E-ISSN 2775-4243
P-ISSN 2798-5083
ASCARYA JOURNAL ISCS

Generalized Anxiety Disorder Level Among Employees and Students after Conflicts in Duhok City

Musaab Abdulhafidh Zainal Arezi

University of Duhok– Institute of Psychotherapy and Psychotraumatology, Kurdistan Region – Iraq; msab_2005@yahoo.com
ORCID: https://orcid.org/0009-0006-7522-3040

Article History
Received: 2025-05-28
Revised: 2025-06-28
Accepted: 2025-06-29
Published: 2025-07-04

Keywords
Generalized Anxiety Disorder, Mental Health, Gender Differences, Occupational Stress, Kurdistan Region.

Citation: Arezi, M. (2025). Generalized Anxiety Disorder Level Among Employees and Students after Conflicts in Duhok City. Ascarya: Journal of Islamic Science, Culture, and Social Studies, 5(1), 99–116. https://doi.org/10.53754/iscs.v5i1.758.

Abstract

This study aimed to determine the level of Generalized Anxiety Disorder (GAD) among residents in Duhok City, after a series of trauma and conflicts, examine gender differences in GAD levels, and assess variations across different job categories and age groups. A descriptive, analytical cross-sectional design was employed using the DSM-5 Severity Measure for Generalized Anxiety Disorder – Adult. The study utilized simple random sampling to recruit 1,430 participants from various locations in Duhok city. The data were processed through descriptive statistics, one-sample t-test, independent samples t-test, and one-way ANOVA. Results showed a high prevalence of GAD among the population by (24.6% mild, 12.2% moderate, and 3.3% sever), with females experiencing significant higher (52.1%) compared to male by (27.8%). There were also significant variations across occupational groups, and the highest anxiety level was seen amongst the non-governmental employees, followed by government employees and students. Variations by age showed that the anxiety levels were higher amongst the older age group compared to the younger age groups. These results are helpful for planning specially targeted mental health intervention and policy in the region.

DOI: https://doi.org/10.53754/iscs.v5i1.758

Check for updates

Public Interest Statement

After many conflicts in Duhok City, anxiety and psychological stress have increased among different social groups, and people have reflected that in the economic issues of post-conflict. Many individuals experience exaggerated thoughts of excessive worry, which may indicate an underlying mental health condition, such as Generalized Anxiety Disorder. Understanding who is most affected is essential for planning appropriate interventions and support.

This study aimed to:

- Assessing the severity of Generalized Anxiety Disorder (GAD) in Duhok City.
- Compare GAD levels among students, government employees and non-governmental employees.

Introduction

Generalized Anxiety Disorder (GAD) is one of the most common mental disorders worldwide, characterized by persistent and excessive worry about all types of tasks or other things in daily life, which cannot be easily controlled. More recent epidemiological data have shown that anxiety disorders affect approximately 4.05% of the global population, equivalent to approximately 301 million people, with a staggering increase of over 55% between 1990 and 2019 (Javaid et al., 2023). The prevalence of anxiety is particularly high in certain regions, with countries such as Portugal, Brazil, Iran, and New Zealand having some of the highest rates globally (Javaid et al., 2023).

The World Health Organization (2023) reports that anxiety disorders are associated with considerable impairment of functioning on a daily basis and quality of life and thus constitute a deserving public health priority requiring more attention, particularly in nations lacking research in mental health. Anxiety disorders can significantly impact quality of work or functioning to a large degree, with research suggesting that employees suffering from anxiety disorders have more than 1.5 times the risk of absent work for two weeks or longer and more than double the risk of poor work performance compared to those who are not anxious (Workplace Mental Health, 2023).

Kurdistan of Iraq, including Duhok city, has experienced deep socio-political changes, war, conflict, and economic hardship in recent decades. These circumstances have the potential to contribute to psychological distress among residents; however, comprehensive data on mental disorders in the region remain scarce. Duhok's unique economic, political, and cultural contexts provide a critical setting for investigating anxiety patterns and their determinants (Böge,2022).

Over the past 12 years, the people of Kurdistan, especially in Duhok, have suffered wave after wave of trauma and turmoil. They started in 2011 with Syrian refugees pouring into Duhok (Migration Policy Center, 2012). In 2012, political instability and economic disputes with Baghdad hit hard (SUEUAA, 2020). Things got worse again in 2013: ISIS orchestrated the Shinghal genocide, and the Peshmerga initiated their long fight against the terrorists, a conflict that dragged on until 2018 (Kurdistan24, 2020). On top of this, in 2014, government staff salaries were cut off by 30–40% as the government promised to pay them later, and some years the government staff received no salaries for 2–5 months; these torturous cuts and unpaid wages continued to happen right through to 2025 (SUEUAA, 2020). By the time the war against ISIS was over, over 1,466 Peshmerga (Kurdish military) had been killed, of which over 800 were from Duhok (Al-Kaisy et al., 2021). In 2017, shortly after the independence referendum for Kurdistan, Iraqi soldiers pushed out the Peshmerga and took control of Kirkuk with military force, along with Iran and Turkey (Human Rights Watch, 2017). Then, the COVID-19 pandemic struck the world in 2019. It has been one layer of hardship after another for the people here. Even before that period, wars and conflicts were always present in all decades (Böge et al., 2022). Gender differences in anxiety disorders are among the most replicable psychiatric epidemiological findings. Recent studies have affirmed that women have significantly higher rates of anxiety disorders than men. Females (3.4%) had a substantially higher past-year prevalence of GAD than males (1.9%) based on National Institute of Mental Health data (2022) in the United States. Such. It has been consistently reported across cultures, with proof of complex interactions between biological risk factors and sociocultural determinants.

Farhane-Medina et al. (2022) performed a systematic review of the factors related to anxiety prevalence and comorbidity gender discrepancies. Both psychosocial and biological factors were identified in their own review of literature published between 2008 and 2021 as the factors that affect such disparities. Among psychosocial variables, masculinity was found to be a protective factor against the development of anxiety, whereas femininity was a potential risk factor. Biological variables, such as differences in brain organization, genetic factors, and shifts in hormone levels, were also discovered to include women in susceptibility to anxiety disorders. De Sio et al. (2018) also examined gender differences in the gender difference in the association between job insecurity and anxiety and concluded that men and women may perceive workplace factors differently.

Workplace factors exert significant influences on anxiety levels, and various workplace features predict a higher risk of anxiety disorders. According to the National Alliance on Mental Illness NAMI (2024), work problems are an important cause of mental health concerns among workers, and employees who express less ease in discussing mental health at work have greater levels of burnout and mental health issues. The report further states that employees who receive mental health training in the workplace feel more at ease discussing mental health issues and enjoy better access to appropriate care.

Statistics from the Society for Human Resource Management (2024) further reflect that anxiety has taken over as the number-one mental health issue in the workplace, with nearly a quarter (24%) of those who received mental health assistance in 2023 having received such assistance for anxiety. This is significantly higher than in previous years, and anxiety did not even appear in the top five presenting issues in 2017. According to 45% of respondents, the cost of living and financial concerns were the main reasons for poor mental health in 2024. Spill (2024) stated that 17 million days of work per year are lost globally due to ill health caused by work-related stress, depression, or anxiety (Spill, 2024).

Age trends in anxiety disorders present a complex picture that continues to evolve over time. While previous knowledge has pointed toward diminishing anxiety with increasing age, ongoing studies have discovered more intricate patterns. In 2023, in a JAMA Network Open cross-sectional study, Collier Villaume et al. (2023) found that the COVID-19 pandemic had found anxiety and depression more common in adults aged 18-39 years (40%) compared to adults older than 40 years (31%). Precarity and greater reactivity to changing pandemic conditions were

identified as variables associated with the age gap. Similar findings were reported by Goodwin et al. (2020), who noted increasing trends in anxiety among young adults between 2008 and 2018.

Interestingly, research conducted among adolescents and young adults has specifically identified unhealthy trends in anxiety disorders. A 2024 report by Bie et al. (2024) reviewed worldwide trends in anxiety disorders among the 10-24-year-old population from 1990 to 2021 and found a 52% rise in the worldwide incidence of anxiety disorders among this age group, which was much higher among the 10-14-year age group and post-2019. The World Health Organization (2024) estimates that 4.4% of 10-14-year-olds and 5.5% of 15-19-year-olds worldwide have an anxiety disorder. Carrasco et al. (2022) clarified that cognitive functioning differences across the life span may also account for differences in the anxiety experience across the life span.

Anxiety and demographic factors interact in complex and multifaceted ways. While both demographic and biological factors contribute to anxiety vulnerability, gender socialization, occupational stressors, and difficulties during a given stage of life are sociocultural factors that contribute significantly to anxiety vulnerability (McLean, Asnaani, Litz, & Hofmann, 2011). The National Mental Health Survey (2024) by the American Psychiatric Association revealed that 43% of U.S. adults reported being more anxious last year than in the previous year, up from 37% in 2023 and 32% in 2022, highlighting the growing nature of this public health crisis.

Several treatment approaches for anxiety disorders have been indicated in previous studies. Mason et al. (2023) examined whether cognitive behavior therapy for insomnia had an impact on reducing anxiety symptoms in adults with comorbidities, whereas Mataix-Cols et al. (2021) conducted a meta-analysis of pharmacological adjuncts to exposure treatment of anxiety disorders. Ye et al. (2024) examined the effects of mindfulness-based cognitive therapy on depression and anxiety in late life. This study demonstrates ongoing efforts to develop successful interventions for anxiety across different populations.

Despite growing awareness of anxiety as a significant public health concern, there is extensive ignorance about its distribution and correlates within specific cultural contexts. In Iraq, including Duhok city, little research has explored the prevalence and trends of anxiety disorders. Due to the unique history, culture, and socioeconomic context of the given region, studies specifically aimed at this population need to be used for the purpose of setting up culturally appropriate mental health services and interventions.

This research aims to address such limitations by examining the prevalence of GAD in Duhok city and its correlation with key demographic variables such as gender, age, and occupation. Based on the empirical findings of such correlations, this study contributes to the explanation of anxiety disorders among diverse cultures and the planning of specific mental health interventions in the region.

Literature Review

GAD is a common mental disorder characterized by persistent and intrusive worry that makes the individual unable to manage various spheres of life. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), GAD is defined as persistent worry and fearfulness that affects more days than not for at least six months and is also associated with restlessness, fatigue, trouble concentrating, irritability, muscle tension, and sleep problems (American Psychiatric Association, 2022). Understanding the prevalence, correlates, and implications of GAD in diverse populations will help formulate and craft viable public health interventions and plans.

Current world epidemiological data show worrisome trends in anxiety disorders on an international platform. Approximately 4.05% of the world's population is affected by anxiety disorders, with prevalence rates consistently increasing since 1990 (Javaid et al., 2023). The number of people affected increased by more than 55% from 1990 to 2019, both due to greater awareness of these conditions and potentially due to new environmental risks. These trends suggest that anxiety disorders are becoming an increasingly significant public health burden with substantial implications for health systems and society.

Huang et al. (2019) made cross-sectional epidemiological survey in China that then was confirmed the high rates of anxiety disorders, in a large regional variation within China. This study emphasized the importance of considering local social and economic conditions while examining anxiety trends. Similarly, Silva et al. (2018) examined generalized anxiety disorder and associated factors among Brazilian adults in the Amazonas state, highlighting how anxiety presents in other cultural and geographical contexts.

The incidence of anxiety disorders varies significantly by region and setting. Javaid et al. (2023) identified Portugal as having the highest prevalence rate (8.67 cases per 100,000 population), followed by Brazil, Iran, and New Zealand. The geographical disparity suggests that cultural and environmental factors have a significant influence on the reported rates. Importantly, anxiety can increase with socioeconomic development, urbanization, and population aging, suggesting complex sociodemographic determinants of anxiety disorders.

Gender differences in anxiety disorders are among the most significant findings in psychiatric epidemiology. Based on a systematic review by Farhane-Medina et al. (2022) on gender- and sex-related factors influencing anxiety prevalence, women have persistently higher rates of anxiety disorder incidence than men. Based on a review of articles from to 2008-2021, they showed that both biological and psychosocial reasons underlie these differences. Among psychosocial factors, masculinity appeared to be a buffer against anxiety, whereas femininity acted as a risk factor. Biological factors involving differences among brain structures, genetic effects, and hormonal fluctuations have been revealed to contribute to the increased susceptibility of women to anxiety disorders.

The National Institute of Mental Health (2022) suggests that the past-year prevalence of generalized anxiety disorder was 3.4% in females compared to 1.9% in males, and lifetime prevalence suggests similar disparities. These gender disparities appear to cross cultures, suggesting underlying biological and/or socialization factors that are independent of specific cultures. However, the presentation and adaptation to anxiety symptoms may vary by culture, emphasizing the importance of employing a sensitive strategy for assessment and treatment according to cultural contexts.

War, violence, or chronic poverty tends to leave a non-material legacy: persistent fear that colors everything in every day (Steel et al., 2009; Lund et al., 2010). It appears as sleepless nights, chronic exhaustion, and mysterious bodily pains, such as chest tightness that does not cease or headaches that refuse to depart (American Psychiatric Association, 2013). However, in violent or impoverished communities, those experiencing symptoms will account for them differently. They may complain of having 'heart distress' or seek help from traditional healers without knowing that such physical aches are manifestations of emotional distress (Kirmayer & Young, 1998; Kohrt & Hruschka, 2010). With prohibition in their society, ignorance, and lack of mental health centers, most suffer in silence for decades before they can get proper care

De Sio et al. (2018) directly researched gender variation in the interaction between job insecurity and anxiety and discovered that workplace factors may operate differently in men and women. Their research showed that recognizing gender-specific risk factors is necessary to correctly prescribe effective workplace interventions. The Anxiety and Depression Association of America (2023) further explains that women are twice as likely to be affected by GAD as men, and gender differences are present for most anxiety disorders.

Occupational factors significantly influence anxiety levels, with various workplace characteristics associated with an increased risk of anxiety disorders. Recent research indicates that workplace anxiety has become increasingly prevalent and now represents the top mental health issue in American workplaces. According to the Society for Human Resource Management (2024), nearly a quarter (24%) of people who obtained mental health assistance in 2023 did so due to anxiety, a record high compared to previous years. The high cost of living and money problems were the most frequent reasons for poor employee mental health in 2024, accounting for 45% of the references.

The impact of anxiety disorders on job performance is significant. Workplace Mental Health (2023) reports that anxiety disorders account for a mean of 5.5 lost workdays per month (presenteeism), and employees with anxiety disorders have more than 1.5 times the risk of missing two weeks or more of work compared to those who do not have anxiety. Kavelaars et al. (2023) investigated the burden of anxiety among a nationally representative sample of US adults, confirming the substantial economic and social burden of anxiety disorders. Spill (2024) reported that 17 million working days are lost annually due to work-related stress, depression, and anxiety, representing over 50% of all work-related ill health cases.

Different occupational groups may have varying risks of anxiety. National Alliance on Mental Illness (2024) found that workplace factors play a significant role in the mental health of employees, with workers who feel less comfortable discussing mental health in the workplace experiencing more burnout and mental health problems. Their study revealed that employees receiving mental health training within their workplace feel more comfortable discussing mental health and have better access to quality treatment; hence, workplace interventions can be very beneficial in the management of anxiety.

Anxiety disorder patterns throughout the life course show complex developmental trajectories that persist. While traditional wisdom suggests that anxiety diminishes over the life course, recent research has determined more complex patterns. A 2023 cross-sectional survey by Collier Villaume et al. (2023) examined age variations in anxiety during the COVID-19 pandemic and revealed that anxiety was significantly higher in adults aged 18-39 years (40%) than in those aged 40 years and above (31%). Economic precarity and increased reactivity to changing pandemic circumstances were associated with age differences.

These results are in line with those of Goodwin et al. (2020), who examined trends in anxiety disorders among adults in the United States between 2008 and 2018. They reported steeply rising rates of anxiety among young adults relative to other age groups, indicating a changing demographic trend in vulnerability to anxiety. The Kaiser Family

Foundation (2023) reported that 50% of young adults, ages 18-24, experienced symptoms of depression and anxiety in 2023, while about a third of all adults experienced them, with young adults more likely to develop symptoms than adults of any other age. Specific studies on younger individuals have identified disturbing trends. A 2024 Frontiers in Psychiatry study by Bie et al. compared global trends in anxiety disorders in 10-24 years old from 1990 to 2021, with a 52% global rise in the incidence of anxiety disorders in this age bracket, with growth in the 10-14-year-old age bracket and after 2019. Females had higher prevalence rates across all age groups. Anderson et al. (2022) investigated anxiety and depression in college students and discovered varying patterns of symptom experiences compared to other populations.

The World Health Organization (2024) has indicated that anxiety disorders in adolescents have a higher frequency in older adolescents, with an estimated prevalence of 4.4% of 10-14-year-olds and 5.5% of 15-19-year-olds with an anxiety disorder globally. The consequences of this are a potential shift in the age trends for anxiety, with younger groups being more affected. This population trend in anxiety has profound implications for prevention and intervention.

The COVID-19 pandemic has had a striking influence on anxiety patterns globally. Centers for Disease Control and Prevention (2022) indicated increased symptoms of anxiety and depression in adults during the pandemic. Lokman et al. (2022) outlined some avenues to generalized anxiety disorder in and following the COVID-19 pandemic, including cognitive behavioral processes, exposure to online media, social isolation, and economic stress. These results indicate that large-scale global events can drastically impact anxiety patterns, with possibly long-lasting effects on mental health.

Cultural settings have a profound impact on the expression, interpretation, and regulation of anxiety symptoms. Sikström et al. (2023) compared the differences in the experience and description of depression and anxiety among young and middle-aged adults and concluded that both age groups emphasized different aspects of their mental health conditions. Middle-aged individuals emphasized depression and isolation more frequently, whereas anxiety was expressed more frequently by young adults. These findings suggest that age may influence life circumstances and symptom presentation in mechanisms influencing both prevalence and clinical presentation.

Wang et al. (2023) investigated the mediating effect of family health on the relationship between health literacy and Chinese mental health, highlighting the pivotal position of family and cultural aspects in anxiety expression and control. Their findings highlight the significance of culturally suitable strategies for preventing and curing anxiety. SingleCare (2025) determined that anxiety disorders have different prevalence rates across cultures, with differing patterns of expression reported in different societies.

The impact of socioeconomic factors on anxiety has also been established more clearly. Bie et al. (2024) found that middle Socio-Demographic Index (SDI) areas had the highest incidence and prevalence of anxiety disorders among adolescents and young adults, with high SDI areas experiencing the largest increases over time. These findings suggest a complex interplay between economic growth and susceptibility to anxiety, possibly due to changing social composition, expectations, and stressors associated with different stages of economic growth.

Previous research has highlighted the enormous social and economic impacts of anxiety disorders. The American Psychiatric Association's 2024 United States mental health survey showed that 43% of adults in the United States experienced increased anxiety relative to the previous year, up from 37% in 2023 and 32% in 2022. Adults, in particular, reported concerns about what is happening in the world (70%), specifically the economy (77%), the 2024 U.S. election (73%), and gun violence (69%). These findings highlight the need to consider broader societal forces when interpreting trends in anxiety.

Anxiety disorder treatment remains dynamic. Spiegelhalter et al. (2021) examined whether cognitive behavioral therapy for insomnia would improve anxiety symptoms among adults with comorbidities and found promising results. Mataix-Cols et al. (2021) conducted a meta-analysis of pharmacologic augmentation of exposure therapy in anxiety disorders, illustrating the efficacy of combined treatments. Ye et al. (2024) included positive mindfulness-based cognitive therapy outcomes for depression and anxiety in later life, suggesting the need for age-appropriate interventions. McKeon et al. (2021) developed a physical activity program based on mental health in first responders, mentioning the potential of lifestyle interventions to treat anxiety.

From a public health perspective, anxiety disorders are a significant individual and societal burden. However, there are enormous treatment gaps worldwide. The National Institute of Mental Health reports that, despite the availability of efficacious treatments, only 43.2% of individuals with GAD receive treatment. Stigma, unawareness, limited finances, and limited mental health resources are obstacles to treatment. Multifaceted interventions, such as enhanced

availability of services, reduced stigma, enhanced mental health literacy, and alternative service delivery models, are essential to overcome these obstacles.

Masdrakis et al. (2023) examined if improved recognition and treatment of anxiety disorders would reduce suicide, highlighting the severe consequences of untreated anxiety. Their findings suggest that early detection and treatment of anxiety disorders are part of suicide prevention. The University of St. Augustine for Health Sciences (2024) reported that anxiety disorders are associated with enormous healthcare costs and economic burdens, further highlighting their public health significance.

The Kurdish region of Iraq, including Duhok City, provides an interesting context for examining anxiety patterns, given its distinctive history, politics, and culture. However, little is known about anxiety disorders in this region. It is essential to develop culturally appropriate and effective mental health interventions to determine the prevalence and correlates of anxiety disorders in this group.

This research aspires to contribute to this literature by providing timely epidemiological data regarding GAD within the previously un-researched Duhok City population of the Kurdistan Region of Iraq. Through the examination of significant demographic and occupational correlates of GAD, this study aspires to ascertain high-risk populations and shed light on planning targeted interventions to lessen the burden of anxiety disorders in this population.

Materials and Methods

1. Study Design

This research employed a descriptive analytical cross-sectional design to examine the prevalence and correlates of GAD among the population of Duhok City. This design was selected to efficiently collect data at a single point in time and analyze the relationships between variables without manipulating the independent variables.

The target population for this study comprised adults living in Duhok city, excluding all surrounding districts and villages. The population included adults aged 18–50 years of both genders, employed individuals (both government and non-government employees), and university students in the academic year 2022–2023. This population was selected to provide a comprehensive representation of working-age adults in the urban area of Duhok.

2. Sampling Method

A simple random sampling method was chosen to ensure the representation of the whole community and minimize selection bias. Various locations within Duhok city were randomly selected as recruitment sites for the self-report scale with explanation of the interviewer, including university colleges, government directorates, shopping malls, markets, and other public areas. This approach helped ensure diversity in the sample across demographic and occupational categories of the participants.

3. Sample Size and Response Rate

A total of 1,500 questionnaires were distributed to the participants across the selected locations in Duhok city. After data collection, 70 questionnaires (4.7%) were excluded due to missing or unclear responses on the scale. The final sample consisted of 1,430 valid responses, with a response rate of 95.3%. This sample size was determined to be adequate for statistical analysis, with sufficient power to detect meaningful differences between the groups.

4. Sample Characteristics

The demographic characteristics of the final sample (N=1,430) are shown in Table 1.

Table 1. Demographic Characteristics of the Study Sample (N=1,430)

Characteristic	Category	Frequency	Percentage
Gender	Male	706	49.4%
	Female	724	50.6%
Age (years)	18-26	1,082	75.7%
	27-35	219	15.3%
	36-44	129	9.0%
Occupation	University students	753	52.9%
	Government employees	371	25.9%
	Non-government employees	305	21.1%

As shown in Table 1, the gender distribution was nearly equal, with a slightly higher percentage of female participants (50.6%) than male participants (49.4%). The majority of participants (75.7%) were young adults aged 18-26 years, while 15.3% were aged 27-35 years, and 9.0% were aged 36-44 years. Regarding occupation categories, more than half

of the participants (52.9%) were university students, followed by government employees (25.9%) and non-government employees (21.1%).

5. Assessment Tool

The study utilized the DSM-5 Severity Measure for Generalized Anxiety Disorder – Adult version as the primary assessment tool. This validated 10-item self-report questionnaire measures the severity of generalized anxiety symptoms in adults. The items represent the key symptoms of GAD, including excessive worrying, restlessness, difficulty relaxing, physical tension, and behavioral avoidance or reassurance-seeking behaviors.

Participants responded to each item using a 5-point Likert scale ranging from 0 to 4, where 0 = never, 1 = occasionally, 2 = half of the time, 3 = most of the time, and 4 = all of the time. The total score ranges from 0 to 40, with higher scores indicating greater anxiety symptom severity. The mean score (calculated by dividing the total score by 10) was used to classify anxiety severity into five categories: none (0), mild (1), moderate (2), severe (3), and extreme (4).

6. Cultural Adaptation and Translation

To ensure linguistic and cultural appropriateness, this assessment tool underwent a rigorous translation and adaptation process. The instrument was first translated into Kurdish and Arabic by a professional, legal translator. The translated versions were then checked by the researcher and two qualified psychologists to verify that they accurately represented the psychological symptoms measured in the original scale. This process helped maintain the psychometric properties of the instrument while making it accessible to the local population of Duhok city.

7. Data Collection Procedure

Data collection was conducted over a period of three months. To ensure that the collected data were accurate and reliable, the researcher implemented a standardized procedure for administering the questionnaires.

The researcher began by explaining the purpose of the study to the participants and emphasizing that participation in this study was voluntary. Confidentiality was guaranteed, and participants were informed that no personal identifying information could be recorded on the questionnaires. No names or phone numbers were collected to protect the participants' anonymity.

Before completing the questionnaire, all participants were asked if they understood all the items of the questionnaire, and the researcher remained available to clarify any questions. Participants were provided with adequate time to read, understand, and complete the questionnaire independently. Each completed questionnaire was reviewed for completeness before being included in the final dataset.

8. Ethical Considerations

This study adhered to the ethical research standards for human subjects. All participants participated voluntarily, and informed consent was obtained from all participants prior to data collection. The purpose of the study was clearly explained to all participants. All participants had the right to withdraw or refuse to participate at any time without any consequences.

Confidentiality was maintained throughout the research process and explanations. No information was collected regarding their identification on the questionnaires, and all the data were securely stored.

9. Statistical Analysis

The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) version 25. Statistical analyses were conducted in three main stages, corresponding to the research objectives.

First, descriptive statistics, including means, standard deviations, frequencies, and percentages, were calculated to describe the sample characteristics and the overall level of GAD. A one-sample t-test was used to compare the sample mean with the hypothetical mean to determine the significance of GAD level in the population.

Second, an independent samples t-test was employed to examine sex differences in GAD levels. This test allowed for the comparison of mean GAD scores between men and women to identify any statistically significant differences.

Third, one-way analysis of variance (ANOVA) was conducted to examine the differences in GAD levels within the age groups and occupational categories. When ANOVA results indicated significant differences, post-hoc tests were conducted to determine whether the specific groups differed from each other.

For all statistical analyses, a p-value of less than 0.05 was considered statistically significant. The results of these analyses provided comprehensive insights into the prevalence and correlates of GAD in this study population.

Table 2. GAD Level Among All Categories

				GAD symptom category											
				Minimal symptoms			Mild			Moderate			Sever		
				Count	Row N %	Column N %	Count	Row N %	Column N %	Count	Row N %	Column N %	Count	Row N %	Column N %
Male	Age Category	18-25	student	349	87.30%	90.40%	31	7.80%	60.80%	20	5.00%	80.00%	0	0.00%	0.00%
			government employee	7	53.80%	1.80%	6	46.20%	11.80%	0	0.00%	0.00%	0	0.00%	0.00%
			ungovernment employee	30	57.70%	7.80%	14	26.90%	27.50%	5	9.60%	20.00%	3	5.80%	100.00%
		26-33	student	10	58.80%	12.50%	7	41.20%	15.20%	0	0.00%	0.00%	0	0.00%	0.00%
			government employee	53	53.50%	66.30%	29	29.30%	63.00%	10	10.10%	62.50%	7	7.10%	70.00%
			ungovernment employee	17	47.20%	21.30%	10	27.80%	21.70%	6	16.70%	37.50%	3	8.30%	30.00%
		34-41	student	0	0.00%	0.00%	0	0.00%	0.00%	0	0.00%	0.00%	0	0.00%	0.00%
			government employee	36	52.90%	83.70%	20	29.40%	80.00%	10	14.70%	66.70%	2	2.90%	40.00%
			ungovernment employee	7	35.00%	16.30%	5	25.00%	20.00%	5	25.00%	33.30%	3	15.00%	60.00%
Female	Age Category	18-25	student	204	62.20%	64.20%	67	20.40%	37.00%	51	15.50%	52.60%	6	1.80%	28.60%
			government employee	48	47.50%	15.10%	45	44.60%	24.90%	6	5.90%	6.20%	2	2.00%	9.50%
			ungovernment employee	66	35.10%	20.80%	69	36.70%	38.10%	40	21.30%	41.20%	13	6.90%	61.90%
		26-33	student	2	33.30%	11.10%	4	66.70%	11.80%	0	0.00%	0.00%	0	0.00%	0.00%
			government employee	13	24.10%	72.20%	27	50.00%	79.40%	11	20.40%	100.00%	3	5.60%	100.00%
			ungovernment employee	3	50.00%	16.70%	3	50.00%	8.80%	0	0.00%	0.00%	0	0.00%	0.00%
		34-41	student	1	100.00%	10.00%	0	0.00%	0.00%	0	0.00%	0.00%	0	0.00%	0.00%
			government employee	6	16.70%	60.00%	15	41.70%	100.00%	10	27.80%	100.00%	5	13.90%	100.00%
			ungovernment employee	3	100.00%	30.00%	0	0.00%	0.00%	0	0.00%	0.00%	0	0.00%	0.00%
Total				**855**	**59.9%**		**352**	**24.6%**		**174**	**12.2%**		**47**	**3.3%**	

Results

1. Prevalence of GAD Among Employees and Students in Duhok City

To verify this objective, the arithmetic mean and standard deviation of the Generalized Anxiety Disorder scale scores were extracted, and to identify the statistical significance of the difference between the arithmetic mean and the hypothetical mean, the t-test was important for one sample.

Table 2 indicates the distribution (GAD) severity levels among Duhok City workers as 24.6% mild, 12.2% moderate, and 3.3% severe, distributed by age groups (18-25, 26-33, and 34-41 years), gender (male and female), and type of employment (students, government workers, and non-government workers). The table classifies GAD symptoms into four levels of severity: minimal, mild, moderate, and severe. The outstanding findings were as follows: 87.3% of male students aged 18-25 reporting largely minimal symptoms, with no one in the severe range; government employees reported lower proportions of severe anxiety in all age groups compared with non-government employees; females reported higher proportions in the mild, moderate, and severe ranges than males, with female government employees aged 34-41 reporting the highest proportion of severe symptoms (13.9%); age trends indicated that the 18-25 age group tended to report the highest proportion in the minimal symptoms range, while the 34-41 age group, particularly females in government service, reported higher proportions in the moderate and severe ranges. This table presents the breakdown of GAD severity across different groups in a clear manner, revealing patterns of anxiety levels within age, sex, and work status in Duhok City.

2. GAD Levels Across Demographic Groups: A Significance-Based Analysis

2.1 Significance of differences in GAD according to the gender variable

To verify this objective, the arithmetic mean and standard deviation of the GAD scale scores were extracted according to the gender variable, and to identify the statistical significance of the difference between the means of males and females, a t-test for two independent samples was used. The results are presented in Table (3).

Table 3. Result of the t-test between the mean scores of males and females

Gender * GAD symptom category Crosstabulation							
			GAD symptom category				Total
			Minimal symptoms	Mild	Moderate	Sever	
Gender	Male	Count	509	122	56	18	705
		% within Gender	72.2%	17.3%	7.9%	2.6%	100.0%
		% within GAD symptom category	59.5%	34.7%	32.2%	38.3%	49.4%
	Female	Count	346	230	118	29	723
		% within Gender	47.9%	31.8%	16.3%	4.0%	100.0%
		% within GAD symptom category	40.5%	65.3%	67.8%	61.7%	50.6%
Total		Count	855	352	174	47	1428
		% within Gender	59.9%	24.6%	12.2%	3.3%	100.0%
		% within GAD symptom category	100.0%	100.0%	100.0%	100.0%	100.0%

Table 3 summarizes the results of the t-test between GAD symptom severity among men and women in Duhok. The table is split into four types of symptom severity levels (minimal symptoms, mild, moderate, and severe) and contains both count data and percentages by gender and symptom type. The following main observations were made: males reported significantly lower levels of anxiety overall, with 72.2% reporting minimal symptoms compared to only 47.9% of females; females had more uniform rates in all symptom categories above minimal, with nearly twice the rate of mild cases (31.8% versus 17.3% for males); gender differences widened with greater severity of symptoms, as females reported higher percentages of moderate symptoms (16.3% versus 7.9%) and severe symptoms (4.0% versus 2.6%); and females constituted the majority of cases in all symptom categories above minimal (65.3% of mild cases, 67.8% of moderate cases, and 61.7% of severe cases) despite making up only 50.6% of the entire sample. These findings are consistent with established trends in the psychiatric epidemiology of persistently higher rates of anxiety in females and quantitatively verify significant sex differences in the severity of GAD in the Duhok City population.

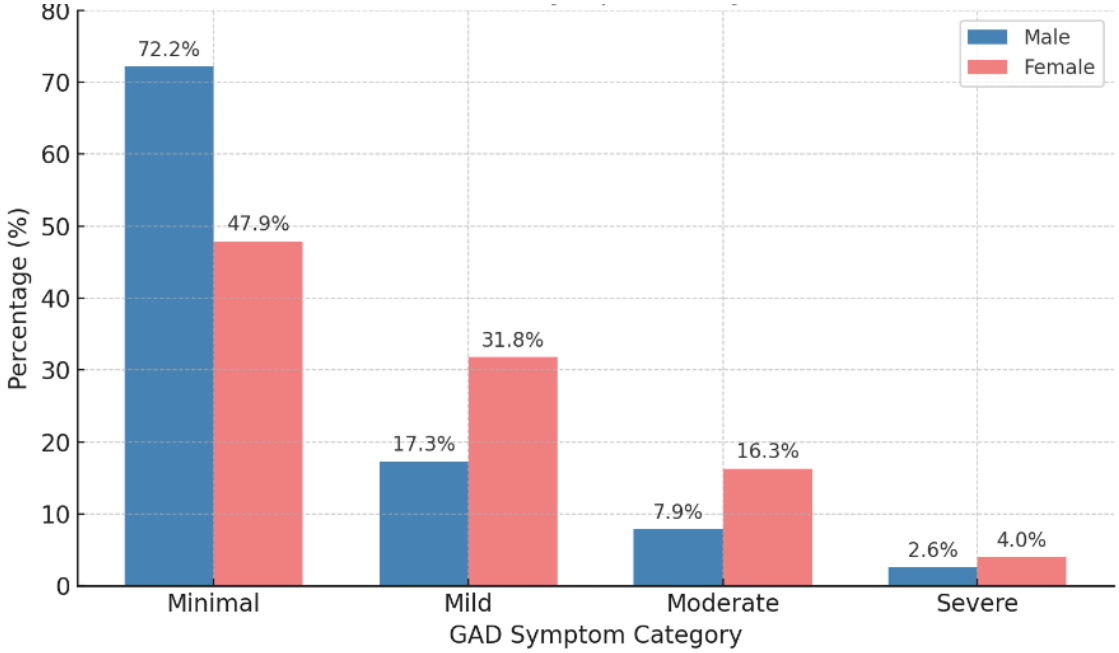

Figure 1. Gender differences within level of GAD

Figure 1 provides a visual comparison of GAD levels across male and female respondents, indicating noticeable differences in the proportions of mild, moderate, and severe anxiety symptoms between the two groups. Looking at these anxiety numbers, one thing jumps out immediately: women are dealing with much more anxiety than men at each phase of the pandemic. Overall, nearly a quarter of the participants reported having no anxiety. But among women? Less than half.

The gap continues to increase as the symptoms become more severe. Women reported almost twice as many mild cases (32%) compared to men (17%). Even when looking at the really heavy material, women do worse, with 4% reporting severe symptoms compared to men's 2.6%.

What is interesting is how it works across the entire spectrum. It is not only that women experience more anxiety - they experience more of all types of anxiety. The difference starts small with few symptoms but continues to accumulate as you progress through mild, medium, and severe levels.

These numbers are consistent with what has been observed in mental health for years. Women consistently report more anxiety, and these numbers provide solid figures behind that pattern. While extreme examples are relatively rare in both genders, women still end up with the extra burden.

2. Significance of differences in GAD according to the age variable

To verify this objective, the arithmetic mean and standard deviation of the GAD scale scores were extracted according to age, and to identify the statistical significance of the differences between the means, a one-way analysis of variance (ANOVA) was used. The results are presented in Tables (4) and (5).

Table 4. Arithmetic means and standard deviations of GAD scores according to the age variable

Age Category * GAD symptom category Crosstabulation							
			GAD symptom category				Total
			Minimal symptoms	Mild	Moderate	Sever	
Age Category	18-25	Count	704	232	122	24	1082
		% within Age Category	65.1%	21.4%	11.3%	2.2%	100.0%
		% within GAD symptom category	82.3%	65.9%	70.1%	51.1%	75.8%
	26-33	Count	98	80	27	13	218
		% within Age Category	45.0%	36.7%	12.4%	6.0%	100.0%
		% within GAD symptom category	11.5%	22.7%	15.5%	27.7%	15.3%

	34-41	Count	53	40	25	10	128
		% within Age Category	41.4%	31.3%	19.5%	7.8%	100.0%
		% within GAD symptom category	6.2%	11.4%	14.4%	21.3%	9.0%
Total		Count	855	352	174	47	1428
		% within Age Category	59.9%	24.6%	12.2%	3.3%	100.0%
		% within GAD symptom category	100.0%	100.0%	100.0%	100.0%	100.0%

Table 4 presents the distribution of Generalized Anxiety Disorder (GAD) severity levels across different age groups in Duhok City. The results demonstrated a clear pattern of increasing anxiety severity with advancing age. The youngest age group (18-25 years) showed the lowest anxiety levels, with 65.1% reporting minimal symptoms, which means non-disorder people, while this percentage dropped significantly to 45.0% for the 26-33 age group and further to 41.4% for the 34-41 age group, indicating less healthy people. Conversely, severe anxiety symptoms increased steadily with age, from 2.2% in the 18-25 group to 6.0% in the 26-33 group, and reached 7.8% in the oldest group (34-41 years). Similarly, moderate symptoms showed an age-related increase, affecting 11.3% of the youngest group, but rising to 19.5% among the oldest participants. Despite representing only 9.0% of the total sample, the 34-41 age group accounted for 21.3% of all severe cases. This finding indicates that while younger individuals (18-25) constitute the majority of the study population (75.8%), they demonstrate greater psychological resilience with regard to anxiety symptoms than their older counterparts, suggesting that life stressors and responsibilities may accumulate with age, potentially contributing to increased anxiety severity among older adults in Duhok City.

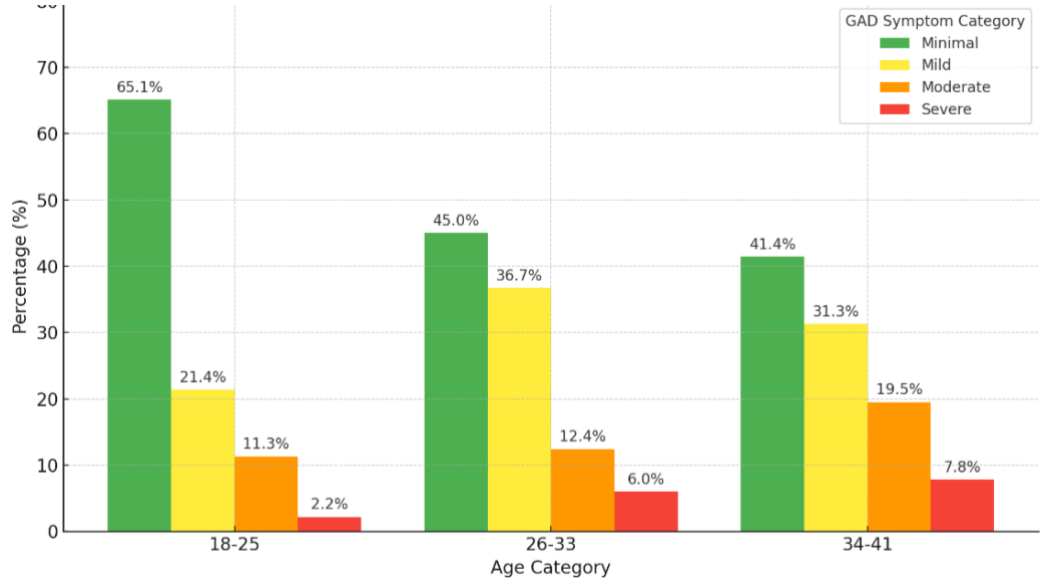

Figure 2. Age differences within level of GAD

Figure 2 highlights the differences in GAD levels across age groups, showing a clear trend of increasing anxiety symptoms with age. Younger adults (18-25) had lower GAD symptoms and severity, with 65% having minimal symptoms. However, these numbers change with age. In the 26–33-year age range, fewer people reported minimal symptoms (45%), and mild symptoms increased to 37%. The most distress is reported by the 34-41 age group, with severe symptoms close to 8% in this group, compared to just 2% for the youngest adults.

Anxiety symptoms gradually increased with each age bracket. The numbers depict what starts off as manageable stress for some in their early 20s has a tendency to get worse by their late 30s. This raises questions about how life stress and responsibilities accumulate over time.

Table 5. Results of one-way analysis of variance (ANOVA) for differences in the level of GAD according to the age variable

Source	Sum of Squares	df	Mean Square	F-value (calculated)	F-value (tabular)	Significance
Between Groups	2464.324	2	1232.162			
Within Groups	41806.640	1426	29.317	42.028	3.00	0.000
Total	44270.964	1428				

Table (5) that the calculated F-value reached (42.028), which is greater than the tabular F-value of (3.00) at degrees of freedom (2-1426) and a significance level of (0.000), indicating that there are statistically significant differences in the level of GAD according to age.

3. Significance of differences in GAD according to the occupation variable

To verify this objective, the arithmetic means and standard deviation of the GAD scale scores were extracted according to the occupation variable, and to identify the statistical significance of the differences between the means, a one-way analysis of variance (ANOVA) was used. The results are presented in Tables (6) and (7).

Table 6. Arithmetic means and standard deviations of GAD scores according to the occupation variable

Job career * GAD symptom category Crosstabulation							
			GAD symptom category				Total
			Minimal symptoms	Mild	Moderate	Sever	
Job career	student	Count	566	109	71	6	752
		% within Job career	75.3%	14.5%	9.4%	0.8%	100.0%
		% within GAD symptom category	66.2%	31.0%	40.8%	12.8%	52.7%
	government employee	Count	163	142	47	19	371
		% within Job career	43.9%	38.3%	12.7%	5.1%	100.0%
		% within GAD symptom category	19.1%	40.3%	27.0%	40.4%	26.0%
	non-government employee	Count	126	101	56	22	305
		% within Job career	41.3%	33.1%	18.4%	7.2%	100.0%
		% within GAD symptom category	14.7%	28.7%	32.2%	46.8%	21.4%
Total		Count	855	352	174	47	1428
		% within Job career	59.9%	24.6%	12.2%	3.3%	100.0%
		% within GAD symptom category	100.0%	100.0%	100.0%	100.0%	100.0%

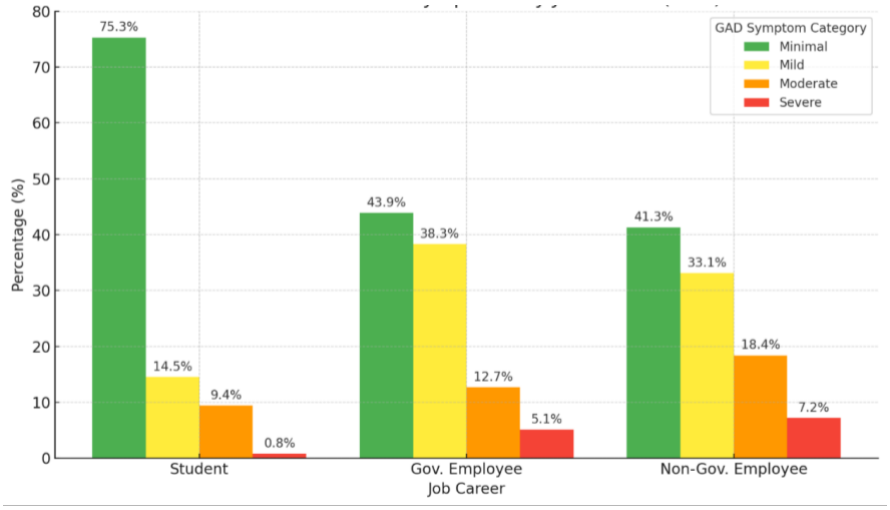

Figure 3. Career differences within level of GAD

Figure 3 presents the distribution of GAD symptoms by career status, contrasting students with government and non-government employees. Students showed the strongest mental health outcomes, with 75% reporting minimal

symptoms and less than 1% experiencing severe symptoms. This group had fewer GAD symptoms and was healthier than the teacher groups. Government employees displayed moderate GAD levels compared to the other two groups, with a near-even split between minimal (44%) and mild symptoms (38%). Non-government employees showed the lowest minimal symptoms (41%) and highest severe cases (7.2%), nearly double the rates of other groups. The data reveal a clear severity gradient: students are the most resilient, government workers are intermediate, and private sector employees are the most vulnerable. Strikingly, non-government workers accounted for 47% of all severe cases, despite comprising only 21% of the sample.

Table 7. Results of one-way analysis of variance (ANOVA) for differences in the level of GAD according to the occupation variable

Source	Sum of Squares	df	Mean Square	F-value (calculated)	F-value (tabular)	Significance
Between Groups	8432.849	2	4216.424			
Within Groups	35838.116	1426	25.132	167.772	3.00	0.001
Total	44270.964	1428				

Table 7 shows that the calculated F-value reached (167.772), which is greater than the tabular F-value of (3.00) at degrees of freedom (2-1426) and a significance level of (0.001), indicating that there are statistically significant differences in the level of GAD according to the occupation variable.

Discussions

The present study provides valuable findings about the prevalence of GAD and its correlates among residents of Duhok City in the Kurdistan Region of Iraq. The findings revealed high levels of anxiety in the study population, with significant differences between gender, age, and occupation groups. These results provide further insight into anxiety disorders in this largely understudied region and have important implications for mental health service delivery and policy design.

Our findings of a high prevalence of GAD among the Duhok population (24.6% mild, 12.2% moderate, and 3.3% severe) are consistent with the literature. These data are consistent with global trends reporting an increase in the incidence of anxiety disorders. Javaid et al. (2023) reported a 55% increase in global anxiety disorders from 1990 to 2019, currently affecting approximately 301 million people worldwide. The elevated levels of anxiety reported in Duhok City can reflect both global trends and regional-specific stressors, such as war histories, economic crises, and ongoing sociopolitical changes. The total of our finding is

The gender disparities in anxiety identified in our study, with 47.9% of females scoring under minimal symptoms but 52.1% within the GAD level, demonstrating significantly higher GAD compared to males, with 72.2% scoring under minimal symptoms and 28.8% within the GAD level, correspond with well-established patterns in psychiatric epidemiology. This finding is supported by the recent research by Farhane-Medina et al. (2022), who, in a systematic review of gender- and sex-relevant predictors of anxiety prevalence, identified psychosocial and biological mechanisms underlying gender differences in anxiety, where masculinity was protective and femininity was a risk factor. The National Institute of Mental Health (2022) also reported a greater incidence of GAD among women (3.4%) than among men (1.9%).

The sex disparity detected in our study can be attributed to several reasons. Biological factors such as hormonal contributions and stress response system differences do contribute, but sociocultural dimensions are no less crucial in explaining these gender differences. De Sio et al. (2018) established that workplace environments could affect men and women differently, with the former potentially being more exposed to anxiety in certain workplaces. Within the specific cultural context of Kurdistan, conventional gender roles can intensify such variations, with women likely subjected to stressors that revolve around balancing family expectations on the one hand and educational or career aspirations in a changing society. These findings highlight the need for gender-sensitive prevention and intervention for anxiety in this group.

Our findings on trends by age in anxiety showed progressive severity by age group (18-25, 26-33, and 34-41 years), with older respondents reporting significantly higher levels of anxiety than younger age groups for all severities of GAD. This trend contrasts with that reported in some recent Western studies. For example, Collier Villaume et al. (2023) identified increased anxiety levels among young adults (18-39 years) in contrast to those aged 40 and above during the COVID-19 pandemic. Likewise, the Kaiser Family Foundation (2023) stated that anxiety symptoms were found in half of adults aged 18-24 in comparison to approximately a third of adults in general.

This divergent outcome may be a result of certain contextual conditions in the Kurdistan Region and Duhok City. Older adults may have experienced greater cumulative exposure to historical conflicts, political upheaval, and economic challenges. Bie et al. (2024) described cross-regional variations in anxiety patterns, and different

socioeconomic environments manifested different age trends. The elevated anxiety in older participants in our study might therefore be an articulation of the distinct historical and cultural context of this population.

Carrasco et al. (2022) stated that age differences in the cognitive ability of individuals may influence the manifestation or preservation of anxiety across the lifespan, providing an additional potential explanation for our findings. Moreover, older persons in Duhok could also face particular challenges regarding healthcare access, economic exposure, and changing family composition, all of which would contribute to higher levels of anxiety. This finding contrasts with that of Goodwin et al. (2020), who indicated the largest rise in anxiety among young adults in America, from which one might conclude that cultural and historical contexts need to be included to interpret age trends for mental health.

The variations in occupation for levels of GAD represented a further significant pattern, with students reporting the lowest levels of anxiety, followed by government employees, with non-government employees reporting the highest anxiety scores. These inequalities are consistent with recent research on workplace mental health. The Society for Human Resource Management (2024) has placed anxiety as the number one mental health issue in the workplace, with economic worry and uncertainty as key contributing factors. Spill (2024) reported that 17 million working days are lost annually due to stress, depression, and anxiety due to work, highlighting the impact of mental health on workplace functionality.

The relatively lower anxiety levels in students despite only academic stressors may reflect lower financial burdens, smaller social support networks, and greater future opportunities, and most of them are young, with no children or other responsibilities. Anderson et al. (2022) noted differential patterns of anxiety among college students and other populations, suggesting that student status has some resilience to academic stressors. Conversely, a high level of anxiety among non-governmental staff likely reflects the rough economic environment of the region, characterized by unstable job security, unpredictable income sources, and heightened exposure to market fluctuations. Kavelaars et al. (2023) noted the high rate of anxiety among working adults, with occupational settings being an important factor.

Government employees, as mid-levels of anxiety are exposed, may have differing stressors on the matter of financial burden when it comes to the cut-off, deferment, and unpaid wages. The National Alliance on Mental Illness (2024) found that organizational settings, including comfort in open discussions of mental health concerns, are key determinants of worker well-being. Their research provides evidence for employee mental health training in better outcomes, potentially serving as a gateway to addressing interventions in workplace settings where workers' anxiety levels are heightened.

These employment differences need to be interpreted in the broader socioeconomic context of Duhok and the Kurdistan Region. Recent economic struggles, including fluctuating oil prices, tardy public sector wages, and regional uncertainty, are most likely to account for these observed anxiety trends, particularly among working adults. Workplace Mental Health (2023) has indicated the significant impact of anxiety on work performance, including increased absenteeism, presenteeism, and reduced productivity. Our findings suggest the need for workplace interventions for mental health, particularly in the private sector, where anxiety appears to be most intense.

From a public health perspective, our findings suggest the need for specifically targeted mental health interventions in Duhok City. Gender, age, and occupational group-based differences in severity imply that standardized measures may be insufficient. Tailor-made programs that address the specific stressors and vulnerabilities of distinct demographic subgroups are likely to be more effective. Mataix-Cols et al. (2021) and Mason et al. (2023) have demonstrated the efficacy of a range of treatment approaches towards anxiety disorders and how evidence-based treatments may be tailored for this population.

For instance, workplace interventions in non-government employees for stress management and coping with job insecurity could be aimed at the high-risk group identified in this study. Ye et al. (2024) documented the positive effects of mindfulness-based cognitive therapy for anxiety disorders in older adults, offering a potentially useful approach for the high-risk older group identified in our study. McKeon et al. (2021) have developed a lifestyle intervention for managing of anxiety which could be adapted to various groups, including those our study uncovered.

This study contributes to the existing scholarship on anxiety disorders in multicultural populations. By providing evidence from a previously understudied region, this study contributes to the library of universal tendencies and culture-specific manifestations of anxiety. The findings of this study show that while some aspects of anxiety disorders, such as gender differentiation, are relatively consistent across cultures, others, such as age patterns, may also be more culture-modifiable. These differences may be relevant not only to global mental health initiatives but also to interventions tailored to specific cultures.

Subsequent research can assess the effectiveness of culturally informed interventions against anxiety in this population and test for hypothesized protective factors that might act as a buffer against anxiety in at-risk populations. Longitudinal study designs that track anxiety progression over time would further specify causal processes and inform prevention efforts. Qualitative research into the lived experiences of anxious persons in this culture might provide valuable insights to complement the quantitative findings here.

Conclusions

This study provides comprehensive evidence of significant GAD levels among residents of Duhok City, with a score of (59.9% minimal symptoms, 24.6% mild, 12.2% moderate, and 3.3% severe), with clear patterns of variation across gender, age, and occupational categories. Female participants, older age groups, and non-governmental employees demonstrated the highest anxiety levels; thus, females are more vulnerable than males. People between 34-41 are more effected followed by 24-33 the 18-24. Students are less affected, followed by government employees and then non-government employees. These findings highlight the need for prioritizing these groups for intervention. The findings contribute valuable epidemiological data from an understudied population, which can offer insights for developing targeted mental health services in the region. Future research is important to explore the effectiveness of culturally appropriate interventions and address specific needs for identifying high-risk groups, as well as investigating potential protective factors that might mitigate anxiety in this population. Additionally, longitudinal studies examining anxiety trajectories over time would enhance our understanding of causal mechanisms and inform preventive approaches.

Author Contributions: Conceptualization, M.A.Z.A.; methodology, M.A.Z.A.; software, M.A.Z.A.; validation, M.A.Z.A.; formal analysis, M.A.Z.A.; investigation, M.A.Z.A.; resources, M.A.Z.A.; data curation, M.A.Z.A.; writing—original draft preparation, M.A.Z.A.; writing—review and editing, M.A.Z.A.; visualization, M.A.Z.A.; supervision, M.A.Z.A.; project administration, M.A.Z.A. The author has read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki and approved by the Institutional Review Board (or Ethics Committee) of the University of Duhok, Institute of Psychotherapy and Psychotraumatology.

Informed Consent Statement: Informed consent was obtained from all the participants involved in the study.

Declaration of Generative AI: Not applicable, as there is no indication that generative AI or AI-assisted technologies were used in the writing process of this manuscript.

Acknowledgments: We would like to acknowledge the support of the University of Duhok– Institute of Psychotherapy and Psychotraumatology for facilitating the research environment and the participants who voluntarily contributed to this study by sharing their responses on the GAD assessment scale.

Conflicts of Interest: The author declares no conflicts of interest.

References

1. Al-Kaisy, M. M., et al. (2021). War injuries and mortalities among Peshmerga fighters. *Medical Journal of Babylon*, 18(1), 1–6. https://doaj.org/article/45d1de80d8d6466c868747c1be51bd66
2. American Psychiatric Association. (2024). American Adults Express Increasing Anxiousness in Annual Poll; Stress and Sleep are Key Factors Impacting Mental Health. Retrieved from https://www.psychiatry.org/news-room/news-releases/annual-poll-adults-express-increasing-anxiousness
3. Anderson, M. N., Lempke, L. B., Johnson, R. S., Lynall, R. C., & Schmidt, J. D. (2022). Concussion characteristics and early postinjury outcomes between college students and intercollegiate athletes. *Archives of Physical Medicine and Rehabilitation*, *103*(2), 323-330. https://doi.org/10.1016/j.apmr.2021.09.013
4. Anxiety and Depression Association of America. (2023). Facts & Statistics: Anxiety Disorders. Retrieved from https://adaa.org/understanding-anxiety/facts-statistics
5. Association, N. a. P. (2013). *Diagnostic and Statistical Manual of Mental Disorders*. https://doi.org/10.1176/appi.books.9780890425596
6. Bie, F., Yan, X., Xing, J., Wang, L., Xu, Y., Wang, G., Wang, Q., Guo, J., Qiao, J., & Rao, Z. (2024). Rising global burden of anxiety disorders among adolescents and young adults: trends, risk factors, and the impact of socioeconomic disparities and COVID-19 from 1990 to 2021. *Frontiers in Psychiatry*, *15*. https://doi.org/10.3389/fpsyt.2024.1489427
7. Böge, K., Hahn, E., Strasser, J., Schweininger, S., Bajbouj, M., & Karnouk, C. (2022). Psychotherapy in the Kurdistan region of Iraq (KRI): Preferences and expectations of the Kurdish host community, internally

displaced-and Syrian refugee community. *International Journal of Social Psychiatry*, *68*(2), 346-353. https://doi.org/10.1177/0020764021995219

8. Böge, K., Hahn, E., Strasser, J., Schweininger, S., Bajbouj, M., & Karnouk, C. (2021). Psychotherapy in the Kurdistan region of Iraq (KRI): Preferences and expectations of the Kurdish host community, internally displaced- and Syrian refugee community. *International Journal of Social Psychiatry*, *68*(2), 346–353. https://doi.org/10.1177/0020764021995219.
9. Carrasco, P. M., Crespo, D. P., Rubio, C. M., & Montenegro-Peña, M. (2022). Loneliness in the elderly: association with health variables, pain, and cognitive performance. A population-based study. *Clinical and Health*, *33*(2), 51-58. https://doi.org/10.5093/clysa2021a14
10. Center for Disease Control and Prevention. (2024). Symptoms of anxiety and depression among adults: United States, 2019 and 2022. Retrieved from https://www.cdc.gov/nchs/data/nhsr/nhsr213.pdf
11. Centers for Disease Control and Prevention. (2020). Symptoms of Generalized Anxiety Disorder Among Adults: United States, 2019. NCHS Data Brief, (378), 1-8. https://pubmed.ncbi.nlm.nih.gov/33054928/
12. Collier Villaume, S., Finkelstein-Fox, L., & Ford, J. L. (2023). Age Disparities in Prevalence of Anxiety and Depression Among US Adults During the COVID-19 Pandemic. *JAMA Network Open*, 6(11), e2345073. https://doi.org/10.1001/jamanetworkopen.2023.45073
13. ComPsych Corporation. (2023). Mental Health-Related Leaves of Absence Report. Retrieved from https://www.compsych.com/resources
14. De Sio, S., Cedrone, F., Trovato Battagliola, E., Buomprisco, G., Perri, R., & Greco, E. (2018). The perception of psychosocial risks and work-related stress in relation to job insecurity and gender differences: A cross-sectional study. *BioMed research international*, *2018*(1), 7649085. https://doi.org/10.1155/2018/7649085
15. Farhane-Medina, N. Z., Luque, B., Tabernero, C., & Castillo-Mayén, R. (2022). Factors associated with gender and sex differences in anxiety prevalence and comorbidity: A systematic review. *Science Progress*, 105(4), 00368504221135469. https://doi.org/10.1177/00368504221135469
16. Geller, D., Gerardi, M., Gurak, K., Hanson, H. L., Korslund, K. E., Levy, H. C., McLean, C. P., McGuire, J. F., ... & Simon, N. M. (2021). D-Cycloserine augmentation of exposure-based cognitive behavior therapy for anxiety, obsessive-compulsive, and posttraumatic stress disorders: Systematic review and meta-analysis of individual participant data. JAMA Psychiatry, 78(3), 301-309. https://doi.org/10.1001/jamapsychiatry.2020.4153
17. Goodwin, R., Weinberger, A. H., Kim, J. H., Wu, M., & Galea, S. (2020). Trends in anxiety among adults in the United States, 2008–2018: Rapid increases among young adults. *Journal of Psychiatric Research*, 130, 441-446. https://doi.org/10.1016/j.jpsychires.2020.08.014
18. Guglielmo, D., Murphy, L. B., Theis, K. A., Boring, M. A., Helmick, C. G., Watson, K. B., Duca, L. M., Odom, E. L., Liu, Y., & Croft, J. B. (2021). Walking and Other Common Physical Activities Among Adults with Arthritis — United States, 2019. MMWR Morbidity and Mortality Weekly Report, 70(40), 1408–1414. https://doi.org/10.15585/mmwr.mm7040a3
19. Huang, Y., Wang, Y., Wang, H., Liu, Z., Yu, X., Yan, J., Yu, Y., Kou, C., Xu, X., Lu, J., Wang, Z., He, S., Xu, Y., He, Y., Li, T., Guo, W., Tian, H., Xu, G., Xu, X., ... & Wu, Y. (2019). Prevalence of mental disorders in China: a cross-sectional epidemiological study. *The Lancet Psychiatry*, 6(3), 211-224. https://doi.org/10.1016/S2215-0366(18)30511-X
20. Human Rights Watch. (2017). *Iraq: Events of 2017*. https://www.hrw.org/world-report/2018/country-chapters/iraq
21. Javaid, S. F., Hashim, I. J., Hashim, M. J., Stip, E., Samad, M. A., & Ahbabi, A. A. (2023). Epidemiology of anxiety disorders: global burden and sociodemographic associations. Middle East Current Psychiatry, 30(1), 44. https://link.springer.com/article/10.1186/s43045-023-00315-3
22. Kaiser Family Foundation. (2023). Latest Federal Data Show That Young People Are More Likely Than Older Adults to Be Experiencing Symptoms of Anxiety or Depression. Retrieved from https://www.kff.org/mental-health/press-release/latest-federal-data-show-that-young-people-are-more-likely-than-older-adults-to-be-experiencing-symptoms-of-anxiety-or-depression/
23. Kavelaars, R., Ward, H., Modi, K. M., & Mohandas, A. (2023). The burden of anxiety among a nationally representative US adult population. *Journal of Affective Disorders*, 336, 81-91. https://doi.org/10.1016/j.jad.2023.04.069
24. Kirmayer, L. J., & Young, A. (1998). Culture and somatization: Clinical, epidemiological, and ethnographic perspectives. Psychosomatic Medicine, 60(4), 420–430. https://pubmed.ncbi.nlm.nih.gov/9710287/

25. Kohrt, B. A., & Hruschka, D. J. (2010). Nepali concepts of psychological trauma: The role of idioms of distress, ethnopsychology, and ethnophysiology in alleviating suffering and preventing stigma. Culture, Medicine, and Psychiatry, 34(2), 322–352. https://doi.org/10.1007/s11013-010-9170-2
26. Kurdistan24. (2020). *ISIS carried out 456 operations in 2018: Peshmerga*. https://www.kurdistan24.net/en/story/381662
27. Lokman, J. C., & Bockting, C. L. (2022). Pathways to depressive and anxiety disorders during and after the COVID-19 pandemic. *The Lancet Psychiatry*, *9*(7), 531-533. https://www.thelancet.com/journals/lanpsy/article/PIIS2215-0366(22)00152-3/fulltext
28. Lund, C., Breen, A., Flisher, A. J., Kakuma, R., Corrigall, J., Joska, J. A., ... & Patel, V. (2010). Poverty and common mental disorders in low- and middle-income countries: A systematic review. Social Science & Medicine, 71(3), 517–528. https://doi.org/10.1016/j.socscimed.2010.04.027
29. Masdrakis, V. G., Konstantopoulou, S., & Baldwin, D. S. (2023). Could improved recognition and treatment of anxiety disorders lead to a reduction in suicide? Human Psychopharmacology: Clinical and Experimental, 38(5), e2879. https://doi.org/10.1002/hup.2879
30. Mason, E. C., Grierson, A. B., Sie, A., Sharrock, M. J., Li, I., Chen, A. Z., & Newby, J. M. (2023). Co-occurring insomnia and anxiety: a randomized controlled trial of internet cognitive behavioral therapy for insomnia versus internet cognitive behavioral therapy for anxiety. *Sleep*, *46*(2), zsac205. https://doi.org/10.1093/sleep/zsac205
31. Mataix-Cols, D., De La Cruz, L. F., Monzani, B., Rosenfield, D., Andersson, E., Pérez-Vigil, A., ... & DCS Anxiety Consortium. (2017). D-cycloserine augmentation of exposure-based cognitive behavior therapy for anxiety, obsessive-compulsive, and posttraumatic stress disorders: a systematic review and meta-analysis of individual participant data. JAMA psychiatry, 74(5), 501-510. https://doi.org/10.1001/jamapsychiatry.2016.3955
32. McKeon, G., Steel, Z., Wells, R., Newby, J. M., Hadzi-Pavlovic, D., Vancampfort, D., & Rosenbaum, S. (2019). Mental health informed physical activity for first responders and their support partner: a protocol for a stepped-wedge evaluation of an online, codesigned intervention. *BMJ Open*, *9*(9), e030668. https://doi.org/10.1136/bmjopen-2019-030668
33. Migration Policy Centre. (2012). *Syrian Refugees in Duhok Governorate*. European University Institute. https://cadmus.eui.eu/handle/1814/24837
34. Mishra, A. K., & Varma, A. R. (2023). A Comprehensive Review of the Generalized Anxiety Disorder. Cureus, 15(9), e46115. https://doi.org/10.7759/cureus.46115
35. National Alliance on Mental Illness. (2024). The 2024 NAMI Workplace Mental Health Poll. Retrieved from https://www.nami.org/support-education/publications-reports/survey-reports/the-2024-nami-workplace-mental-health-poll/
36. National Institute of Mental Health. (2022). Generalized Anxiety Disorder. Retrieved from https://www.nimh.nih.gov/health/statistics/generalized-anxiety-disorder
37. National Institute of Mental Health. (2023). Any Anxiety Disorder. Retrieved from https://www.nimh.nih.gov/health/statistics/any-anxiety-disorder
38. Silva, M. T., Caicedo Roa, M., Martins, S. S., da Silva, A. T. C., & Galvao, T. F. (2018). Generalized anxiety disorder and associated factors in adults in the Amazon, Brazil: A population-based study. Journal of Affective Disorders, 326, 180-186. https://doi.org/10.1016/j.jad.2018.04.079
39. SingleCare. (2025). Anxiety statistics 2025. Retrieved from https://www.singlecare.com/blog/news/anxiety-statistics/
40. Society for Human Resource Management. (2024). Anxiety Is Now the Top Mental Health Issue in the Workplace. Retrieved from https://www.shrm.org/topics-tools/news/benefits-compensation/anxiety-top-mental-health-issue-workplace-compsych
41. Spill. (2024). 70 workplace stress statistics you need to know in 2024. Retrieved from https://www.spill.chat/mental-health-statistics/workplace-stress-statistics
42. Steel, Z., Chey, T., Silove, D., Marnane, C., Bryant, R. A., & van Ommeren, M. (2009). Association of torture and other potentially traumatic events with mental health outcomes among populations exposed to mass conflict and displacement: A systematic review and meta-analysis. JAMA, 302(5), 537–549. https://doi.org/10.1001/jama.2009.1132
43. SUEUAA. (2020). *City Profile: Duhok*. Strengthening Urban Engagement. https://sueuaa.org/cities/duhok
44. University of St. Augustine for Health Sciences. (2024). Mental Health Statistics [2024]. Retrieved from https://www.usa.edu/blog/mental-health-statistics/
45. Workplace Mental Health. (2023). Anxiety Disorders. American Psychiatric Association Foundation. Retrieved from https://workplacementalhealth.org/mental-health-topics/anxiety-disorders

46. World Health Organization. (2023). Anxiety disorders. Retrieved from https://www.who.int/news-room/fact-sheets/detail/anxiety-disorders
47. World Health Organization. (2024). Mental health of adolescents. Retrieved from https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health
48. Ye, J., Pan, Y., & Wu, C. (2024). Effects of mindfulness-based cognitive therapy on depression and anxiety in late life: A meta-analysis. Alpha Psychiatry, 25(1), 1-8. https://doi.org/10.5152/alphapsychiatry.2024.231379