

Title: Stress and Body Image Concerns Among Non-Binary Individuals: A Comprehensive Exploration of Psychological and Social Impacts.

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Abstract: Non-binary people face unique challenges concerning gender identity and body image resulting in heightened levels of stress and mental health concerns. This study investigates the interrelationship between body image dissatisfaction, minority stress and overall mental health among non-binary individuals, particularly in the Indian context. Using online self-reported questionnaire data collected from 39 participants identifying as non-binary. The perceived stress questionnaire (PSQ) and self-reported non-standardised questionnaire were employed to measure stress levels and body image perception. Results revealed a moderate level of stress experienced by all participants, coupled with significant dissatisfaction related to the body. Although dissatisfaction did not show a significant relationship with social challenges or minority stress, findings highlight the compound effects of stressors on the mental health of non-binary individuals. These results underscore the necessity for targeted mental interventions and supportive policies to address the unique needs of this marginalised community.

Keywords: Non-binary, Body image, Stress, Gender Dysphoria, Sexual Orientation, Perceived Stress Questionnaire (PSQ).

Introduction: Non-binary individuals are those who identify outside the traditional gender binary and face unique psychological and social challenges. Body image dissatisfaction often linked to gender dysphoria, is one of the most pervasive issues within this demographic. Gender dysphoria manifests as distress arising from incongruence between one's experience of gender and physical characteristics further compounded by societal stigmatisation and discrimination. These challenges are particularly acute for young adults who navigate developmental transitions amidst societal pressures.

Mayer's minority stress model supports that social stigma discrimination and internalised negativity result in chronic stress for marginalised groups. For non-binary individuals, experiences such as misgendering, lack of role models and societal non-acceptance intensify stress. The interplay between minority stress and body image dissatisfaction creates a complex psychological challenge.

Since the 19th century, the clinical field has showcased immense interest in the understanding of nonconformity related to an individual's sexual and gender identity, which in early attempts of explanation, was combined to define homosexuality in terms of having a male psyche in a female body and vice versa.^[1] In the current clinical approach, transgender is considered to be an umbrella term which includes people who do

not choose to be identified with the sex that was assigned to them at birth.^[2] This is described as gender incongruence in the ICD-11 which can be referred to as the phenomenon where individuals with inclination or subjective experience of being identified or belonging to a gender that does not align with the sex assigned to the said individuals at birth.^[3] When it comes to individuals identifying themselves as “non-binary”, it involves people who identify outside the gender binary i.e., identifying with both genders, genders distinct from male or female, or no specified gender at all.^{[4] [5] [6] [7] [8]} This depicts that nonbinary individuals may showcase identification with a variety of labels for gender identity. When the presence of gender incongruence within an individual leads or is paired with symptoms related to significant physiological and psychological discomfort, it is considered to be gender dysphoria.^{[9] [10]}

The experience of distress and discomfort may as well be evident in the general association of individuals identifying as transgender and nonbinary with the feeling of being trapped in a wrong body.^[11] Thus, it is suggestible that gender dysphoria is closely related to the experience of dissatisfaction of an individual with the said individual's own body image. Body Image, for any individual, can be defined as the amalgamation of one's body's physical characteristics and the subjective attitude towards such characteristics.^[12] Multiple studies have depicted consistent results where adult individuals identifying as transgenders are reporting issues related to their body image in the form of higher dissatisfaction and lower self-confidence with their physical attractiveness along with the overall body features, as compared to adult individuals who identify themselves with the sex assigned to them at birth i.e., cisgender individuals.^{[13] [14] [15] [16]} One such study that involved administration of the body image subscale of the Derogatis Sexual Functioning Inventory^[17] on 698 women and 444 men, concluded that men and women with conflict in their gender identity to be more in dissatisfaction with their bodies as compared to the control^[13] Another cross-sectional study involving a total of 202 individuals within the transgender spectrum, indicated lower favourable body image scores on the Body Image Assessment Questionnaire, FBK, for both adults and adolescents with gender dysphoria^[14] Additionally, a cross-sectional study that administered the Body Image Scale, BIS^[18] and Utrecht Gender Dysphoria Scale, UGDS upon a sample of clinic-referred transgender adolescents to assess body dissatisfaction and Gender Dysphoria respectively, reported results that depict dissatisfaction with sex characteristics, non-hormonal reactive body regions and the total body dissatisfaction score to be positively related to gender dysphoria.^[2]

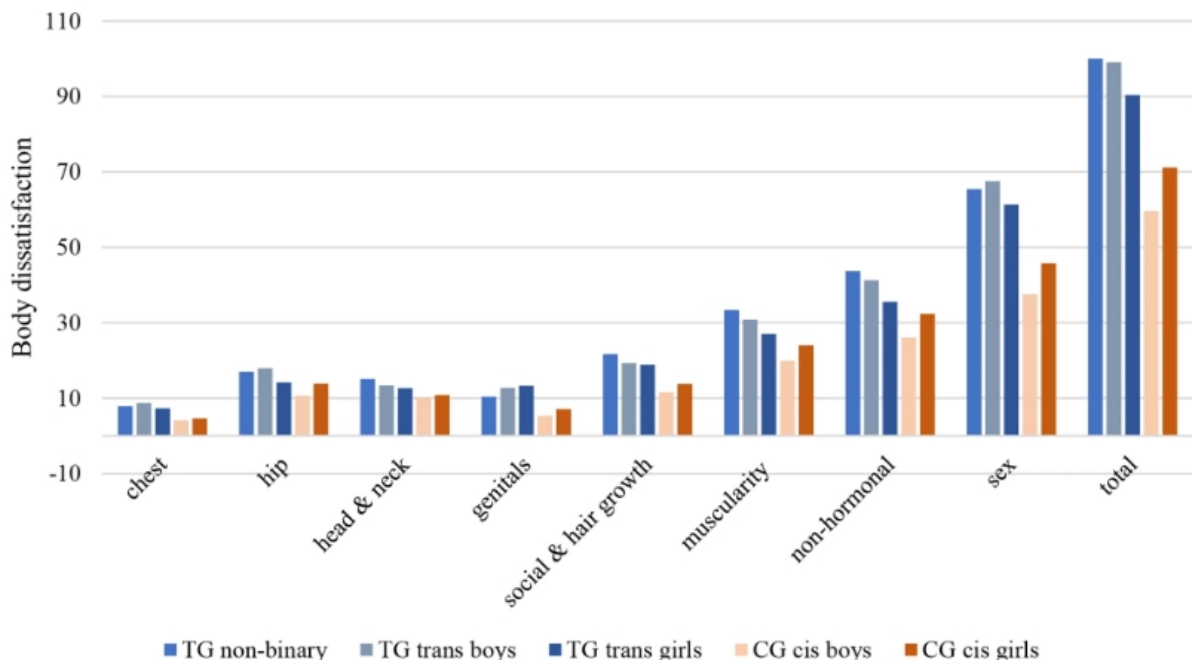


Fig 1: Bar diagram of body dissatisfaction in relation to gender identities for the school-based control group and the clinic-referred transgender adolescents (Brecht, A. et al., 2024). [2]

The increased dissatisfaction paired with the experience of stigma and discrimination due to their minority status are found to be active parameters within the nonbinary community^[19] that are perhaps linked to the reported worse mental health and general well-being within non-binary individuals, as compared to cisgender and binary transgender individuals.^[20] However, there is a lack of consensus regarding the same as some studies have reported non-binary individuals having better mental health based on overall psychological functioning as well as life satisfaction.^{[21] [22]}

Nonetheless, taking into account, the presence of generally high dissatisfaction and low self-confidence about body image and gender dysphoria observed within non-binary individuals,^[2] it is evident that non-binary individuals are more prone to experience negative affect, more prominently anxiety, depression and stress.^[23] The stress, that is experienced by non-binary individuals and has been covered in research predominantly, is minority stress, which is explained by the minority stress model of Meyer^{[24] [25]} that posits for the experience of overall worse health outcomes due to being a societal minority and as a result facing social discrimination. For instance, a study conducted by Testa et al.,^[26] involved adapting Meyer's minority stress model for individuals identifying themselves as transgender which concluded that long-term exposure to such discriminatory treatment leads to the development of self-deprecating, auto-aggressive and other related behaviours linked to mental health issues. Another aspect that can perhaps influence the amount of stress experienced by any non-binary individual is sexual well-being, which is defined as the culmination of an individual's affective, interpersonal and socio-cultural components as attributed to their sexual satisfaction, relationship satisfaction and stigma faced in public, respectively.^[27] Although research exploring the lack of sexual well-being within non-binary individuals has been limited, few studies such as the one conducted by Lindley et al.,^[28] indicate negative impacts on sexual satisfaction of non-binary individuals due to the absence of interpersonal and socio-cultural components. It is also suggestible that issues faced by non-binary individuals, like lacking a relatable role model, can raise discrepancies within the self-concept of non-binary

individuals,^[29] which can be understood as the discrepancy between an individual's actual self-concept and the same individual's ought self-concept.^[30] In the context of individuals identifying as non-binary, it is suggestible that their actual sexual self-concept is formed based on their actual gender identity, and their ought sexual self-concept is under the influence of general social ideas on sexuality. Such a discrepancy, when prolonged can lead to the development of distress to the extent that coping tends to become unmanageable.^[30] Another comparative study, considering the limited literature for understanding the well-being of non-binary individuals, depicted results reporting non-binary individuals scoring higher sexual self-concept discrepancy, and lower general life satisfaction and sexual esteem in regards to body perception, as compared to cisgender individuals.^[31]

Non-binary and Sexual orientation:

Individuals, regardless of their gender identity, may identify with a variety of sexual orientations i.e., a person's identity that is not inherently tied to one's own gender identity and is relative to the genders to which they feel sexually attracted. Research on non-binary individuals indicates an experience of attraction transcending traditional gender binaries.^[35] Non-binary individuals frequently adopt the identity "Queer" for a description of their gender as well as sexual identity and orientation. Queer can be assessed with a special focus on embracing fluidity which perhaps provides non-binary individuals access to inclusive labels to affirm their sexual attraction to other individuals regardless of gender.^[36] Bisexual orientation would be defined, in a traditional sense, as sexual attraction towards the gender of male and female, which is often reinterpreted within non-binary communities to involve attraction towards individuals across all gender identities. Pansexual orientation, on the other hand, is characterized by sexual attraction towards individuals that are independent of their gender thus suggestible of profound resonance with the non-binary due to its rejection of strict gender labels. Asexuality, or asexual orientation, which is another sexual orientation accounted for in the fourth item of the non-standardised body image scale used in this study. Asexuality is characterized by the absence of any sexual attraction which can suggest unique intersections with non-binary identities and might involve underlying inter-relations and causalities, one of which perhaps is the tendency to prioritization of emotional bonds within non-binary individuals.^[37]

The present study aims to draw better insights into discovering the inter-relations between body image and general stress experienced by individuals identifying themselves as non-binary in India via the administration of an online close-ended, self-reportable questionnaire, addressing the unique challenges faced by non-binary individuals in India by examining the interplay between body image dissatisfaction, stress, and societal factors.

Objectives : To evaluate the level of perceived stress I'm on non-binary individuals.

1. To examine the relationship between body image dissatisfaction and gender identity-related challenges.

2. To analyse the influence of monetary stress on the mental health and well-being of non-binary individuals.
3. Body image dissatisfaction is a significant predictor of overall mental health outcomes in non-binary individuals.

Hypotheses:

1. Non-binary individuals experience significantly higher levels of perceived stress.
2. Body mass dissatisfaction is positively correlated with gender identity-related challenges.
3. Body image dissatisfaction is a significant predictor of overall mental health outcomes in non-binary individuals.

Methodology:

1. **Study design:** Cross-sectional, exploratory design using quantitative methods

2. Participants:

- Sample Size: 39 non-binary individuals
- Mean Age: 27.75 years
- Recruitment: participants were recruited through online platforms and LGBTQ+ support groups in Kolkata, India.

3. Tools :

- **Perceived Stress Questionnaire(PSQ).** A validated tool to measure perceived stress levels. Items are scored on a 4-point Likert scale, with higher scores indicating great distress. It is a self-reportable, pencil-and-paper tool designed by Levenstein et al., (1993)^[32] to measure the perceived stress of an individual about life events and situations that tend to trigger symptoms for diseases. The PSQ is scored as a score of means of the item responses where higher scores indicate higher levels of perceived stress and lower scores indicate lower levels of perceived stress.
- **Reliability and Validity** – Psychometric evaluations of the PSQ resulted in an internal consistency ranging from .90 to .92 along with a .82 test-retest reliability. The results of the PSQ have been highly correlated with trait anxiety ($r=0.75$) as well as with scores on Cohen's Perceived Stress Scale ($r=0.73$).
- **Non-standardised questionnaire** -To assess body image perception, challenges and related experiences Items included questions about gender identity, sexual orientation, body dissatisfaction and minority stress experiences

4. Procedure:

Data collection: Online self administered questionnaires were distributed to Google forms.

Ethical considerations: Informed consent was obtained from all participants ensuring confidentiality and voluntary participation.

5. Data Analysis and Results:

Percentage Analysis of each of the items on the non-standardised body image scale:

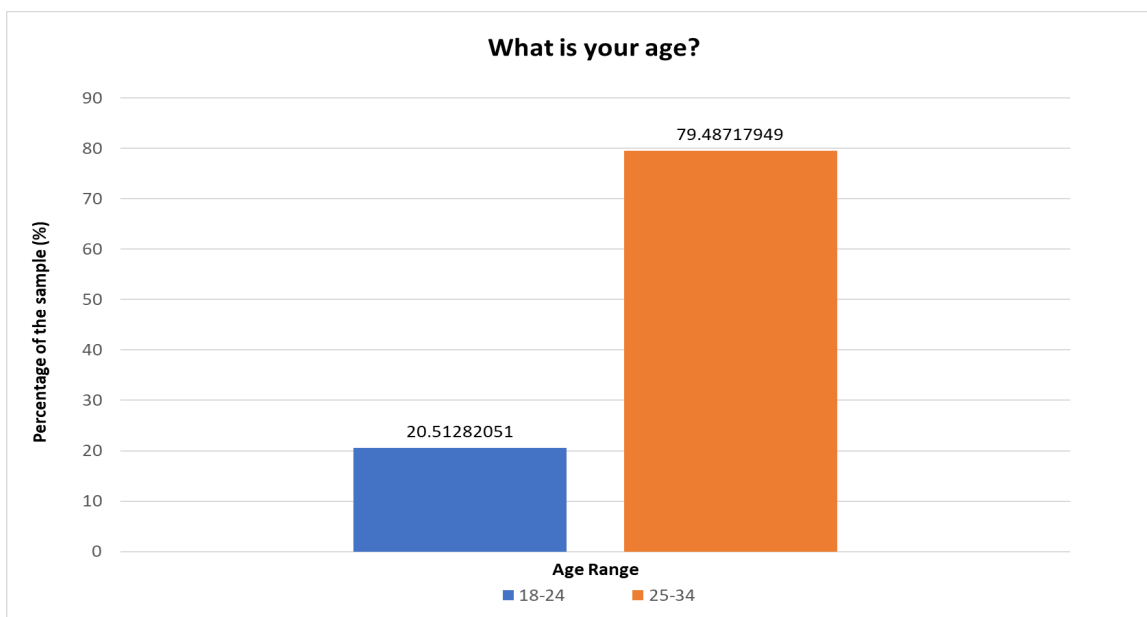


Fig 2 – Diagram showcasing percentage of the sample’s responses on the first item, “What is your age?”

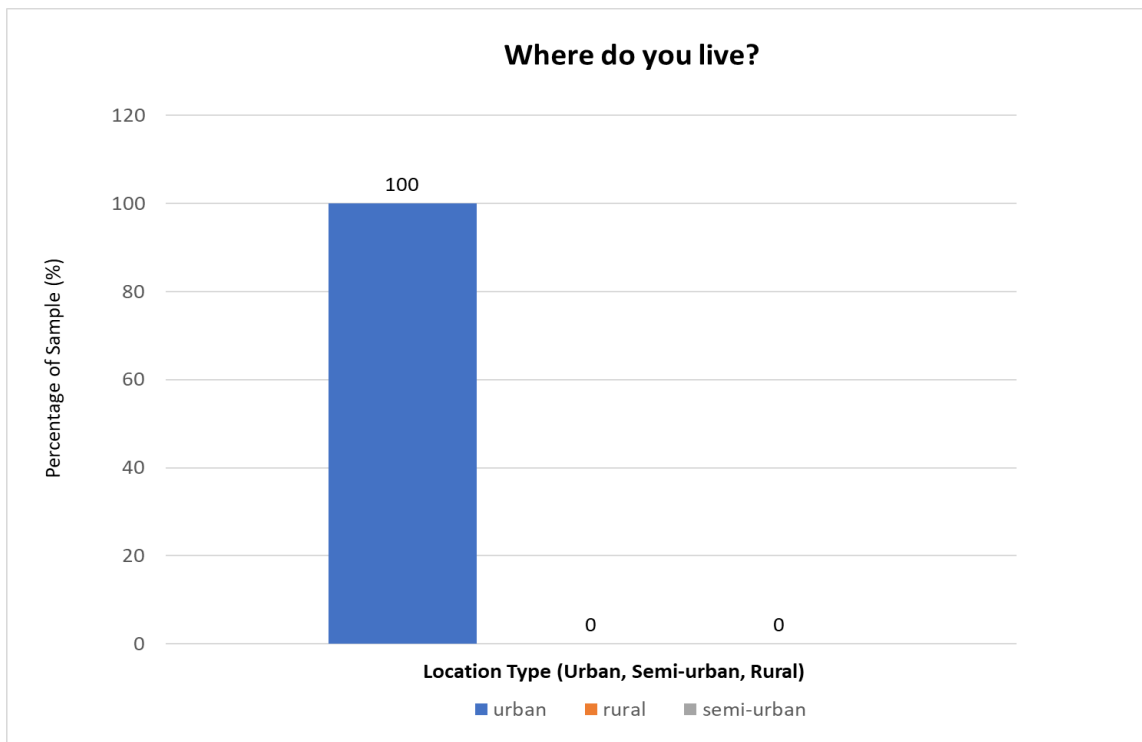


Fig 3 – Diagram showcasing percentage of the sample’s responses on the second item, “Where do you live?”

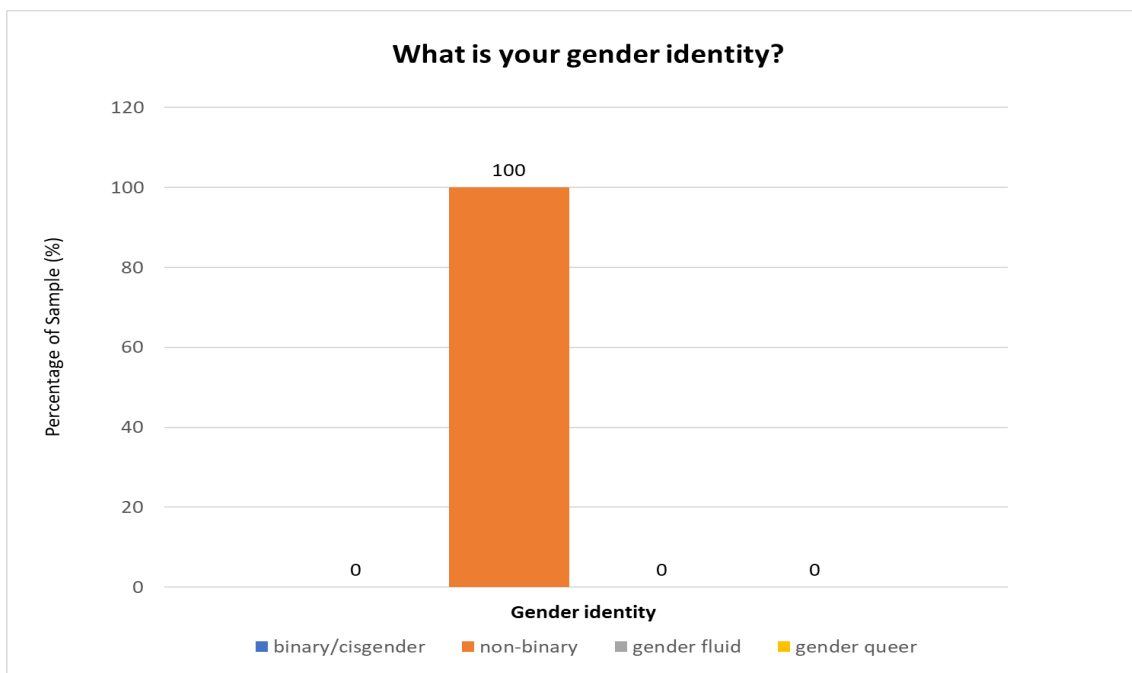


Fig 4 – Diagram showcasing percentage of the sample’s responses on the third item, “What is your gender identity?”

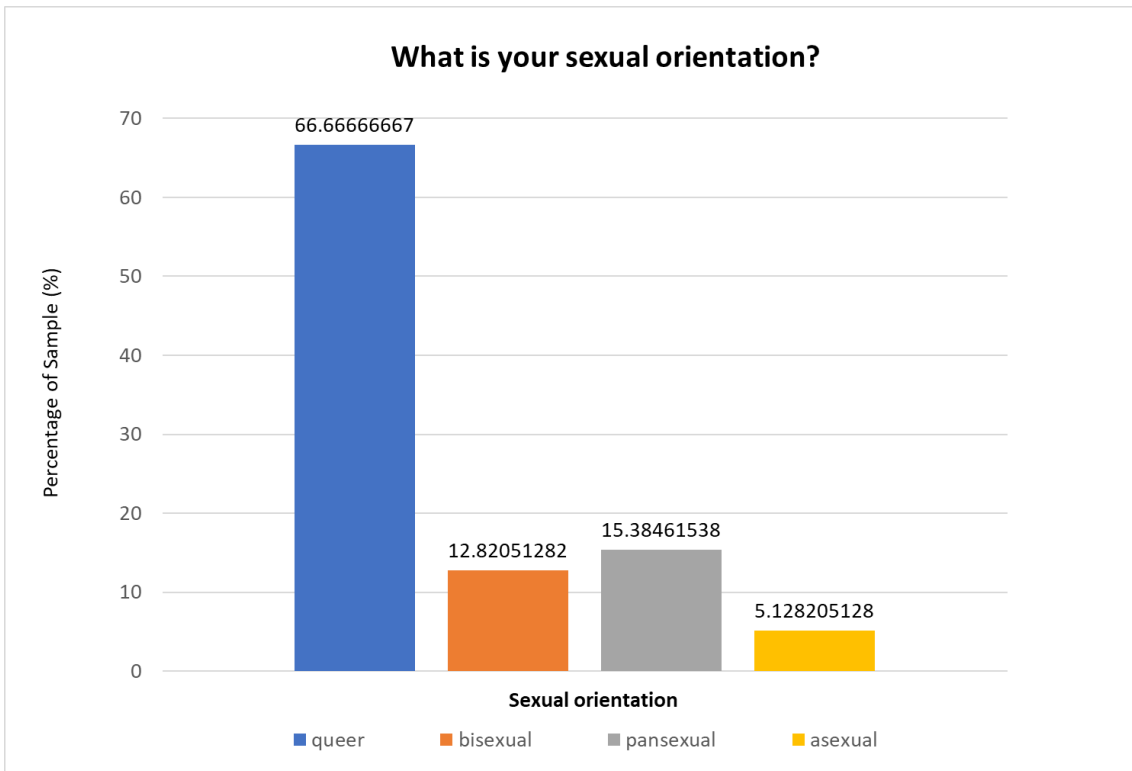


Fig 5 – Diagram showcasing percentage of the sample’s responses on the fourth item, “What is your sexual orientation?”

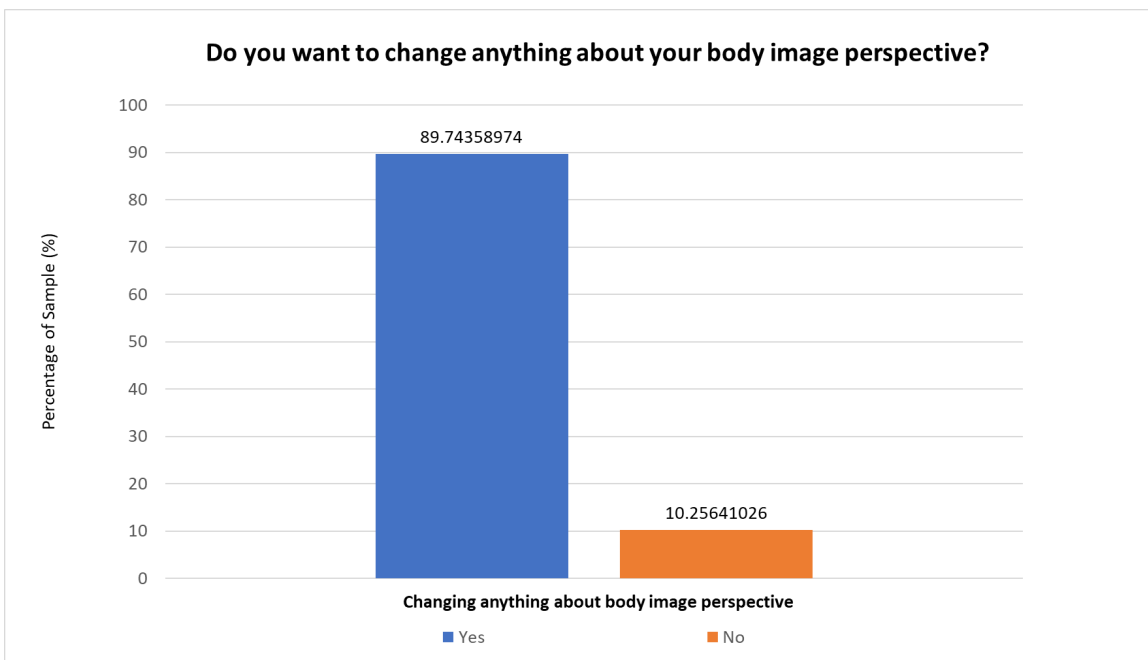


Fig 6 – Diagram showcasing percentage of the sample’s responses on the fifth item, “Do you want to change anything about your body image perspective?”

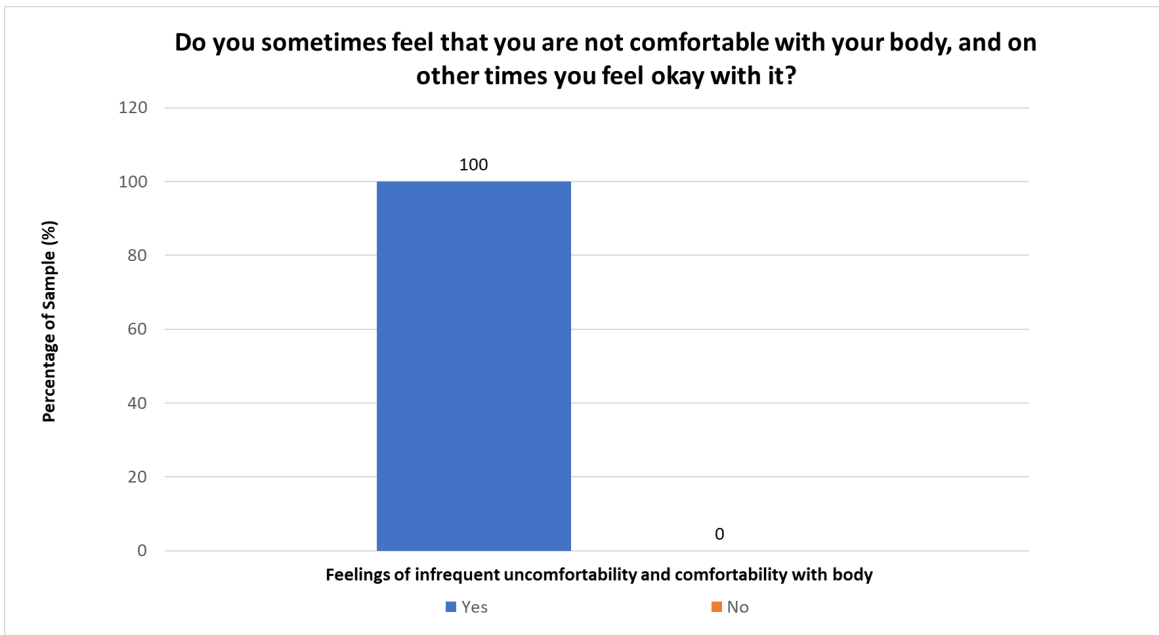


Fig 7 – Diagram showcasing percentage of the sample’s responses on the sixth item, “Do you sometimes feel that you are not comfortable with your body, and on other times you feel okay with it?”

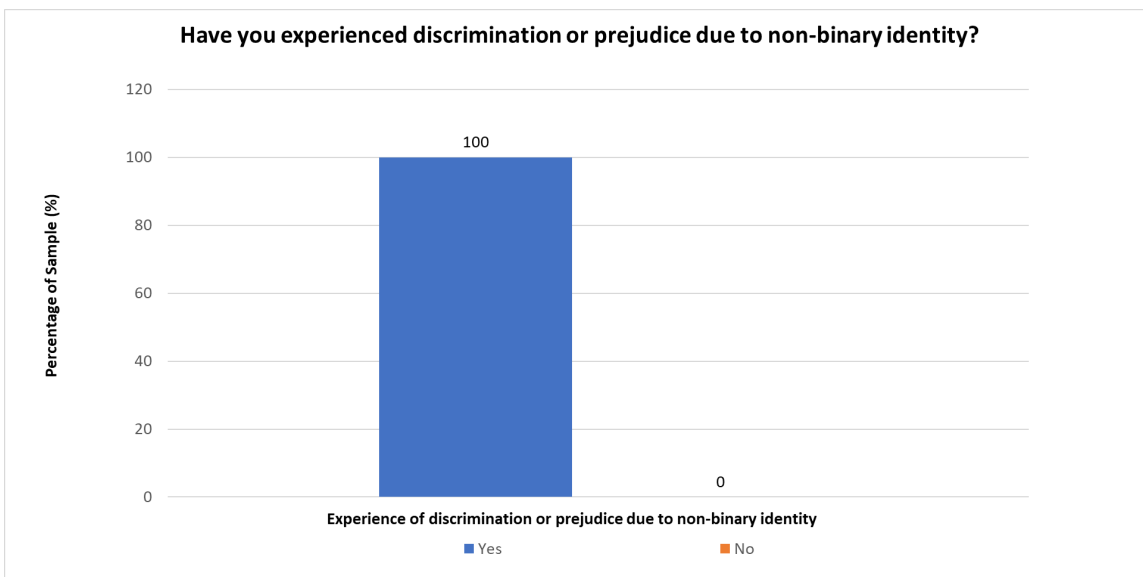


Fig 8 – Diagram showcasing percentage of the sample’s responses on the seventh item, “Have you experienced discrimination or prejudice due to non-binary identity?”

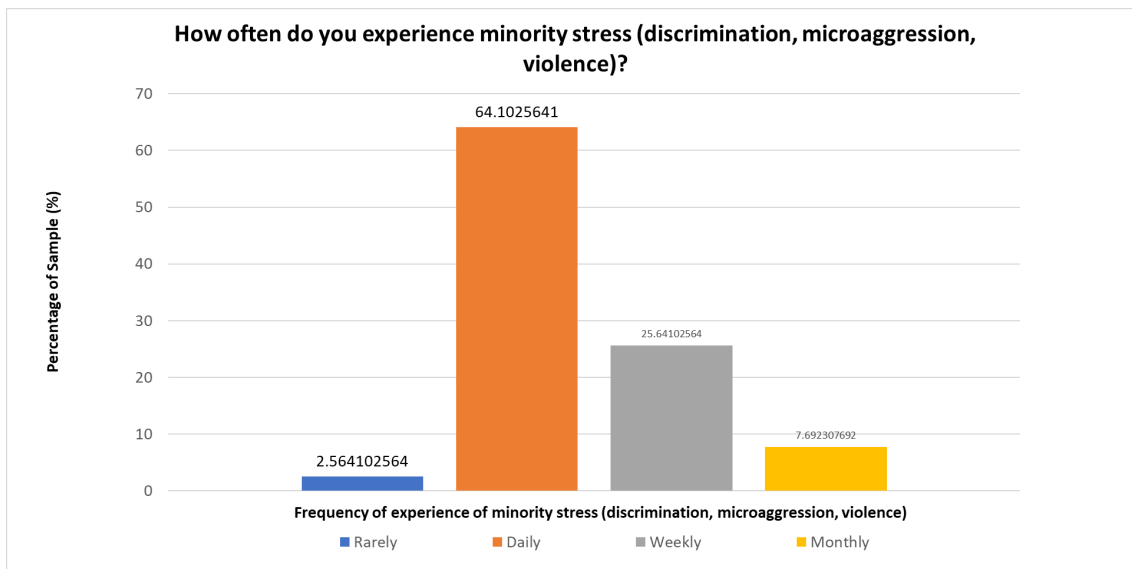


Fig 9 – Diagram showcasing percentage of the sample’s responses on the eighth item, “How often do you experience minority stress (discrimination, microaggression, violence)?”

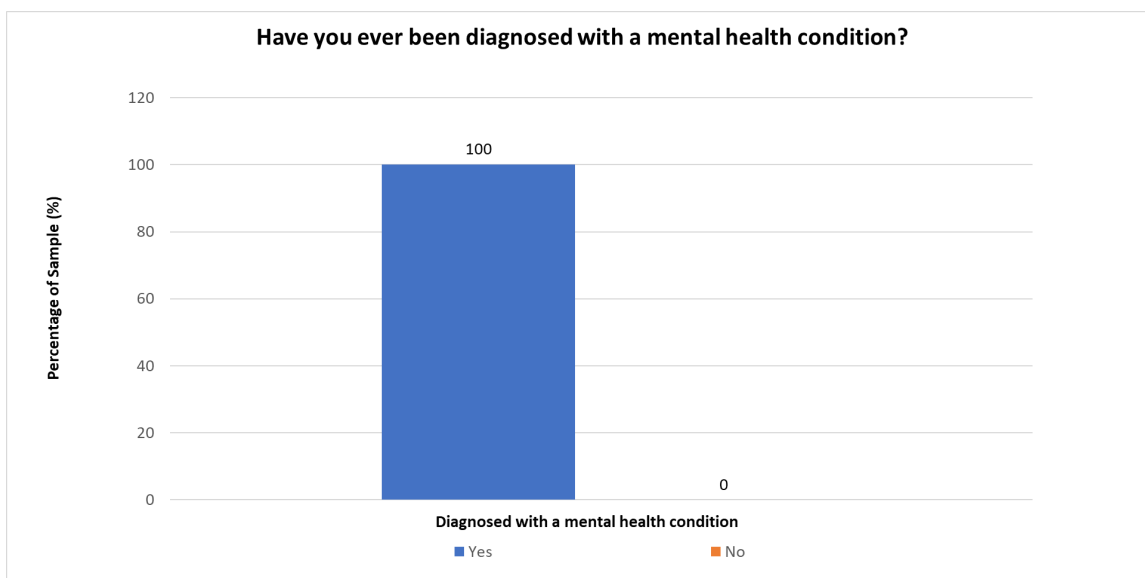


Fig 10 – Diagram showcasing percentage of the sample’s responses on the ninth item, “Have you ever been diagnosed with a mental health condition?”

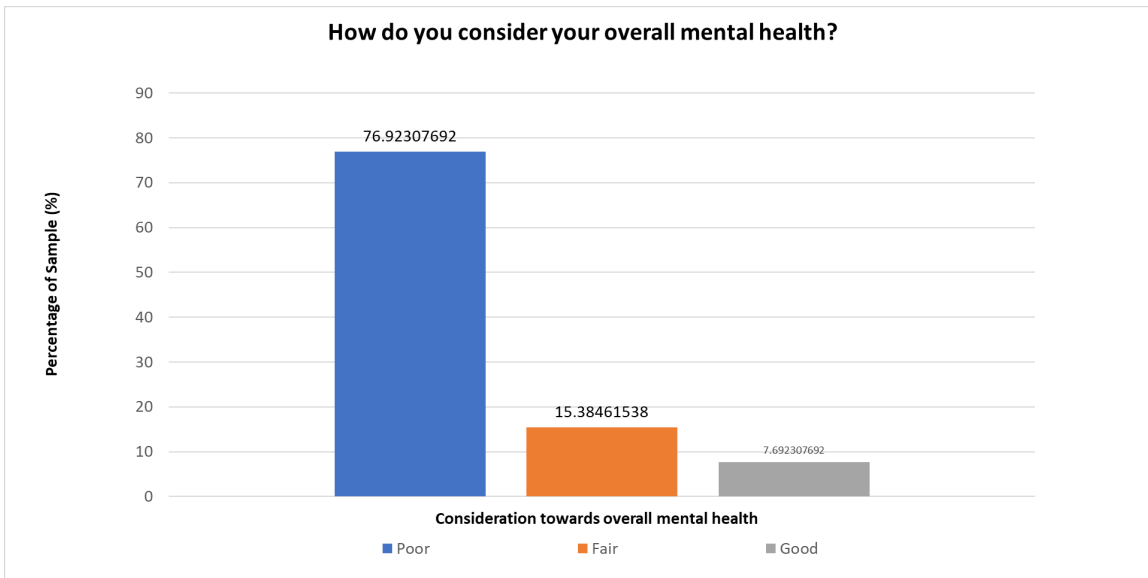


Fig 11 – Diagram showcasing the percentage of the sample’s responses on the tenth item, “How do you consider your overall mental health?”

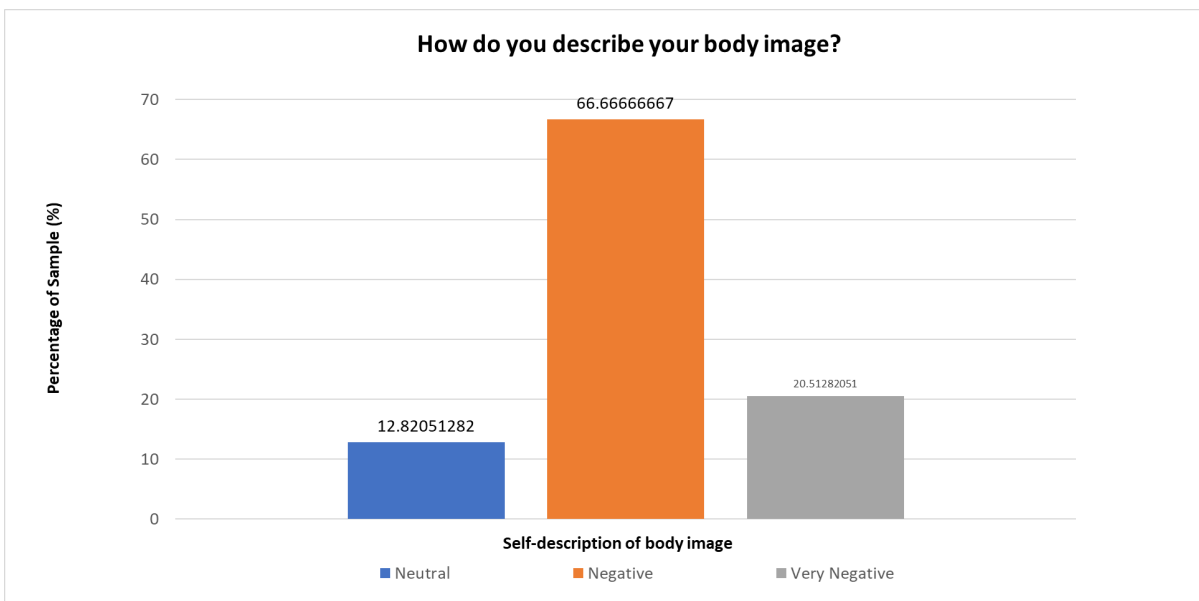


Fig 12 – Diagram showcasing percentage of the sample’s responses on the eleventh item, “How do you describe your body image?”

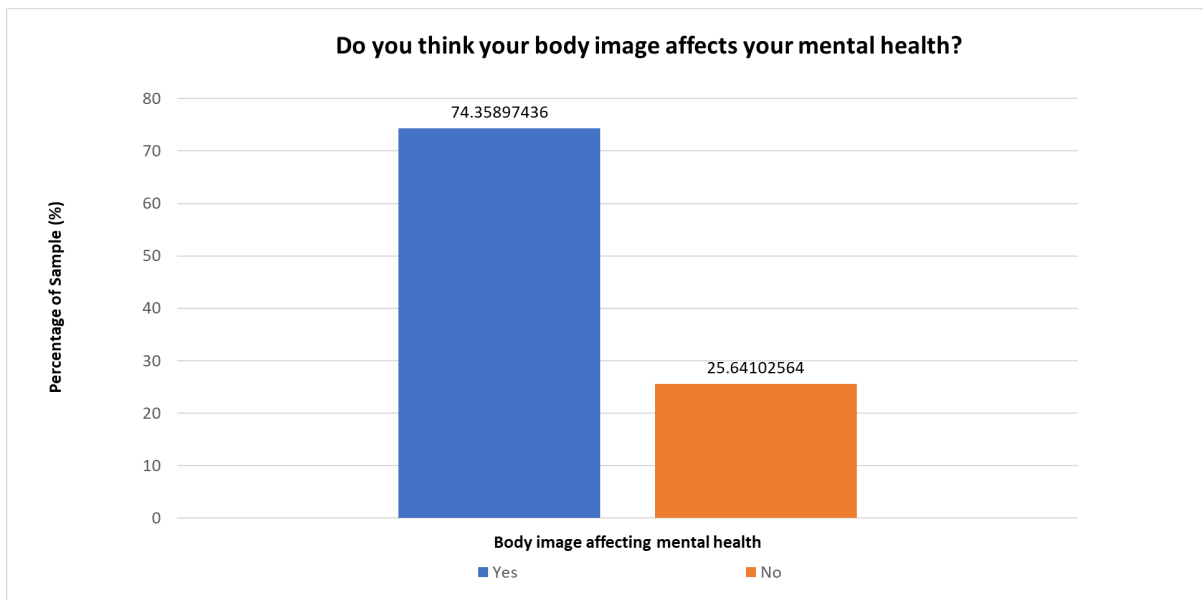


Fig 13 – Diagram showcasing percentage of the sample’s responses on the twelfth item, “Do you think your body image affects your mental health?”

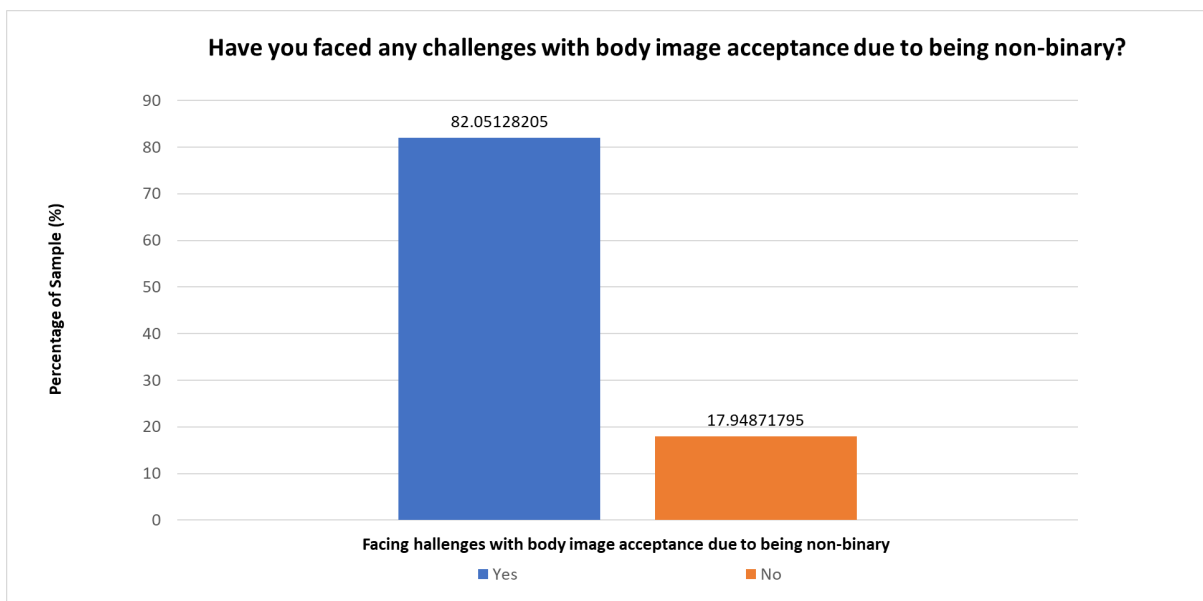


Fig 14 – Diagram showcasing percentage of the sample’s responses on the thirteenth item, “Have you faced any challenges with body image acceptance due to being non-binary?”

The PSQ mean as well as index scores were calculated for each participant (Fig 15, Fig 16), and upon evaluation on the basis of established norms, resulted to exhibit every participant i.e., every non-binary individual, involved in the present study, to be experiencing “Moderate Stress”. This might signify strongly that every

non-binary individual, to an extent, experiences stress in a constant, persisting and prevailing frequency. Although the intensity can perhaps be “moderate”, it is to be taken into account that when it is sustained, individuals can experience a state of allostatic overload, leading to dysregulation in the body’s stress system, contributing further to functional impairments in interpersonal relationships, emotional regulation, as well as cognitive performance.^[33] Studies have also depicted experience of moderate stress reporting difficulties in social functioning and maintenance of social connection as a result of emotional exhaustion.^[34] In the context of specifically non-binary individuals, as discussed previously, the effects of minority stress is observable which may compound the effects of general stressors, thereby exacerbating the functional impairments associated with moderate stress levels.^[25]

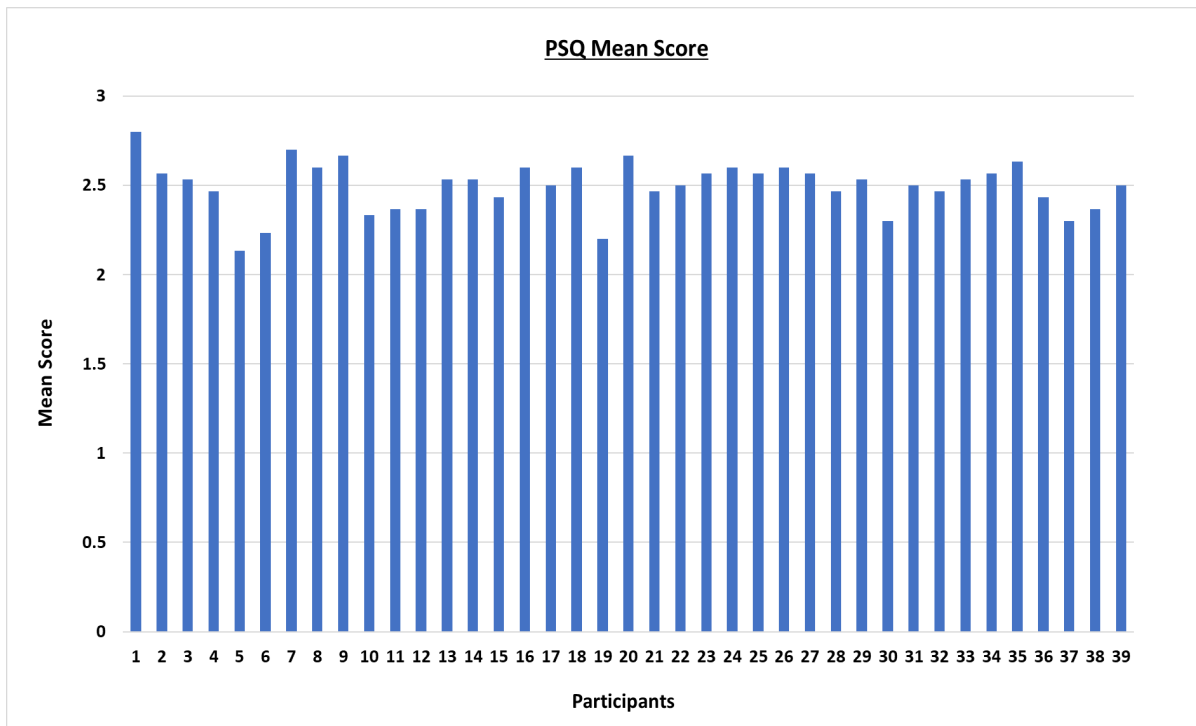


Fig 15: Bar diagram depicting mean scores obtained by all the 39 participants in the PSQ.

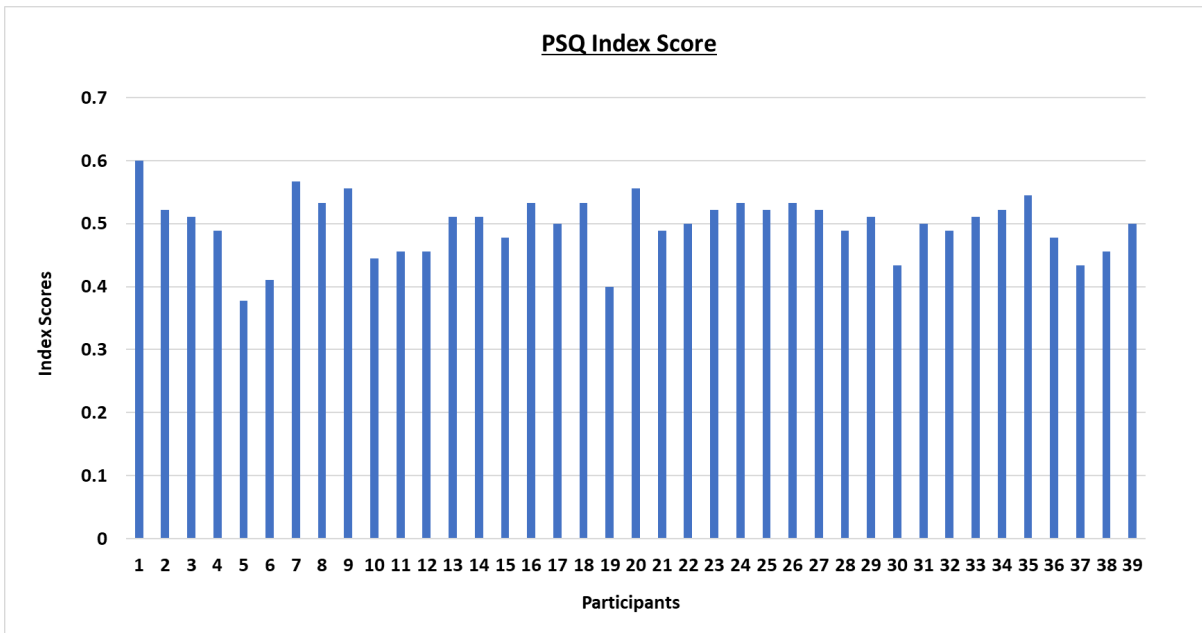


Fig 16: Bar diagram depicting index scores obtained by all the 39 participants in the PSQ.

Chi-square test for independence was conducted between the items, “How do you describe your body image?” and “Have you faced any challenges with body image acceptance due to being non-binary?” from the non-standardised scale for body image in order to understand any significant relation between perceived body image and challenges faced for the same in non-binary individuals (Fig 20). The results of the test concluded that $p\text{-value} = 0.38$, which proves to be not significant in respect to the threshold significance level $\alpha = 0.05$, suggesting in the context of the study, that perhaps the subjective description about one’s own body image in non-binary individuals has little to do with the social as well as personal challenges faced by them, and may hint at the presence of multiple underlying determinants leading to confrontation with such challenges for non-binary individuals that shall be the content of exploration and understanding via further research.

<i>f_o</i>	Challenges in body image acceptance due to non-binary identity		Total
	Yes	No	
Neutral	3	2	5
Negative	22	4	26
Very Negative	7	1	8
Total	32	7	39

Fig 17: Observed frequency (*f_o*) table for Chi-square test for independence conducted between the items, “How do you describe your body image?” and “Have you faced any challenges with body image acceptance due to being non-binary?”

<i>fe</i>	Challenges in body image acceptance due to non-binary identity		Total
Body Image Description	Yes	No	
Neutral	4.102564103	0.897435897	5
Negative	21.33333333	4.666666667	26
Very Negative	6.564102564	1.435897436	8
Total	32	7	39

Fig 18: Expected frequency (*fe*) table for Chi-square test for independence conducted between the items, “How do you describe your body image?” and “Have you faced any challenges with body image acceptance due to being non-binary?”

$(fo-fe)^2/fe$	Challenges in body image acceptance due to non-binary identity	
Body Image Description	Yes	No
Neutral	0.296314103	1.354578755
Negative	0.020833333	0.095238095
Very Negative	0.028946314	0.132326007

Fig 19: Squared residuals table for Chi-square test for independence conducted between the items, “How do you describe your body image?” and “Have you faced any challenges with body image acceptance due to being non-binary?”

χ^2	1.928236607
df	2
p-value	0.381319259
Interpretation	No significant relationship between the two variables

Fig 20: Chi-square test for independence conducted between the items, “How do you describe your body image?” and “Have you faced any challenges with body image acceptance due to being non-binary?”

Another chi-square test for independence was conducted between the items, “How do you describe your body image?” and “How often do you experience minority stress (discrimination, microaggression, violence)?” from the same scale (Fig 24), whose results concluded that p-value = 0.89, proving no signifi-

cance at the threshold significance level $\alpha = 0.05$, suggesting similarly that one's subjective description of one's own body image in non-binary individuals lacks close relation between their frequency of experiencing stress as a result of social discrimination, subtle forms of aggression, as well as violence due to constituting, statistically, a minority status in a larger population in the context of a broader social or cultural environment.

<i>f_o</i>	Body Image Description			Total
Microstress frequency	Neutral	Negative	Very Negative	
Rarely	0	1	0	1
Daily	3	17	5	25
Weekly	1	7	2	10
Monthly	1	1	1	3
Total	5	26	8	39

Fig 21: Observed frequency (*f_o*) table for Chi-square test for independence conducted between the items, "How do you describe your body image?" and "How often do you experience minority stress (discrimination, microaggression, violence)?"

<i>f_e</i>	Body Image Description			Total
Microstress frequency	Neutral	Negative	Very Negative	
Rarely	0.128205128	0.666666667	0.205128205	1
Daily	3.205128205	16.666666667	5.128205128	25
Weekly	1.282051282	6.666666667	2.051282051	10
Monthly	0.384615385	2	0.615384615	3
Total	5	26	8	39

Fig 22: Expected frequency (*f_e*) table for Chi-square test for independence conducted between the items, "How do you describe your body image?" and "How often do you experience minority stress (discrimination, microaggression, violence)?"

$(f_o - f_e)^2 / f_e$	Body Image Description		
Microstress frequency	Neutral	Negative	Very Negative
Rarely	0.128205128	0.166666667	0.205128205
Daily	0.013128205	0.006666667	0.003205128
Weekly	0.062051282	0.016666667	0.001282051
Monthly	0.984615385	0.5	0.240384615

Fig 23: Squared residuals table for Chi-square test for independence conducted between the items, "How do you describe your body image?" and "How often do you experience minority stress (discrimination, microaggression, violence)?"

χ^2	2.328
df	6
p-value	0.88719878
Interpretation	No significant relationship between the variables

Fig 24: Chi-square test for independence conducted between the items, “How do you describe your body image?” and “How often do you experience minority stress (discrimination, microaggression, violence)”

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Results:

Stress Levels: According to PSQ guidelines, all participants indicated moderate levels of stress.

Moderate stress levels over time may be a sign of functional deficits and allostatic overload hazards.

Body Image Dissatisfaction: Although there was a high level of body image dissatisfaction, there was no discernible correlation between it and the difficulties non-binary people encounter (χ^2 p-value = 0.38).

Minority Stress: Self-reported body image did not correlate with the frequency of minority stress experiences (such as discrimination and microaggressions) (χ^2 p-value = 0.89).

Mental Health Outcomes: Social functioning and emotional control issues were associated with moderate stress levels.

Discussions:

The findings highlight that why non-binary individuals experience significant body image dissatisfaction, and its impact on social and minority stress-related challenges remain unclear. However, the cumulative effect of moderate stress levels can lead to chronic psychological and functional impairments. These results show the importance of addressing the unique stressors faced by non-binary individuals through tailored mental health interventions and policies.

Limitations and Gaps in the study:

The study's shortcomings include a homogeneous sample selected from online platforms and LGBTQ+ support groups, which may result in selection bias, and a small sample size of 39 participants, which limits the findings' generalisability. Its cross-sectional approach makes it impossible to draw conclusions about causality or investigate long-term correlations between factors including mental health, minority stress, and body image dissatisfaction. Social desirability bias is introduced when self-reported data is used, and validity and reliability are jeopardised when a non-standardized body image scale is employed. The results might not be

applicable in other cultural contexts because they are contextually restricted to non-binary people in India. Furthermore, the study does not take into account unmeasured factors like physical health, coping strategies, or social support, which could offer a more thorough picture of participants' experiences. It also lacks an intersectional perspective.

Future Research Implications:

To identify causal linkages and long-term mental health effects, future research on non-binary people should focus on bigger and more diverse samples, such as those from rural areas and a range of socioeconomic backgrounds, and use longitudinal designs. It will be easier to capture the complex experiences influenced by intersecting identities such as caste, religion, and sexual orientation if you use validated, culturally appropriate methods and take an intersectional approach. Along with examining other stresses like healthcare access and employment discrimination, studies should look into protective variables including resilience, community support, and access to mental health resources. Customised treatments, such as stress management techniques and body image therapy, as well as cross-cultural comparative studies, can improve comprehension and assistance for non-binary groups.

Conclusions:

This study provides insight into the lives of non-binary people by highlighting the frequency of minority stress, body image dissatisfaction, and perceived stress, even if there are no statistically significant connections between these variables and difficulties associated with gender identity. The results emphasise the cumulative effect of long-term stress on social functioning and emotional regulation, highlighting the necessity of culturally aware policies and inclusive mental health interventions. To effectively address the particular difficulties faced by non-binary people and promote acceptance, inclusivity, and mental health awareness to improve their well-being, future research should concentrate on larger, more varied samples, longitudinal designs, and protective variables.

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