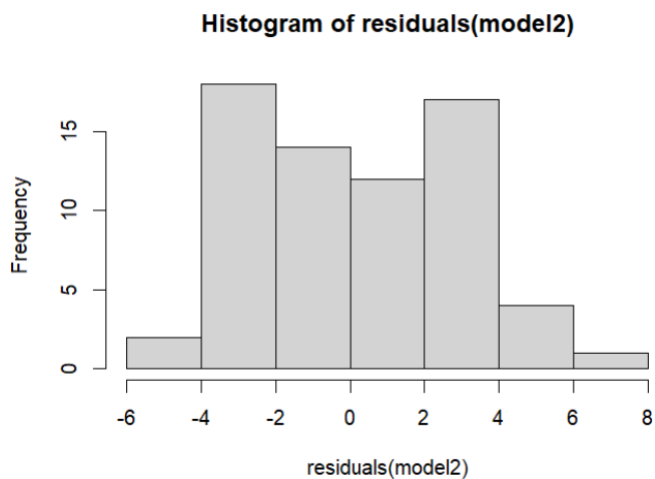
Appendix C

Assumption testing for normality, homoscedasticity, and linearity in the moderation regression model



Appendix D

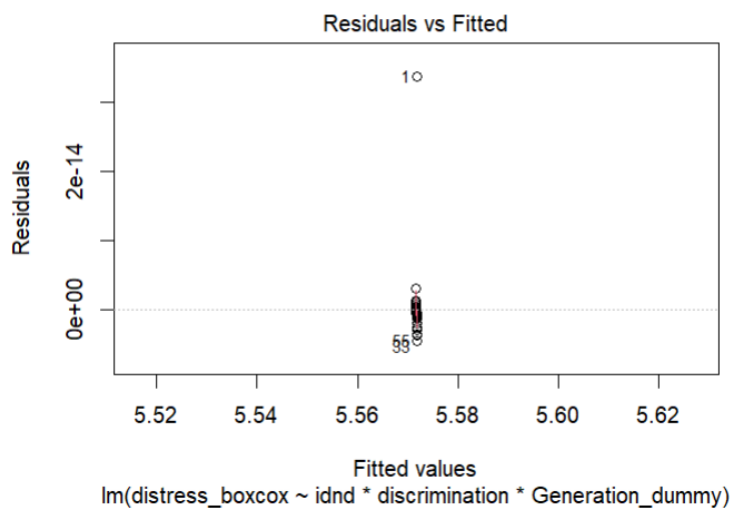
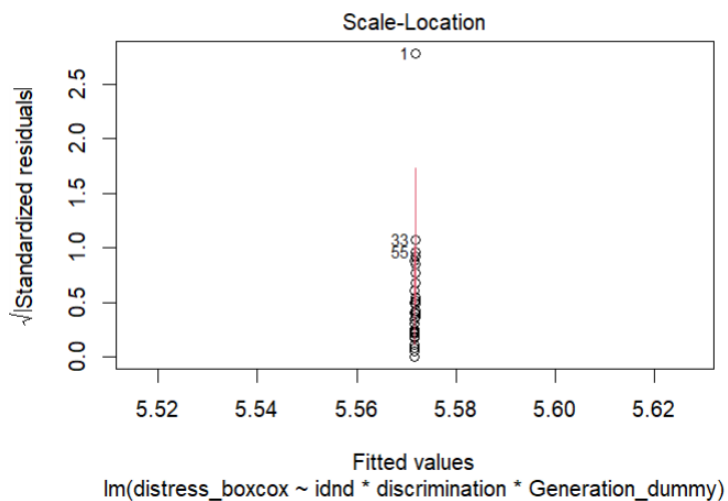
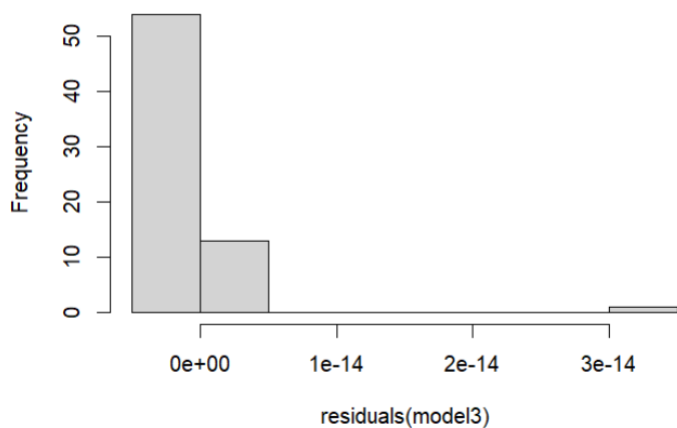
Assumption testing for normality, homoscedasticity, and linearity after using square roots transformation.



Appendix E

Assumption testing for normality, homoscedasticity, and linearity after using Box-Cox transformation.

Histogram of residuals(model3)



Appendix F

Exploratory analyses of only sexual minorities and gender minorities

Sexual minorities

The hypotheses were also tested in the context of only sexual minorities and only gender minorities, instead of SGM as a whole. When investigating only sexual minorities three out of four assumptions were violated, which is why the regression was not conducted. The assumption that was met was independence, with a DW statistic of 1.98 ($p = .48$). Hence, Spearman's rank correlation coefficient was calculated again. Hypotheses 1a and 1b are both rejected due to large p-values ($\rho = 0.11$, $p = .47$, $df = 48$; $\rho = 0.12$, $p = .42$, $df = 48$).

Hypothesis 2 was tested doing bootstrapping again. The estimate of 0.78 did not meet statistical significance (bootBias = 0.60, bootSE = 2.47, bootMed = 0.75, 95% CI = -33.672, 14.196). Hypotheses 2a and 2b were assessed by conducting Kendall's τ coefficient. Both relations did not meet statistical significance, leading to the rejection of hypotheses 2a and 2b in the context of sexual minorities ($\tau = -0.07$, $p = 0.58$, 95% CI: -0.273, 0.190; $\tau = 0.6$, $p = 0.65$, 95% CI: -0.178, 0.387).

Gender minorities

Finally, the hypotheses were tested amongst the sample of gender minorities. Again, a linear regression model was conducted. The assumption of independence was met (DW = 1.98, $p = 0.48$), while the others were violated. Therefore, the first hypothesis was tested using Spearman's rank correlation coefficient again. In this context, the prediction of discrimination ($\rho = 0.26$, $p = .30$, $df = 16$), as well as the prediction of identity nondisclosure ($\rho = -0.7$, $p = .78$, $df = 16$) were statistically insignificant.

Bootstrapping provided an insignificant estimate of 0.78 (bootBias = -0.05, bootSE = 0.88, bootMed = 0.80, 95% CI = -22.374, 21.369). Finally, Kendall's τ coefficient provided insight into the relationship between identity nondisclosure and generation, and between discrimination and generation. Regarding hypothesis 2a ('proximal stress (identity nondisclosure) is experienced more by Millennials than by Generation Z'), a weak positive association was found ($\tau = 0.26$, $p = 0.21$, 95% CI: 0.06, 0.358). This means that when generation increases (from Generation Z to Millennials), Identity nondisclosure increases as well. Thus, hypothesis 2a is retained in the context of gender minorities. Hypothesis 2b, however, is rejected ($\tau = -0.16$, $p = 0.44$, 95% CI: -0.300, 0.141).

Appendix G

R script

```
#Bachelor thesis
```

```
#Josie de Boer
```

```
#2024
```

```
install.packages("foreign")
```

```
install.packages("tidyverse")
```

```
install.packages("janitor")
```

```
install.packages("psych")
```

```
install.packages("psychTools")
```

```
install.packages("CTT")
```

```
install.packages("mirt")
```

```
install.packages("lmtest")
```

```
library(foreign)
```

```
library(tidyverse)
```

```
library(janitor)
```

```
library(psych)
```

```
library(psychTools)
```

```
library(CTT)
```

```
library(mirt)
```

```
library(lmtest)
```

```
install.packages("rstatix")
```

```
install.packages("dplyr")
```

```
library(rstatix)
```

```
library(dplyr)
```

```
setwd("C:/Users/josie/Desktop/Uni/Year 3/Bachelor thesis/R Bachelor thesis")
```

```
read.csv("data.csv")
```

```
assign("data.csv", data)
```

```
data.csv <- read.csv("data.csv")
```

```
#remove unused rows and columns

data <- data.csv[, -c(1:20, 32:38, 43:63, 69:82, 88:128)]

data <- data[, -c(3, 5, 7, 11)]

data <- data[-c(1, 2), ]

#Delete NA rows

data <- data %>% mutate(across(everything(), ~na_if(., "")))

data <- data %>% filter(complete.cases(.))

print(data)

#Creating Generation Variable

# Split the date strings into month and year components

date_components <- strsplit(data$date.of.birth, "/")

# Extract year component

birth_years <- sapply(date_components, function(x) x[2])

data$Birth_Year <- as.numeric(birth_years)

data$Birth_Year[1] <- 2000

data$Birth_Year[3] <- 1999

data$Birth_Year[4] <- 2005

data$Birth_Year[5] <- 2000

data$Birth_Year[6] <- 2003

data$Birth_Year[10] <- 2001

data$Birth_Year[14] <- 2006

data$Birth_Year[25] <- 2001

data$Birth_Year[27] <- 1983

data$Birth_Year[29] <- 2004

data$Birth_Year[33] <- 2004

data$Birth_Year[34] <- 2002
```

```
data$Birth_Year[37] <- 2000
data$Birth_Year[39] <- 2002
data$Birth_Year[43] <- 1997
data$Birth_Year[44] <- 2000
data$Birth_Year[45] <- 2001
data$Birth_Year[46] <- 2004
data$Birth_Year[56] <- 1999
data$Birth_Year[61] <- 1981

#Assign year to participants and generation
data$Generation <- ifelse(data$Birth_Year >= 1997 & data$Birth_Year <= 2012, "Gen Z",
                          ifelse(data$Birth_Year >= 1982 & data$Birth_Year <= 1996, "Millennials", "Other"))

#descriptive statistics
residence_frequencies <- table(data$residence)
print(residence_frequencies)
occupation_frequencies <- table(data$occupation)
print(occupation_frequencies)
gender_frequencies <- table(data$gender.identity)
gender_frequencies_df <- as.data.frame(gender_frequencies)
print(gender_frequencies_df)
sex_frequencies <- table(data$sex)
print(sex_frequencies)
intersex_frequencies <- table(data$intersex)
print(intersex_frequencies)
sexual.identity_frequencies <- table(data$sexual.identity)
print(sexual.identity_frequencies)

#transgender frequencies
filtered_data <- data %>%
```

```
filter((sex == 1 & gender.identity == 2) | (sex == 2 & gender.identity == 1))
count_participants <- nrow(filtered_data)
print(count_participants)

#Crohnbachs alpha
# distress
items <- c("PHQ.9...4_1", "PHQ.9...4_2", "PHQ.9...4_3", "PHQ.9...4_4")
data[, items] <- lapply(data[, items], as.numeric)
str(data)
missing_values <- apply(data[, items], 2, function(x) sum(is.na(x)))
print(missing_values)
alpha_result <- alpha(data[, items])
print(alpha_result)
alpha_result

#discrimination
items2 <- c("Discrimination_1", "Discrimination_2", "Discrimination_3", "Discrimination_4",
"Discrimination_5")
data[, items2] <- lapply(data[, items2], as.numeric)
str(data)
missing_values <- apply(data[, items2], 2, function(x) sum(is.na(x)))
print(missing_values)
alpha_result <- alpha(data[, items2])
print(alpha_result)
alpha_result

#identity nondisclosure
items3 <- c("Identity.disclosure_1", "Identity.disclosure_2", "Identity.disclosure_3", "Identity.disclosure_4",
"Identity.disclosure_5")
data[, items3] <- lapply(data[, items3], as.numeric)
str(data)
```

```

missing_values <- apply(data[, items3], 2, function(x) sum(is.na(x)))

print(missing_values)

alpha_result <- alpha(data[, items3])

print(alpha_result)

alpha_result

#creating variables

#dummy coding generation

# Dummy code the 'Generation' variable

data <- mutate(data,

               Generation_dummy = ifelse(Generation == "Gen Z", 0, 1))

data <- data[-c(61), ]

data1 <- data %>%

mutate(discrimination = as.numeric(as.character(Discrimination_1)) +

       as.numeric(as.character(Discrimination_2)) +

       as.numeric(as.character(Discrimination_3)) +

       as.numeric(as.character(Discrimination_4)) +

       as.numeric(as.character(Discrimination_5)),

       idnd = as.numeric(as.character(Identity.disclosure_1)) +

       as.numeric(as.character(Identity.disclosure_2)) +

       as.numeric(as.character(Identity.disclosure_3)) +

       as.numeric(as.character(Identity.disclosure_4)) +

       as.numeric(as.character(Identity.disclosure_5)),

       distress = as.numeric(as.character(PHQ.9...4_1)) +

       as.numeric(as.character(PHQ.9...4_2)) +

       as.numeric(as.character(PHQ.9...4_3)) +

       as.numeric(as.character(PHQ.9...4_4)))

```



```

data1$distress <- as.character(data1$distress)

data1$distress <- as.numeric(data1$distress) - 4

head(data1$distress)

#putting the main vars in data2

data2 <- data1[c("discrimination", "idnd", "distress", "Generation_dummy")]

#univariate analysis

#mental distress (PHQ-4)

data2$distress <- as.numeric(data2$distress)

mean_distress_genz <- mean(data2$distress[data2$Generation_dummy == 0], na.rm = TRUE)

sd_distress_genz <- sd(data2$distress[data2$Generation_dummy == 0], na.rm = TRUE)

mean_distress_millennials <- mean(data2$distress[data2$Generation_dummy == 1], na.rm = TRUE)

sd_distress_millennials <- sd(data2$distress[data2$Generation_dummy == 1], na.rm = TRUE)

cat("Mean distress for Gen Z:", mean_distress_genz, "\n")

cat("Standard deviation for Gen Z:", sd_distress_genz, "\n")

cat("Mean distress for Millennials:", mean_distress_millennials, "\n")

cat("Standard deviation for Millennials:", sd_distress_millennials, "\n")

#discrimination (QMSR 1)

mean_discrimination_genz <- mean(data2$discrimination[data2$Generation_dummy == 0], na.rm = TRUE)

sd_discrimination_genz <- sd(data2$discrimination[data2$Generation_dummy == 0], na.rm = TRUE)

mean_discrimination_millennials <- mean(data2$discrimination[data2$Generation_dummy == 1], na.rm = TRUE)

sd_discrimination_millennials <- sd(data2$discrimination[data2$Generation_dummy == 1], na.rm = TRUE)

cat("Mean discrimination for Gen Z:", mean_discrimination_genz, "\n")

cat("Standard deviation for Gen Z:", sd_discrimination_genz, "\n")

cat("Mean discrimination for Millennials:", mean_discrimination_millennials, "\n")

```

```
cat("Standard deviation for Millennials:", sd_discrimination_millennials, "\n")

#identity nondisclosure (QMSR 2)
mean_idnd_genz <- mean(data2$idnd[data2$Generation_dummy == 0], na.rm = TRUE)
sd_idnd_genz <- sd(data2$idnd[data2$Generation_dummy == 0], na.rm = TRUE)
mean_idnd_millennials <- mean(data2$idnd[data2$Generation_dummy == 1], na.rm = TRUE)
sd_idnd_millennials <- sd(data2$idnd[data2$Generation_dummy == 1], na.rm = TRUE)
cat("Mean idnd for Gen Z:", mean_idnd_genz, "\n")
cat("Standard deviation for Gen Z:", sd_idnd_genz, "\n")
cat("Mean idnd for Millennials:", mean_idnd_millennials, "\n")
cat("Standard deviation for Millennials:", sd_idnd_millennials, "\n")

#Anova
anova_discrimination <- anova_test(data2, dv = discrimination, between = Generation_dummy)
print(anova_discrimination)
anova_idnd <- anova_test(data2, dv = idnd, between = Generation_dummy)
print(anova_idnd)
anova_distress <- anova_test(data2, dv = distress, between = Generation_dummy)
print(anova_distress)

#check different distress score categories
breaks <- c(0, 2, 5, 8, 12)
data2$distress <- cut(data2$distress, breaks = breaks, labels = c("0-2", "3-5", "6-8", "9-12"))
distress_counts <- table(data2$distress)
print(distress_counts)
distress_frequencies <- table(data2$distress)
print(distress_frequencies)
```

```
#Gen Z distress

gen_z_data <- data2[data2$Generation_dummy == 0, ]

distress_freq_gen_z <- table(gen_z_data$distress)

print(distress_freq_gen_z)

#Millennials distress

millennials_data <- data2[data2$Generation_dummy == 1, ]

distress_freq_millennials <- table(millennials_data$distress)

print(distress_freq_millennials)

#differences discrimination

discrim_counts <- table(data2$discrimination)

print(discrim_counts)

discrim_frequencies <- table(data2$discrimination)

print(discrim_frequencies)

#Gen Z discrim

gen_z_data <- data2[data2$Generation_dummy == 0, ]

discrim_freq_gen_z <- table(gen_z_data$discrimination)

print(discrim_freq_gen_z)

#Millennials discrim

millennials_data <- data2[data2$Generation_dummy == 1, ]

discrim_freq_millennials <- table(millennials_data$discrimination)

print(discrim_freq_millennials)

#differences idnd

idnd_counts <- table(data2$idnd)

print(idnd_counts)

idnd_frequencies <- table(data2$idnd)
```

```

print(idnd_frequencies)

#Gen Z discrim

gen_z_data <- data2[data2$Generation_dummy == 0, ]

idnd_freq_gen_z <- table(gen_z_data$idnd)

print(idnd_freq_gen_z)

#Millennials discrim

millennials_data <- data2[data2$Generation_dummy == 1, ]

idnd_freq_millennials <- table(millennials_data$idnd)

print(idnd_freq_millennials)

#correlation analysis (spearman's)

spearman_corr <- cor(data2[c("discrimination", "idnd", "distress", "Generation_dummy")], method =
"spearman")

print(spearman_corr)

#pvalues

n <- 68

spearman_p_values <- function(correlation_matrix, n) {

  p_value_matrix <- matrix(NA, nrow = nrow(correlation_matrix), ncol = ncol(correlation_matrix))

  for (i in 1:nrow(correlation_matrix)) {
    for (j in 1:ncol(correlation_matrix)) {
      if (i != j) {
        r <- correlation_matrix[i, j]
        t_value <- r * sqrt((n - 2) / (1 - r^2))
        p_value <- 2 * pt(-abs(t_value), df = n - 2)
        p_value_matrix[i, j] <- p_value
      }
    }
  }
}

```

```
    return(p_value_matrix)
  }
p_value_matrix <- spearman_p_values(spearman_corr, n)
cat("P-values for the correlations:\n")
print(p_value_matrix)

#t-test generation
t_test_discrimination <- t.test(discrimination ~ Generation_dummy, data = data2)
t_test_idnd <- t.test(idnd ~ Generation_dummy, data = data2)
t_test_distress <- t.test(distress ~ Generation_dummy, data = data2)
print(t_test_discrimination)
print(t_test_idnd)
print(t_test_distress)

#creating linear model
data2$discrimination_centered <- scale(data2$discrimination, center = TRUE)
data2$idnd_centered <- scale(data2$idnd, center = TRUE)

# Build the moderation model with centered variables
model <- lm(distress ~ discrimination_centered * Generation_dummy + idnd_centered * Generation_dummy +
discrimination_centered * idnd_centered * Generation_dummy, data = data2)
summary(model)

#checking assumptions
#normality
hist(residuals(model))

#Homoscedasticity
plot(model, which = 3)
```

```
#independence

dwtest(model)

#Linearity

plot(model, which = 1)

# Calculate confidence intervals for coefficients

conf_intervals <- confint(moderation_model, level = 0.95)

print(conf_intervals)

#Squareroots

data2$idnd_sqrt <- sqrt(data2$idnd)

data2$discrimination_sqrt <- sqrt(data2$discrimination)

model2 <- lm(distress ~ idnd_sqrt * discrimination_sqrt * Generation_dummy, data = data2)

plot(model2)

#checking assumptions

#normality

hist(residuals(model2))

#Homoscedasticity

plot(model2, which = 3)

#independence

dwtest(model2)

#Linearity

plot(model2, which = 1)

#Box-Cox

library(MASS)

data2$distress_shifted <- data2$distress + abs(min(data2$distress)) + 1 # Adding 1 for safety

boxcox_results <- boxcox(distress_shifted ~ idnd * discrimination * Generation_dummy, data = data2)
```

```

lambda <- boxcox_results$x[which.max(boxcox_results$y)]

data2$distress_boxcox <- ifelse(lambda == 0, log(data2$distress_shifted), (data2$distress_shifted^lambda - 1) /
lambda)

model3 <- lm(distress_boxcox ~ idnd * discrimination * Generation_dummy, data = data2)

plot(model3)

#checking assumptions

#normality

hist(residuals(model3))

#Homoscedasticity

plot(model3, which = 3)

#independence

dwtest(model3)

#Linearity

plot(model3, which = 1)

#nonparametric testing

#Spearman's rank correlation coefficient (H1)

# Calculate Spearman's rank correlation coefficient and its associated p-value for distress and discrimination
cor_result_discrimination <- cor.test(data2$distress, data2$discrimination, method = "spearman")

# Calculate Spearman's rank correlation coefficient and its associated p-value for distress and idnd
cor_result_idnd <- cor.test(data2$distress, data2$idnd, method = "spearman")

# Print the results

print("Spearman correlation coefficient and p-value for distress and discrimination:")

print(cor_result_discrimination)

print("Spearman correlation coefficient and p-value for distress and idnd:")

print(cor_result_idnd)

#bootstrapping (moderation H2)

# Moderation model

```

```

moderation_model <- function(data, indices) {

  data <- data[indices, ] # Resample data

  model <- lm(distress ~ discrimination * idnd * Generation_dummy, data = data)

  return(coef(model)) # Return coefficients

}

# Perform bootstrapping

set.seed(123) # For reproducibility

results <- boot(data = data2, statistic = moderation_model, R = 1000)

summary(results)

conf_intervals <- boot.ci(results, type = "perc")

print(conf_intervals)

#Kendall's rank-order correlation (H2)discrimination

kendall_tau_disc_discrim <- cor.test(data2$discrimination, data2$Generation_dummy, method = "kendall")

print(kendall_tau_disc_discrim)

#CIs for discrimination

install.packages("boot")

library(boot)

kendall_tau <- function(data, indices) {

  kendall_cor <- cor(data[indices, 1], data[indices, 2], method = "kendall")

  return(kendall_cor)

}

boot_results <- boot(data = cbind(data2$discrimination, data2$Generation_dummy), statistic = kendall_tau, R =
1000)

boot_ci <- boot.ci(boot.out = boot_results, type = "bca")

print(boot_ci)

#Kendall's rank-order correlation (H2) idnd

```



```

kendall_tau_disc_idnd <- cor.test(data2$idnd, data2$Generation_dummy, method = "kendall")

print(kendall_tau_disc_idnd)

#CIs for idnd

kendall_tau <- function(data, indices) {

  kendall_cor <- cor(data[indices, 1], data[indices, 2], method = "kendall")

  return(kendall_cor)

}

boot_results <- boot(data = cbind(data2$idnd, data2$Generation_dummy), statistic = kendall_tau, R = 1000)

boot_ci <- boot.ci(boot.out = boot_results, type = "bca")

print(boot_ci)

#Analysis for SM and GM separately

data1$Minority_dummy <- 0 # Initialize all values to 0

data1$Minority_dummy[data1$gender.identity %in% c(3, 4, 5)] <- 0

data1$Minority_dummy[data1$gender.identity == 1 & data1$sex == 2] <- 0

data1$Minority_dummy[data1$gender.identity == 2 & data1$sex == 1] <- 0

data1$Minority_dummy[data1$sexual.identity %in% c(2, 3, 4, 5, 6, 7)] <- 1

data1$Minority_dummy[data1$gender.identity == 1 & data1$sex == 1] <- 0

data1$Minority_dummy[data1$gender.identity == 2 & data1$sex == 2] <- 0

head(data1)

table(data1$Minority_dummy)

data2$Minority_dummy <- data1$Minority_dummy

data2 <- data2[, c("Generation_dummy", "Minority_dummy", "discrimination", "distress", "idnd")]

#SM analyses

#correlation table

data2_minority_0 <- data2[data2$Minority_dummy == 0, ]

```

```
correlation_table_minority_0 <- cor(data2_minority_0)

print(correlation_table_minority_0)

#linear regression model

data2$discrimination_centered <- scale(data2$discrimination, center = TRUE)

data2$idnd_centered <- scale(data2$idnd, center = TRUE)

data2_minority_0 <- subset(data2, Minority_dummy == 0)

lm_model <- lm(distress ~ discrimination_centered * Generation_dummy + idnd_centered * Generation_dummy
+ discrimination_centered * idnd_centered * Generation_dummy, data = data2_minority_0)

summary(lm_model)

#checking assumptions

#normality

hist(residuals(lm_model))

#Homoscedasticity

plot(lm_model, which = 3)

#independence

dwtest(lm_model)

#Linearity

plot(lm_model, which = 1)

#H1 Spearman's rank correlation coefficient

data2_minority_0 <- subset(data2, Minority_dummy == 0)

cor_result_discrimination <- cor.test(data2_minority_0$distress, data2_minority_0$discrimination, method =
"spearman")

cor_result_idnd <- cor.test(data2_minority_0$distress, data2_minority_0$idnd, method = "spearman")

cat("Spearman correlation coefficient and p-value for distress and discrimination:\n")

print(cor_result_discrimination)

cat("\nSpearman correlation coefficient and p-value for distress and idnd:\n")
```

```

print(cor_result_idnd)

#H2 general bootstrapping
moderation_model <- function(data, indices) {
  data <- data[indices, ]
  filtered_data <- subset(data, Minority_dummy == 0)
  model <- lm(distress ~ discrimination * idnd * Generation_dummy, data = filtered_data)
  return(coef(model))
}

# Perform bootstrapping
set.seed(123)

results <- boot(data = data2, statistic = moderation_model, R = 1000)
summary(results)
conf_intervals <- boot.ci(results, type = "perc")
print(conf_intervals)

#H2 Kendalls tau
#idnd
data2_minority_0 <- subset(data2, Minority_dummy == 0)
kendall_tau_idnd_gen <- cor.test(data2_minority_0$idnd, data2_minority_0$Generation_dummy, method =
"kendall")
print(kendall_tau_idnd_gen)
kendall_tau <- function(data, indices) {
  kendall_cor <- cor(data[indices, 1], data[indices, 2], method = "kendall")
  return(kendall_cor)
}

boot_results <- boot(data = cbind(data2_minority_0$idnd, data2_minority_0$Generation_dummy), statistic =
kendall_tau, R = 1000)
boot_ci <- boot.ci(boot.out = boot_results, type = "bca")

```

```

print(boot_ci)

#discrim
data2_minority_0 <- subset(data2, Minority_dummy == 0)

kendall_tau_disc_gen <- cor.test(data2_minority_0$discrimination, data2_minority_0$Generation_dummy,
method = "kendall")

print(kendall_tau_disc_gen)

kendall_tau <- function(data, indices) {

  kendall_cor <- cor(data[indices, 1], data[indices, 2], method = "kendall")

  return(kendall_cor)

}

boot_results <- boot(data = cbind(data2_minority_0$discrimination, data2_minority_0$Generation_dummy),
statistic = kendall_tau, R = 1000)

boot_ci <- boot.ci(boot.out = boot_results, type = "bca")

print(boot_ci)

#correlation table GM
data2_minority_1 <- data2[data2$Minority_dummy == 1, ]

correlation_table_minority_1 <- cor(data2_minority_1)

print(correlation_table_minority_1)

#linear regression model
data2$discrimination_centered <- scale(data2$discrimination, center = TRUE)

data2$idnd_centered <- scale(data2$idnd, center = TRUE)

data2_minority_1 <- subset(data2, Minority_dummy == 1)

lm_model <- lm(distress ~ discrimination_centered * Generation_dummy + idnd_centered * Generation_dummy
+ discrimination_centered * idnd_centered * Generation_dummy, data = data2_minority_0)

summary(lm_model)

```

```
#checking assumptions

#normality
hist(residuals(lm_model))

#Homoscedasticity
plot(lm_model, which = 3)

#independence
dwtest(lm_model)

#Linearity
plot(lm_model, which = 1)

#H1 Spearman's rank correlation coefficient

data2_minority_1 <- subset(data2, Minority_dummy == 1)

cor_result_discrimination <- cor.test(data2_minority_1$distress, data2_minority_1$discrimination, method =
"spearman")

cor_result_idnd <- cor.test(data2_minority_1$distress, data2_minority_1$idnd, method = "spearman")

cat("Spearman correlation coefficient and p-value for distress and discrimination:\n")

print(cor_result_discrimination)

cat("\nSpearman correlation coefficient and p-value for distress and idnd:\n")

print(cor_result_idnd)

#H2 general bootstrapping

moderation_model <- function(data, indices) {

  data <- data[indices, ]

  filtered_data <- subset(data, Minority_dummy == 1)

  model <- lm(distress ~ discrimination * idnd * Generation_dummy, data = filtered_data)

  return(coef(model))

}

# Perform bootstrapping

set.seed(123)
```

```
results <- boot(data = data2, statistic = moderation_model, R = 1000)

summary(results)

conf_intervals <- boot.ci(results, type = "perc")

print(conf_intervals)

#H2 Kendalls tau

#idnd

data2_minority_1 <- subset(data2, Minority_dummy == 1)

kendall_tau_idnd_gen <- cor.test(data2_minority_1$idnd, data2_minority_1$Generation_dummy, method =
"kendall")

print(kendall_tau_idnd_gen)

kendall_tau <- function(data, indices) {

  kendall_cor <- cor(data[indices, 1], data[indices, 2], method = "kendall")

  return(kendall_cor)

}

boot_results <- boot(data = cbind(data2_minority_1$idnd, data2_minority_1$Generation_dummy), statistic =
kendall_tau, R = 1000)

boot_ci <- boot.ci(boot.out = boot_results, type = "bca")

print(boot_ci)

#discrim

data2_minority_1 <- subset(data2, Minority_dummy == 1)

kendall_tau_disc_gen <- cor.test(data2_minority_1$discrimination, data2_minority_1$Generation_dummy,
method = "kendall")

print(kendall_tau_disc_gen)

kendall_tau <- function(data, indices) {

  kendall_cor <- cor(data[indices, 1], data[indices, 2], method = "kendall")

  return(kendall_cor)

}
```

```
boot_results <- boot(data = cbind(data2_minority_1$discrimination, data2_minority_1$Generation_dummy),
  statistic = kendall_tau, R = 1000)

boot_ci <- boot.ci(boot.out = boot_results, type = "bca")

print(boot_ci)
```