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Declarations

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Aging Anxiety in Pakistani Gen Z: AAS Scores and Perceptions of Genetic Influence

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ABSTRACT

Background: Aging Anxiety, formerly considered as a condition of older adults, is also commonly observed among the younger age groups. **Objective:** The purpose of this study was to explore the anxiety of aging among Generation Z in Pakistan by combining psychological testing with perceptions of genetic effects on mental health and aging processes. **Methods:** The survey was a cross-sectional study of 106 respondents of age 17-28 years in the month of June 2025, through a structured questionnaire on Google Forms. The data contained demographics, caregiving status, use of social media and education level. The aging score was covered with the help of the Anxiety about Aging Scale (AAS). In addition, questions involving genetics were posed to establish the awareness of genetic mental health and age-related diseases. The meaning of results was determined by comparing with p -value ($p < 0.05$). **Results:** Findings showed that 66 % of respondents thought that genetics has a contribution in mental health and aging anxiety, 62% had family longevity, and 15% had a family history of age-related diseases like Alzheimer or Parkinson disease. Mean AAS score was a little higher in female (66.78) than in males (66.47). In all demographics, the scores exceeded the midpoint (60) of the AAS scale (20-100 score), suggesting a notable trend toward aging anxiety above the scale midpoint. The results revealed no significant differences in anxiety scores across gender, residential background, or caregiving status. **Conclusion:** This study shows aging anxiety has developed in Generation Z in Pakistan and needs to be addressed in future studies.

Keywords

Aging, Anxiety, Gen Z, Genetic, Mental health, Social

INTRODUCTION

Mental disorders constitute a global public health problem that is widespread in nearly all countries worldwide (1), including anxiety as one of them (2). Being a psychological problem, the subject of aging anxiety was given increased consideration by the representatives of Generation Z (Gen Z), who are also heavily affected by the perception of age (3). The aging anxiety construct is multidimensional and includes physical decline, cognitive anxiety, changes in social roles, and death salience (4). Terror Management Theory offers a theoretical perspective on the concept of aging anxiety among young adults (5) and statistical studies have shown that thoughts of death and old age may cause defense in younger adults who, at that stage, might lack effective coping skills to face their own mortality (3). The accelerated change in society, changing family life, and extensive exposure of young people to the media are among the factors that shape young people's attitudes towards aging and mental health (6). Social media has provided an unknown level of exposure to aging-related content and intergenerational comparisons due to the digital age (7). It has been shown that the patterns of social media use in Gen Z are linked to anxiety, especially in social comparison mechanisms and fear of missing out (FOMO) (6).

The scales used to measure aging anxiety have changed tremendously, and validated tools such as the Anxiety about Aging Scale (AAS) have proven to have good psychometric characteristics in different populations. New psychometric proposals have come up with validated measurement tools, and the Anxiety about Aging Scale (AAS) and its various variants have been demonstrated to be very reliable with a high diversity of populations (8). The measurement innovations provide priceless tools for determining aging problems over the lifespan, particularly in the younger population, where geriatric assessments may not be relevant (9). The AAS scale developed by Lasher and Faulkender is the subject of the multidimensional approach to the explanation of anxiety about aging and the conceptual and psychometric issues of the corresponding measures. The scale is now among the most trendy scales that offer the chance to measure aging anxiety in younger and older adults (10).

Genetic differences explain a significant part of the variation in individual susceptibility to mental disorders, which emphasizes the biological nature of psychological well-being. As an illustration, a genome-wide association study revealed genetic variations associated with anxiety and stressful disorders, focusing on the fact that the proportion of heredity of these phenotype types is approximately 28%, implying that genetic

variation has a complex yet quantifiable effect on anxiety disorders (11). Longitudinal studies in later adulthood suggest that the heritability of anxiety symptoms might be age-related, perhaps as a result of physiological alterations that are related to aging and may enhance genetic effects on anxiety (12). Spreading awareness of genetic concepts has been identified as the most critical step (13). This study focused on age-related anxiety, which is rapidly increasing, and genetic factors.

MATERIALS AND METHODS

STUDY DESIGN

The study employed a cross-sectional survey design, aimed at examining the problem of aging anxiety among Gen Z, Pakistan. The research was accompanied by a psychological assessment and research on family and genetic beliefs in relation to mental health and aging.

DATA COLLECTION AND ETHICAL APPROVAL

The survey was conducted via a structured questionnaire, which was conducted through Google Forms and enabled the respondents to fill the questionnaire at their convenience. Data was collected in June 2025. The informed consent was written in the first part of the form and stated the aim of the research, anonymity of the answers and the right of the participants to drop out of the study at any point without repercussions. The ones who participated in the questionnaire were only those that gave their consent to take part in the study. The study was reviewed and received ethical approval by the Ethical Review committee of D. G. Khan Medical College, Dera Ghazi Khan (Approval letter No.: 449/MED/DGKMC/4/11/2025).

INSTRUMENTS

Aging anxiety was measured by Anxiety about Aging Scale (AAS). The participants were given the AAS that has been validated to measure the concerns of the subjects about aging. It assesses various aspects, such as psychological issues, physical looks, and the fear of loss. The scoring of responses is done based on the level of anxiety, where an increase in response scores indicates an increase in anxiety levels. This study has formulated genetics-based questions to test the perceptions of the participants concerning the genetic impact on mental health and aging anxiety, and to gather data on family history of anxiety disorders, other psychiatric disorders, longevity, and age-related illnesses (e.g., Alzheimer and Parkinson). The rating of items was on a 3-point scale (yes/no/maybe).

RESULTS

The study included 106 participants, including 43 males (40%) and 63 females (60%). The demographic characteristics (frequency and percentage) with respect to gender are shown in Table 1.

Table 1: Frequency (n) and percentages of demographics gender-wise

Variables	Category	Male: n (%)	Female: n (%)	Total (%)
Age	17-20	12(54)	10(46)	22(21)
	21-24	20(36)	35(64)	55(51)
	25-28	11(38)	18(62)	29(27)
Locality	Rural	16(44)	20(56)	36(34)
	Urban	27(38)	43(62)	70(66)
Education Level	Matric	16(34)	31(66)	47(44)
	Intermediate	12(66)	5(34)	17(17)
	Graduate	4(100)	0(0)	4(4)
	Postgraduate	11(29)	27(71)	38(36)
Caregiving Status of Elders	Caregiver	25(48)	26(52)	51(49)
	Non caregiver	18(32)	37(68)	55(51)
Social Media Usage (Hours)	<1	3(60)	2(40)	5(5)
	1-3	15(44)	19(56)	34(32)
	3-5	12(39)	19(61)	31(29)
	5+	13(35)	23(65)	36(35)
Total		43(40)	63(60)	106 (100)

Table 1 shows that out of 106 respondents, 22 participants (21%) were aged 17–20 years, 55 participants (51%) were aged 21–24 years, and 29 participants (27%) were aged 25–28 years. In terms of locality, 36 participants (34%) belonged to rural areas, while 70 (66%) were from urban areas. Regarding education, 47 participants (44%) had completed Matric, 17 participants (17%) had completed Intermediate, 4 participants (4%) were graduates, and 38 participants (35%) were postgraduates. Caregiving status showed that 51 participants (49%) were caregivers of the elderly, whereas 55 participants (51%) were non-caregivers. With respect to social media use, 5 participants (5%) reported usage of less than one hour daily, 34 participants (32%) reported one to three hours, 31 participants (29%) reported three to five hours, and 36 participants (35%) reported more than five hours.

Table 2: Genetic and diagnostic factors of respondents

Queries	Yes: n(%)	No: n(%)	Maybe: n(%)	Total
Do you believe genetics play a role in mental health and aging anxiety?	70(66)	12(11)	24(22)	106
Do any of your close family members (parents, siblings) have a diagnosed anxiety disorder?	30(29)	65(61)	11(10)	106
Do any of your close family members have other mental health conditions (e.g., depression, bipolar disorder)?	32(30)	61(58)	13(12)	106
Is there a history of longevity (living past 80 years) in your family?	66(62)	25(24)	15(14)	106
Is there a history of age-related diseases (e.g., Alzheimer's, Parkinson's) in your family?	16(15)	85(80)	5(5)	106

Among the 106 respondents, most of them (66%), felt that genetics contributes towards mental health and anxiety due to aging, with 11% disagreeing and 22% being undecided. In terms of family history of anxiety disorders, 29% reported the close family history of an anxiety disorder, 61% were sure they did not have such a history, and 10% were unsure. On the same note, 30 % of the respondents reported that their family members had a different mental condition like depression or bipolar disorder, 58 % had none, and 12 % were not sure. Query about the longevity

of the family members reported, 62% had a history of long-lived members (80 years), 24% did not, and 14% were unsure about it. Conversely, 15% of the respondents said that there was a family history of age-related conditions (like Alzheimer or Parkinson), but most (80%) said not, and 5% were not sure. Table 2 discusses the rest of this information.

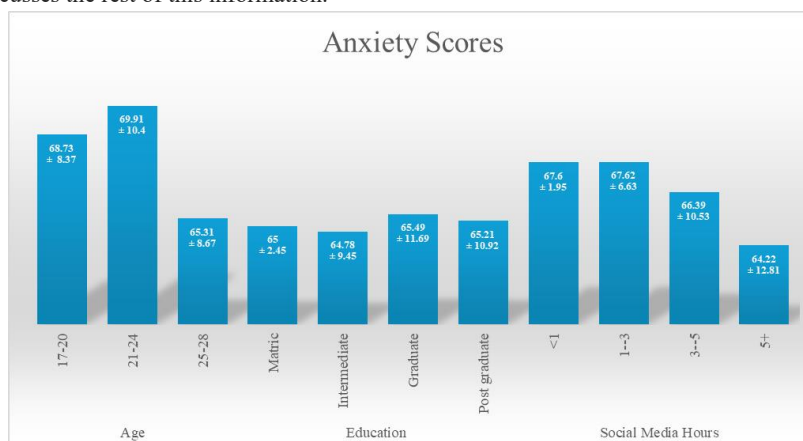


Figure 1 Mean and Standard Deviation of Anxiety Scores

The means and standard deviations of anxiety scores across demographic groups are shown in Figure 1. In terms of age, participants aged 21–24 years reported the highest mean anxiety score ($M = 69.91$, $SD = 10.40$), whereas those aged 25–28 years had the lowest mean ($M = 65.31$, $SD = 8.67$). Regarding education, anxiety scores were fairly consistent across groups, with mean scores ranging from 64.78 to 65.49, indicating that educational attainment did not significantly affect anxiety score. In terms of social media use, participants who spent less than one hour ($M = 67.6$, $SD = 1.95$) or one–three hours ($M = 67.62$, $SD = 6.63$) on social media displayed moderate anxiety scores, while those who spent five or more hours daily ($M = 64.22$, $SD = 12.81$) had slightly lower mean scores, suggesting no clear or direct relationship between social media use and anxiety.

Table 3: Differences in Score of Anxiety between Male and Female

Variables	Levene's Test for Equality of Variances				t-test for Equality of Means				95% Confidence Interval of the Difference		
	Mean	SD	F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Male	66.47	9.069	0.647	0.423	-0.192	105	0.848	-0.316	1.647	-3.583	2.950
Female	66.78	7.843									
Rural	66.06	8.287	0.120	0.730	-0.528	105	0.598	-0.902	1.707	-4.288	2.483
Urban	66.96	8.374									
NCG	67.49	9.611	5.721	0.019	1.071	105	0.287	1.722	1.608	-1.466	4.909
CG	65.77	6.665									

Gender differences were also evident, with females ($M = 66.78$, $SD = 7.84$) exhibiting slightly higher anxiety scores than males ($M = 66.47$, $SD = 9.07$), suggesting that females may experience slightly higher anxiety. To assess the statistical significance difference in anxiety score among male and female inferential statistics were applied and independent sample t-test was conducted that is depicted in Table 3. It represents an independent-sample t-test that was conducted to compare score of anxiety among Male and Female. There were insignificant difference ($t(105) = -0.192$, $p = 0.848$) in the score with mean score for Male ($M = 66.47$, $SD = 9.069$) was lower than the Female ($M = 66.78$, $SD = 7.843$). The magnitude of the differences in the mean (mean difference = -0.316, 95% CI: -3.583 to 2.950) was insignificant. Hence, results conclude that there is no significant difference in score of Anxiety among the genders. The t-test to compare the anxiety score between Rural and Urban respondents indicates that there is no significant difference ($p = 0.598 > 0.05$) of perceiving anxiety (Rural: $M = 66.06$, $SD = 8.287$, Urban: $M = 66.96$, $SD = 8.374$). This insignificant difference implying that the living environment of urban resident has limited influence on anxiety. The test for not Caregiving (NCG) and Caregiving (CG) shows that there is insignificance ($p = 0.287 > 0.05$) relation for score of Anxiety (No: $M = 67.49$, $SD = 9.611$, Yes: $M = 65.77$, $SD = 6.665$).

DISCUSSION

This study explored aging anxiety among Gen Z individuals in Pakistan by integrating psychological and genetic dimensions to better understand the emerging concerns of youth regarding the aging process. The findings highlight that anxiety about aging is not limited to older populations but is increasingly relevant among younger generations who are exposed to rapid social, cultural, and technological changes.

GENDER

Several studies have documented a higher female participation rate in mental health research, which aligns with greater openness among women to discuss psychological concerns and engage in such studies (14). Our study also had more female respondents than males. Another study has persistently shown that women are more willing to answer mental health surveys and report more symptoms of anxiety and depression than are men. Also, that, the risk of suicide was found to be much higher in girls, while the risk of harm to others was much higher in boys (15). In the present study, females exhibited a higher mean anxiety score ($M = 66.78$, $SD = 7.84$) than males ($M = 66.47$, $SD = 9.07$), suggesting that women may experience greater anxiety overall, which aligns with global patterns of gender-based differences in mental health. This gender disparity can be partly explained by social and cultural factors that ensure that women are more inclined to accept and seek assistance in mental health problems, whereas men tend to show less acknowledgment because of stigma.

AGE AND LOCALITY

Regarding the age group and urban population, the overwhelming presence of 21-24 years of urban population is evidence of a higher level of mental health awareness among educated people in their early twenties (16). College or university students are older, so their athletic involvement and health improvement behaviors are worse (17). There is an increasing trend in the use of digital mental health interventions (DMHIs) to treat anxiety, depression, and ADHD mental conditions (18). Cities tend to offer more opportunities to obtain education, healthcare facilities, and information about mental health, which may enhance the level of awareness and desire to conduct research on the psychological state and aging process (19). Research on young adults has established that young adults in high education settings and urban areas have a higher percentage of participation and awareness of mental health issues than their rural counterparts, who might not be highly exposed to mental health issues and might also be hindered by cultural or infrastructural factors. Consistent with these findings, participants aged 21-24 years in this study showed the highest mean anxiety score ($M = 69.91$, $SD = 10.40$), indicating that anxiety tended to increase from adolescence to early adulthood. Moreover, urban participants reported slightly higher anxiety score ($M = 66.96$, $SD = 8.37$) than did rural participants ($M = 66.06$, $SD = 8.29$), although the difference is statistically insignificant, it could highlight increased mental health awareness and greater exposure to psychological and environmental stressors commonly experienced in urban settings.

GENETICS

Within the last ten years, psychiatric genetics has made significant progress in providing a better understanding of the genetic basis of psychiatric conditions and enabling precision psychiatry, in which personal genetic characteristics can inform personal risk analysis and clinical decision-making (20). The theory of the genetic impact on mental health has long been suspected to vary according to environmental risk factors (21). Despite the differences in the clinical manifestations of these disorders, their etiologies are similar in terms of their genetic nature, implying the possibility of hereditary risk factors that overlap and cause the appearance of mental disorders (1). Even in the psychiatric field, it is rare to find elements that describe at least 5 % of the variance, but inherited genetic variations can explain up to 50% (22). This finding demonstrates that mental health problems are genetic. In the current study, a majority (66%) of respondents perceived genetics plays a role in mental health and aging anxiety, supporting the notion that Gen Z individuals acknowledge hereditary influences on psychological well-being. This is the reason that mental health professionals and genetic counselors overlap with these variables in the case of mental and genetic disorders (23). The psycho-social-genetic education can prepare youths with the mindfulness of how the environment stressors and genetic tendencies combine to determine the mental health outcomes (24). This approach enables positioning mental health as a complex interaction between biology and experience and is more advanced to avoid a fatalistic approach and encourage proactive mental health care (25).

OTHER FACTORS

Moreover, the researchers found that the anxiety level was slightly greater but statistically insignificant in participants who did not have a caregiver ($M = 67.49$, $SD = 9.61$) compared to the participants who had caregivers ($M = 65.77$, $SD = 6.67$) despite the fact that genetic disposition is also present. The results of a study done in Israel with informal caregivers of older adults show that higher caregiving burden is linked to greater aging anxiety and increased negative affect, while resilience mitigates these effects (26). Perceived age stereotypes were positively associated with aging anxiety in regard to psychosocial factors. A study done by Yang emphasizes that cultural ideals of youth, frequent exposure to age-stereotyped information, and fear of declining health or attractiveness are major psychosocial drivers of aging anxiety (27). The study done in Korea focuses on older adults supports the general mechanism that media exposure influences people's perceptions of aging (28). Another cross-sectional study of 404 young adults found that higher social media usage was significantly associated with greater social appearance anxiety, body-image dissatisfaction and lower self-esteem (29). Similarly, a study of Chinese university students found that increased engagement with social media heightened appearance anxiety by shaping aesthetic standards (30). Although previous studies have linked excessive social media use with increasing aging anxiety, our study did not find a statistically significant relationship between social media exposure and aging anxiety. This may highlight the sample size limitations, self report bias, or contextual differences in how social media is used within Pakistani Gen Z population.

CONCLUSION

Aging anxiety is an increasing psychological problem among Pakistani Gen Z individuals and a multifaceted social, cultural, and genetic condition. The results indicated that younger adults, especially 21-24 years old, and females had greater levels of aging anxiety, and females overall had higher mean anxiety scores than males. Caregivers had relatively lower rates of anxiety, which demonstrated the protective value of social and family support. Most respondents (66%) acknowledged the role of genetics in anxiety regarding aging. The study reveals that anxiety about aging in young people is influenced not only by changes in psychosocial conditions and exposure to digital technologies, but also by increased control over genetics, which is why it is essential to incorporate psycho-genetic education in mental health awareness campaigns to develop more healthy attitudes toward aging.

LIMITATIONS

The limitations of this study include the use of convenience sampling, reliance on self-reported data, a cross-sectional design, potential selection bias toward urban or university-based participants, and the absence of clinical cutoff criteria. Future survey-based studies can improve upon these limitations by employing randomized sampling methods, incorporating longitudinal designs, ensuring more diverse participant representation, and utilizing validated clinical assessment measures.

Data Availability: Data and coding are available from the corresponding author if needed. **Ethical Approval:** Ethical approval was obtained under letter No.: 449/MED/DGKMC/4/11/2025.

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