Prevalence and risk factors of anxiety among Saudi male secondary schools' students in Madinah, Saudi Arabia

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Abstract

Background: Anxiety disorders are frequent in adolescents and are associated with a clinically significant degree of severity and substantial psychosocial disability. Interventions that address their needs can save lives and foster a new generation of productive adults who can help their communities' progress.

Objective: To determine the prevalence and risk factors responsible for anxiety among male secondary schools' students in Madinah.

Materials and Methods: Cross-sectional study was conducted in Al-Madinah city in 2012. Only secondary school male students were included for study. Multistage sampling technique was used for student's inclusion. The researcher used a self-administered questionnaire containing sociodemographic and medical data and Beck Anxiety Inventory. Fifteen students were given this questionnaire as a pilot study. All data have been entered and analyzed using SPSS version 17.

Result: This study indicates the prevalence rates for symptoms of anxiety among Saudi secondary school boys of Al-Madinah city. 61.6% students showed symptoms of anxiety. About 3.4% students showed severe symptoms of anxiety whereas 58.2% of them showed mild to moderate symptoms of anxiety. The risk factors found were accidents, bronchial asthma, and hypertension.

Conclusion: This study indicates the prevalence of anxiety among Saudi secondary school boys of Al-Madinah city, Kingdom of Saudi Arabia (KSA). A corelation has been found between symptoms of anxiety and chronic diseases such as hypertension, bronchial asthma, and history of accidents. No significant relation was found between the score of anxiety and the sociodemographic characteristics of the study participants and their parents.

KEY WORDS: Anxiety, adolescents, psychosocial disability, secondary school students

Introduction

Adolescence is a transitional stage of physical, sexual, and mental human development generally occurring between puberty and adulthood, but largely characterized as beginning and ending with the teenage stage.[1] World Health Organization (WHO) defines adolescents as people aged 10–19 years who have specific health and development needs.[2] Secondary school students are a part of this population as they are commonly aged 16-18 years.

Anxiety is a feeling of apprehension and fear characterized by physical symptoms such as palpitations, sweating, and feelings of stress. Anxiety disorders are chronic, painful, relentless, and can grow progressively worse if not treated. They include: panic disorder, obsessive-compulsive disorder, post-traumatic stress disorder, social phobia, specific phobias, and generalized anxiety disorder.[3,4]

Importance of the Topic in General Practice

Anxiety disorders are frequent in primary care and are associated with a clinically significant degree of severity and substantial psychosocial disability. Their recognition by general practitioners as well as the proportion treated are low.[5] Their awareness of anxiety disorders and mental health of adolescents still needs a lot of improvement both for patients' well-being and for the cost resulting from nontreatment.[5–7] It is widely believed that anxiety is a common disorder of childhood and adolescence, but epidemiological studies have varied substantially in the prevalence rates that they report.[8] Comparisons of these rates at different time points are often affected by changes in diagnostic criteria; differences in assessment methods; changes in official reporting practices;[8–10] differences in cultural, social, and political climates; and quality of self-administered measures.[11]

Importance of Early Detection; Association with Other Mental Illnesses

Comorbidity occurs quite frequently, both within the anxiety disorders and also with other psychiatric disorders. The most common pattern of comorbidity was that of anxiety and depressive disorders.[12] More than half of the patients with generalized anxiety disorder showed a concurrent depressive disorder.[13] In assessing the prevalence and development of psychiatric disorders from age 9 through 16 years, continuity of the same disorder was significant for all disorders except specific phobias. Continuity from one diagnosis to another was significant from depression to anxiety and anxiety to depression and from anxiety and conduct disorder to substance abuse.[14,15] In the studies of Dr. Algelban, 59.4% of the male group had at least one of the three studied disorders (depression, anxiety, and stress), 40.7% had at least two and 22.6% had all the three disorders.[16]

Burden of Anxiety Disorders

Patients with anxiety demonstrate a considerable degree of impairment and disability, even in its pure form**.** Anxiety is associated with a significant economic burden owing to decreased work productivity and increased use of health-care services, particularly primary health care.[17,18] Approximately one in every four to five youths in the USA meets criteria for a mental disorder with severe impairment across their lifetime. The overall prevalence of disorders with severe impairment and/or distress was 22.2% (8.3% with anxiety disorders).[19,20] Most adult disorders were preceded by adolescent disorders. Adolescent anxiety or depressive disorders predicted a two to threefold increased risk for adulthood anxiety or depressive disorders.[21] In conclusion, there is an urgent need to pay more attention to the mental health of adolescent secondary school students in Saudi Arabia.[6,7,16]

Materials and Methods

Study Design

Cross-sectional study was conducted at Al-Madinah city, KSA in the year 2012. Study population included secondary school students and male secondary school students were included for the study. Female students were excluded from the study.

Sample Size

Population size - 17670, Expected frequency - 48%, Worst acceptable - 55%, Confidence interval -95%. The calculated sample size is 194.

Sampling Technique

Multistage sampling

Stage 1: Stratifying Al-Madinah secondary schools into developed and less developed school areas.
Stage 2: Selecting one school from each area randomly.
Stage 3: Stratifying the selected schools into 3 levels.
Stage 4: Selecting one class from each level randomly.
Stage 5: Cluster sampling by including all students in the selected class.

Study Tool: The researcher used a self-administered questionnaire, consisting of two parts:

Part 1: Containing sociodemographic and medical data: age, educational level and achievement, paternal and maternal education and job, family status, family income, number of brothers and sisters and ranking between them, smoking habit, and affliction by chronic diseases.

Part 2: Containing Beck Anxiety Inventory.[22]

Statistical Analysis

All data have been entered and analyzed using SPSS version 17. Categorical data have been analyzed using χ^2-test and *t*-test has been used for numerical data. The results were considered to be statistically significant if the *P*-value is <0.05.

Ethical considerations

This proposal was submitted to the research ethical committee for approval. Ethical approval was obtained from the Chair of research ethics committee, Najran University. Consent was obtained from every subject. A letter from the supervisor general of the training program was issued to Director General of the Department of Education in Al-Madinah.

Result

Basic Characteristics of the Study Participants' Parents; Educational Status

Father: Most of the study participants' fathers were university graduates. They constituted (39.2%); followed by (28.4%) who had secondary schooling level of education. Fathers with intermediate and primary level of schooling constituted (15.1% and 12.5%), respectively.

Mother: One-third of the study participants' mothers were university graduates; followed by (30.6%) having secondary school level of education. Illiterate mothers constituted (10.3%) (Figure 1).
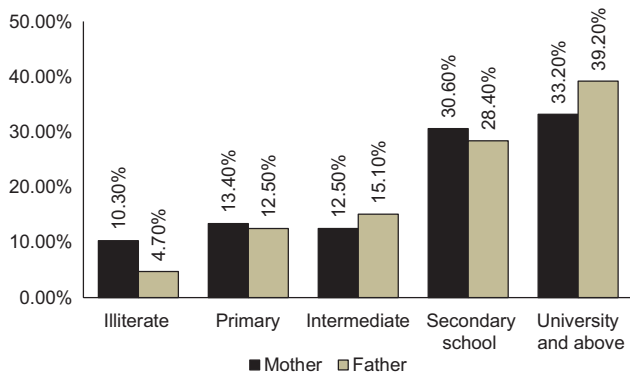
Figure 1: Educational status of the parents of the study participants.

Figure 2: Degree of anxiety of the study participants.

Working Status

Most of the study participants' fathers were working in civil services. They constituted 52.2%; whereas 11.2% were engaged in military services; the remaining (36.6%) were working as freelancers, and were not attached to either civil or defense services. Of the study participants' mothers, 22.8% were found to be working and the rest (77.2%) were house wives.

Monthly Income

Majority of the participants' parents had a monthly income of (5000-10000 SR). They constituted (34.5%), whereas (24.1%) of the parents were earning both (<5000 SR as well as >15000 SR), and (17.2%) of the parents' monthly income was (10000-15000 SR).

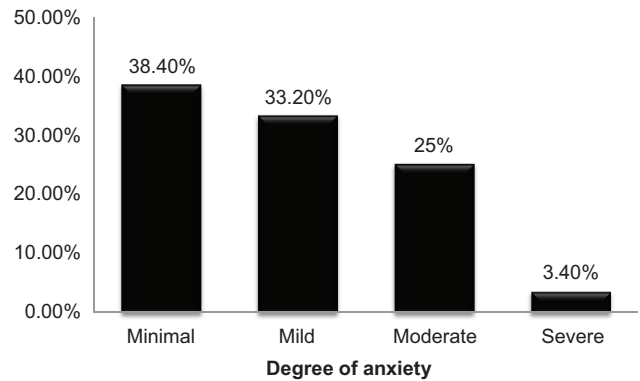### Basic Characteristics of the Study Participants

Nationality: The majority of the study participants were Saudi constituting (62.5%), whereas non Saudi participants constituted (37.5%).

Family Background of the Study Participants

The majority of participants belong to participants' sibling category of (5-7 children). They account for 46.6%; followed by 31.9% of study participants belonging to the group of <5 children. In relation to the position of a child in birth order of his siblings, the majority of the study participants constituting (59.1%) belong to the (1-3) birth order group; followed by 29.3% of study participants who belong to (4-6) birth order group. Majority of the study participants living with both the parents constituted 89.2%. Study participants with a deceased father comprised 6% and those with a deceased mother comprised 0.9%.

Academic Characteristics

The majority of participants in first level of secondary school constituted (34.5%); followed by (33.2%) in the third level of secondary school whereas the remaining who were in second level of secondary school accounted for (32.3%). Majority of the study students having excellent academic achievement constituted (44%). Study participants with very good academic achievement comprised (35.3%) whereas

those with good academic achievement comprised (19.4%). 1.3% participants' academic achievement was found to be poor.

Medical History of Study Participants

Of the study participants, 14.2% were smokers, 21.6% had a road accident, and bronchial asthma was found in 5.6% study participants. Diabetes and epilepsy were both found in 0.4% participants whereas hypertension was reported in 0.9% study participants.

Degree of Anxiety of the Study Participants

Anxiety was reported in 61.6% of the study participants. All levels of anxiety has been observed and illustrated in Figure 2.

Correlation between Basic Variables and Degree of Anxiety (Anxiety Score) of the Study Participants

The relationship between the level of anxiety and various basic variables of the study participants were illustrated in Table 1.

Correlation between Medical History and Degree of Anxiety of the Study Participants

The relationship between the Degree of anxiety and various basic variables of the study participants like smoking, road accident, chronic diseases etc has been illustrated in Table 2.

Discussion

In this study, the prevalence of severe anxiety found was 3.4%. This figure was lower than that reported by Abdel-Fattah et al. (8.3%). A study in Taif shows the prevalence of anxiety (13.5%).[4] In Abha, two studies were conducted on the prevalence rates and severity of depression, anxiety and stress among Saudi secondary school students, boys, and girls. The prevalence rate of anxiety was 48.9% in boys and 66.2% in girls.[7,16] Another study in Abha shows the overall prevalence of mental disorders to be 15.5%. Of these, 46.5% were types

Table 1: Correlation between basic variables and degree of anxiety (anxiety score) of the study participants.

Variables	Minimum Anxiety		Mild Anxiety		Moderate Anxiety		Severe Anxiety		Total	p-Value
	n	(%)	n	(%)	n	(%)	n	(%)	n (%)	
Nationality										
Saudi	50	34.5	56	38.6	33	22.8	6	4.1	145 (100%)	
Non-Saudi	39	44.8	21	24.1	25	28.7	2	2.3	87 (100%)	0.099
Total	89	38.4	77	33.2	58	25.0	8	3.4	232 (100%)	
Academic level:										
First level	33	41.3	27	33.8	19	23.8	1	1.3	80 (100%)	
Second level	25	33.3	30	40.0	19	25.3	1	1.3	75 (100%)	0.153
Third level	31	40.3	20	26.0	20	26.0	6	7.8	77 (100%)	
Total	89	100	77	100	58	100	8	100	232 (100%)	
Academic achievement:										
Excellent	43	42.2	34	33.3	21	20.6	4	3.9	102 (100%)	
Very good	28	34.1	29	35.4	23	28.0	2	2.4	82 (100%)	
Good	16	35.6	13	28.9	14	31.1	2	4.4	45 (100%)	0.842
Poor	2	66.7	1	33.3	0	0.0	0	0.0	3 (100%)	
Total	89	38.4	77	33.2	58	25.0	8	3.4	232 (100%)	
Inhabitant with:										
Both parents	86	41.5	65	31.4	50	24.2	6	2.9	207 (100%)	
Father deceased	3	21.4	6	42.9	5	35.7	0	0.0	14 (100%)	
Mother deceased	0	0.0	2	100	0	0.0	0	0.0	2 (100%)	
Both deceased	0	0.0	1	50.0	1	50.0	0	0.0	2 (100%)	0.016*
Divorced	0	0.0	3	42.9	2	28.6	2	28.6	7 (100%)	
Total	89	38.4	77	33.2	58	25.0	8	3.4	232 (100%)	

Table 2: Correlation between medical history and degree of anxiety of the study participants.

Variables	Minimum Anxiety		Mild Anxiety		Moderate Anxiety		Severe Anxiety		Total	p-Value
	n	(%)	n	(%)	n	(%)	n	(%)	N (%)	
Smoking										
Yes	7	21.2	12	36.4	13	39.4	1	3.0	33 (100%)	
No	82	41.2	65	32.7	45	22.6	7	3.5	199 (100%)	0.099
Total	89	38.4	77	33.2	58	25.0	8	3.4	232 (100%)	
Road accident:										
Yes	12	24.0	17	34.0	17	34.0	4	8.0	50 (100%)	
No	77	42.3	60	33.0	41	22.5	4	2.2	182 (100%)	0.025*
Total	89	38.4	77	33.2	58	25.0	8	3.4	232 (100%)	
History of chronic diseases:										
DM										
Yes	0	0.0	1	100	0	0.0	0	0.0	1 (100%)	
No	89	38.5	76	32.9	58	25.1	8	3.5	231 (100%)	0.568
Total	89	38.4	77	33.2	58	25.0	8	3.4	232 (100%)	
Hypertension										
Yes	0	0.0	0	0.0	1	50.0	1	50.0	2 (100%)	
No	89	38.7	77	33.5	57	24.8	7	3.0	230 (100%)	0.002*
Total	89	38.4	77	33.2	58	25.0	8	3.4	232 (100%)	
Br Asthma										
Yes	2	15.4	1	7.7	9	69.2	1	7.7	13 (100%)	
No	87	39.7	76	34.7	49	22.4	7	3.2	219 (100%)	0.001*
Total	89	38.4	77	33.2	58	25.0	8	3.4	232 (100%)	
Epilepsy										
Yes	0	0.0	1	100	0	0.0	0	0.0	1 (100%)	
No	89	38.5	76	32.9	58	25.1	8	3.5	231 (100%)	0.568
Total	89	38.4	77	33.2	58	25.0	8	3.4	232 (100%)	

DM, Diabetes mellitus; Br Asthma, Bronchial asthma.

of anxiety disorders.[6] Compared to the prevalence of anxiety (61.6%) in this study, a low prevalence was reported from other countries. In the USA, lifetime prevalence of anxiety disorders was 28.8%, the median age of onset was 11 years.[20] The most common mental disorder affecting adolescents was anxiety with prevalence rate of 31.9% according to the national comorbidity survey adolescent supplement 2010.[19] In Canada, adolescent females reported a significantly higher prevalence of psychiatric disorders than males (15.5% vs. 8.5%) in 2001.[23] In Italy, the symptomatology and comorbidity of generalized anxiety disorder (GAD) were investigated. Feelings of tension, apprehension were reported in more than 70% of the subjects.[13] In Germany, the frequency, comorbidity, and psychosocial impairment of anxiety disorders among German adolescents was estimated to be 18.6% and were significantly higher in girls than in boys, and that the rates increased with age.[12] In a study, Henker et al.[18] found that high-anxiety teenagers compared to low-anxiety teenagers expressed higher levels of anger, sadness, and fatigue, along with lower levels of happiness, well-being, and achievement. Contrary to findings of Henker et al., in this study, it is found that 50% study participants with excellent academic achievements had shown severe anxiety symptoms. In contrast to Abdul-Fattah et al., Algelban, Mahfouz et al.'s studies current research failed to find any association between psychiatric disease and the socio-demographic characteristics of the participants' parents.[4,6,16] In relation to working mothers, this research failed to find any significant association between working mothers and anxiety development in contrast to Abdul-Fattah's study.[4] In a study of 8934 Norwegian adolescents, those with a family history of divorce and parental distress were more vulnerable to symptoms of anxiety than those without such distress. In contrast to the findings of the Norwegian study, in this study, majority of students with anxiety symptoms were living with both parents and a significant correlation was found between development of anxiety symptoms and the living status of study participants.[24] In agreement with the findings of Abdul-Fattah's study, this study showed a significant relation between anxiety score and bronchial asthma.[4] Accidents might be contributing factors in the development of child psychopathology. In a review study of posttraumatic stress disorder in children by Martini et al.,[25] there are listed psychological symptoms such as generalized fearfulness, separation anxiety, sleep disturbance, phobias, and enuresis. In agreement with these findings and the findings of Abdul-Fattah's study, this study revealed a significant correlation between having accidents and development of anxiety disorder among the study participants.[4] This study has some possible limitations that need to be discussed. (1) Including males only in our study has a cultural background so; we had a great difficulty in including schools for girls to our research. (2) Using self-administered questionnaire instead of interviewing techniques, which are better, because of limitations in time and budget.

The strengths of this study included the following: (1) Using standardized instrument that assesses a broad range of child problems; (2) Using samples large enough to test differences.

In addition (3) to our knowledge, this study is one of the earliest in Saudi Arabia to assess emotional and/or behavioral problems among schoolchildren and adolescents on a standardized measure of child psychopathology and to compare them with matched children. (4) It is also among the first to include schoolchildren through adolescent children.

As a conclusion this study indicates the prevalence of anxiety among Saudi secondary school boys of Al-Madinah city, KSA. A corelation has been found between symptoms of anxiety and chronic diseases such as hypertension, bronchial asthma, and history of accidents. No significant relation was found between the score of anxiety and the sociodemographic characteristics of the study participants and their parents. Several risk factors including child, familial, and environmental risk factors play an important role in the genesis of emotional and behavioral problems in schoolchildren. General practitioners and other primary care workers need to be educated to better engage young people, to recognize mental disorders, and to deliver simple treatments, including supportive counseling, and cognitive behavior therapy. There is a need for a national program in the country to integrate youth mental-health interventions with all existing youth programs, including those in health and education.

The following are some recommendations to minimize the psychological disorders and its impact on the students. The school systems should provide students with supporting services that include school psychologists, school counselors operating in the school setting itself. The service approaches of school counselors include: (1) Direct services to students, including psychological and behavioral assessment and psychological treatment and counseling. (2) Indirect services, including consultations with teachers and parents. (3) Whole school services, including assisting schools with the planning, preparation, implementation and evaluation of psychological and educational strategies. (4) Systems-level services, including assisting with crisis management policy and response and recovery strategies.

Conclusion

This study indicates the prevalence of anxiety among Saudi secondary school boys of Al-Madinah city, KSA. A corelation has been found between symptoms of anxiety and chronic diseases such as hypertension, bronchial asthma, and history of accidents. No significant relation was found between the score of anxiety and the sociodemographic characteristics of the study participants and their parents.

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