Prevalence and Co-occurrence of Major Depression and Generalized Anxiety Disorders Among Adolescents in Qatar

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Abstract

Background: Depression and anxiety are the commonest mental health disorders worldwide (1). In Qatar, a cross-sectional study conducted among Qatari adolescents in secondary schools in 2017 found that 34.5% have depression with female predominance (5), but no study in Qatar has addressed both disorders co-occurrence.

Objectives: The main objective is to assess the prevalence and co-occurrence of major depression disorder and generalized anxiety disorder in adolescents in Qatar.

Research participants: adolescents aged 12-18 years old.

Method: Cross-sectional study. An online questionnaire including Demographic data, PHQ-9 and GAD-7 will be sent to parents or legal guardians to take online consent, then to be filled in by their children in the ages of 12-18 years old.

Proposed analysis: Chi-square test will be used to test the significance of association between variables. The significant level for all statistical analysis was set at 0.05.

Anticipated result: According to a previous local study in Qatar we expect the prevalence of both disorders in this age group to be around 30% if not more and as per worldwide studies result 25-50% of depressed patient have anxiety also and 10-15% who have anxiety found to have depression as co-morbidity, so we expect to have co-occurrences in this range.

Key words: Depression, Generalized Anxiety disorders, Adolescents, Qatar, PHQ-9, GAD-7, cross-sectional.

Abbreviations
HMC: Hamad Medical Corporation
PHQ-9: Patient Health Questionnaire-9
GAD-7: Generalized Anxiety Disorder-7
GCP: Good Clinical Practice

Discussion

Adolescence is a vital time to develop healthy mental well-being. It is a time where youths will be exposed to multiple physical, social, psychological, and emotional changes. Therefore, it is important to intervene at this age group because they are malleable to change, thereby enhancing their social skills, problem-solving, coping and managing emotional skills to maintain their general mental well-being.

Depression and anxiety are the commonest mental health disorders worldwide. In 2017, 322 million people were suffering from depression and 264 million living with anxiety (1). They are inter-related in many aspects and quite a large number of people with anxiety will have associated depression and vice versa.

Depression prevalence is widely variable among countries. In the United States, the prevalence rate of depressive disorders among 13-18 years old is 5.9% for girls and 4.6% for boys (2). A study done in Armenia in 2013 found the prevalence of depression was more than 16% among 713 adolescent students (with 21% and 6% for females and males respectively) (3). In Egypt, a study conducted in a girls' secondary school found that depression was 15.3% by Children Depression Inventory (CDI)(4). In Qatar, a cross-sectional study conducted among Qatari adolescents in secondary schools in 2017 found that 34.5% have depression with female predominance and they found that bad relationships with peers, parents and teachers were among the most significant predictors of depression (OR=14.0, 95%CI=1.55-124), (OR=9.4, 95%CI=1.04-85.4), (OR=5.0, 95%CI=1.41-18.26) consecutively (5).

In 2004, a UK survey of children and adolescents aged 5 to 16 years estimated that 0.7% had a generalized anxiety disorder (6). Another study was conducted in Iran which showed that the prevalence of generalized anxiety disorder among adolescents was about 20% (7).

Regarding co-occurrence of the previous disorders, studies show that about one-quarter to one-half of the young, depressed patients meet the anxiety disorders diagnostic criteria. In addition, studies showed about 10-15% of the patients diagnosed with an anxiety disorder had the co-occurrence of depression (8). However, other studies demonstrated that depressed patients showed more than 70% of anxiety symptoms, with similar depressed symptoms percentage of about 60% among anxious patients. In the same study co-occurrence was more prevalent among females with a percentage of 17% compared to 5% among males (9). In addition, there was a larger study, which was done on more than 74,000 individuals among 24 countries that showed the mean of lifetime prevalence of Major depressive disorder based on DSM IV criteria was 11.2%, with 45% of these adults complaining once or more of anxiety disorders in their lifetime (10).

A major depressive disorder is an episode of at least 2 weeks duration of depressed mood and/or lack of interest and multiple other symptoms. While generalized anxiety disorder is a persistent and excessive worry about different things for at least six months duration. Both might be explained by multiple risk factors like genetic, stressful events, and environmental factors.

Both disorders have specific diagnostic criteria in the diagnostic and statistical manual of mental disorders fifth edition (DSM-V). Patient health questionnaire-9 and generalized anxiety disorder-7 are self-reported screening tools for both major depression and generalized anxiety respectively. A PHQ-9 score of 11 or more had a sensitivity of 89.5% and a specificity of 77.5% for detecting adolescents who met the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria for major depression (11). While the GAD-7 score of ≥11 represents the optimal sensitivity (97%) and specificity (100%) for detecting moderate anxiety in adolescents (12). In a Saudi research study, the validity of Arabic translation of PHQ-9 and GAD-7, the Arabic version of PHQ-9 showed good internal consistency with Cronbach's alpha of 0.857 and acceptable Cronbach's alpha of 0.763 for GAD-7 (13).

Nowadays, people are suffering more from anxiety and depression worldwide, because of the exposure to a highly stressful environment, especially for adolescents. Thus, early detection of anxiety and depression among adolescents may have a significant effect on society and the community as a whole. Early detection and management of depression and anxiety will result in a decrease in hospital admission, prevention of disease progression and rapid response to initial intervention. Having healthy adolescents with fewer depression and anxiety disorders will guarantee higher productive individuals throughout their future career. This will ensure less employees missing work and will decrease the burden cost paid by the governments annually, resulting in strong economies and successful communities. When we are aware about the baseline numbers of anxiety, depression, and co-occurrence in the society, this will help us to adapt our health system to serve the affected people. Moreover, it will help us to monitor the success of our interventions if the numbers are declining, skyrocketing, or staying stationary.

Material and Methods

Study Design:
Cross-sectional, Survey-based study.

Study Area:
The study will be conducted in Qatar targeting adolescents aged 12–18 years old.

Objectives:
Primary objectives:
• To estimate the prevalence and co-occurrence of Major Depression and Generalized Anxiety Disorders among Adolescents in Qatar in 2021.

Secondary objectives:
• To study demographic characteristics among patients and their correlation with depression and anxiety.
• To study the association between the following factors and both disorders such as, parent's marital status, Peer relationship, Relationship with parents, Family History of depression, Family conflicts, Relationship with teachers and psychological abuse.

Data Collection (Instrument used and Outcome Measures):
Data will be collected through online Questionnaire (Arabic or English) using survey monkey platform, questionnaires will be anonymous but optional field will be added where participants interested in being contacted for further discussion and possible referral to mental health support can voluntarily fill their contact details, the questionnaires are expected to be completed within 10 minutes.

The Primary Investigator (PI) will give the survey-monkey link, information sheet and consent to the Health information department and they will send mobile messages that contain the survey-monkey link, information sheet and consent to the parents/guardians asking them to sign consent approving their adolescents aged (12-18 years-old) to participate in the study.

In the beginning data will be collected via online survey then eventually will be stored in primary investigator personal computer. All data will be accessed through the primary investigator.

A cutoff of ≥11 for both PHQ-9 and GAD-7 has a reliable sensitivity and specificity for depression and anxiety respectively. We will use this cutoff to determine both diseases.

Adolescents who meet the diagnostic criteria for generalized anxiety disorder and /or major depressive disorder will be offered (if they showed interest by filling the optional field with their contact details) an optional referral for further evaluation and possible mental health support. Participants who reject referral will still be included in our study.

Population and Setting:
Random sample of adolescents (12-18 years old) living in Qatar in 2021.

Sample size:
The estimated sample size was 730 adolescents aged 12–18 years-old taking into consideration the known prevalence of depression (34.5% ± absolute precision 3.45%) detected in a similar population (5), to achieve a significance level <0.05 (95% confidence level). This sample size will be divided into 3 clusters (243 in each cluster) (14).

Sample technique:
• Total number of primary health care centers in Qatar is 27.
• Using cluster random sampling, 3 health centers from each municipality in Qatar will be selected; from those health centers all registered adolescents aged 12-18 years-old will be included to cover the sample size.

Inclusion criteria:
• All Adolescents aged (12–18 years-old), living in Qatar, including orphans and double orphans
• Consent by parents or legal guardian.

Exclusion criteria:
• Age less than 12 years-old or more than 18 years-old.
• Not consented by parents or legal guardian.

Study Duration and Timelines
The process of data collection will start once the approval is obtained.

Task	Mar-April 2020	May-Aug2021	Sept-Oct2021	Nov-Dec 2021
Writing and approval of the proposal	■			
Data collection		■		
Data analysis			■	
Research writing				■

Informed Consent
Detailed information about the study will be presented in the first page in SurveyMonkey then parent consent will be asked, if they agree and press next this will be considered as informed consent. Afterward, parents will be asked to give their mobile number to their children to fill in the questionnaires.

Data collection, data management and confidentiality
There is no physical data, only Computer Data from the questionnaire which will be stored in the PI's personal computer in protected files, and access will be under control of the PI who is a PHCC staff member. Data will be stored for at least five years.

Outcomes
• Primary outcome: the prevalence and co-occurrence of Major Depression and Generalized Anxiety Disorders among Adolescents in Qatar in 2021.
• Secondary outcome: the association of demographic and personal factors with depression and anxiety.

Subject withdrawal/ withdrawal of consent
The participant will be informed that participation in this study is optional, and they are free to refuse to participate in this research project at any time.

Statistical Consideration and data analysis
A cutoff of ≥11 for both PHQ-9 and GAD-7 has a reliable sensitivity and specificity for depression and anxiety respectively. We will use this cutoff to determine both diseases.

Data will be presented using descriptive statistics in the form of frequencies and percentages for qualitative variables and means and standard deviations for quantitative variables. The dichotomous variables will be expressed as numbers and percentages. Qualitative variables will be compared using the chi-square test. Non-parametric correlation will be used to assess the correlation between demographic characteristics among adolescents, their parents and their prevalence of depression and anxiety.
Multiple Logistic Regression will be used to identify the factors affecting the response variable under study. A $p<0.05$ will be considered statistically significant. The data will be analyzed by a biostatistician using SPSS for Windows (Version 25.0; SPSS Inc., Chicago, IL, USA).

Ethical consideration
After obtaining approval, the study will be conducted in full conformance with principles of the "Declaration of Helsinki", Good Clinical Practice (GCP) and within the laws and regulations of the Ministry of Public Health in Qatar. Informed consent will be obtained from targeted parents. Adolescents who meet the diagnostic criteria for Generalized anxiety disorder and /or Major depressive disorder in case they show interest by giving their contact details, will be offered an optional referral for further evaluation and management by a Psychiatrist.

Discussion

Depression and Generalized anxiety disorders have been given quite a deal of attention by the Primary Health Care Corporation in Qatar, which is translated into a dedicated clinical service especially for the adolescents(5). Moreover, awareness programs have been conducted to highlight the importance of mental health disorders and their effects on the community, in collaboration with different governmental sectors; i.e. media, and ministry of education.
In a recent study in Qatar, a cross-sectional survey conducted among Qatari adolescents in secondary schools in 2017 found that 34.5% have depression with female (5). Furthermore, studies in the US showed that about 10-15% of the patients diagnosed with an anxiety disorder had the co-occurrence of depression (8). There are no current studies demonstrating the concurrence of these two conditions among Qatari adolescents, hence the significance of this cross-sectional survey.

Strengths and limitation
The participants are randomly selected with the aid of data withdrawn from health information management department to ensure the generalizability of the results. The surveys are electronically sent to the parents' emails and mobile phones, to ease access especially during the COVID pandemic. The PHQ-9 and GAD-7 questionnaire will be sent in both Arabic and English language (Arabic version has been validated) to ensure the validity of the withdrawn results. In addition, previous literature has demonstrated that GAD-7 and PHQ-9 surveys are a reliable and valid tool in detecting depression and anxiety.

However, low response is one of the biggest issues that has been faced in previous similar studies. It is attributed to the fact that the survey is electronic which might pose some technological challenges for some parents as well as the sensitive nature of the questions. Moreover, screening for both conditions might considerably prolong the time taken to fill in the survey which will hinder the completion rate. Furthermore, social acceptance of these conditions might pose a challenge in filling or accurately filling the questionnaires. Finally, dealing with an emotionally vulnerable age group can result in considerable subjectivity in the survey filling process.
In this study, we are aiming to find the prevalence of the co-occurrence of Depression and Generalized anxiety disorder. Furthermore, we are trying to investigate the associations of this occurrence and other demographic cofactors, such as social structure, family stability, history of mental disease in the family, socioeconomic level, and level of education.

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