International Journal of Community Medicine and Public Health
Suhra RS et al. Int J Community Med Public Health. 2023 Oct;10(10):3613-3618
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20233089

Original Research Article

Prevalence of anxiety disorders and its associated factors among adolescents in Arpookara Panchayat

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Received: 16 June 2023
Accepted: 23 August 2023

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ABSTRACT

Background: Adolescents (10 -19 years) constitute 1.3 billion in the world today. According to WHO mental health issues constitute 13% of the global burden of disease in adolescents of which anxiety disorders are the most common. Objective was to estimate the prevalence of anxiety disorders among adolescents using SCARED tool, to find the association of selected factors with anxiety disorders.
Methods: A cross sectional study was conducted among 590 adolescents in Arpookara Panchayat. A semi-structured pretested questionnaire was used for collecting sociodemographic details. Anxiety disorder was assessed using Screen for Child Anxiety Related Emotional Disorder (SCARED) tool. Data was coded and entered in Microsoft excel and analysed using IBM SPSS software version 20
Results: The mean age of the study participants was 15.04 with SD ±3.013. Prevalence of anxiety disorders using SCARED tool was found to be 21.4%. Factors found to have statistically significant association with anxiety on univariate analysis were female gender (p=0.001), mother's education more than high school level (p=0.036), time spent with father (p=0.001), time spent with mother(p=0.001), inadequate sleep (p=0.001) and family history of mental illness(p=0.043). On binary logistic regression following factors with p<0.05 were found to be independent predictors of anxiety-female gender (OR=2.037), mother's education more than high school level (OR=1.469) adequate time spent with father (OR=0.713), inadequate sleep (OR=14.726), family history of mental illness (OR=3.521)
Conclusions: More than one fifth of adolescents are having anxiety disorders. There should be efforts for early diagnosis and prompt treatment of anxiety disorders among adolescents.

Keywords: Adolescents, Anxiety disorder, SCARED tool

INTRODUCTION

Adolescence is a dynamic state in one's life and it is the bridge between childhood and adulthood. Adolescents belonging to age group 10-19 year constitute 1.3 billion in the world today which is almost 16% of the total population.[1] According to 2011 census India has 253 million adolescents (20.9%). In Kerala 16.2% and in Kottayam district 14.9% belongs to this category.[2] After infancy, adolescence is a remarkable phase showing rapid growth in physical, cognitive and psychosocial domains. Mental health is inevitable for physical health. So while studying about adolescent age group the physical health as well as mental health should be given equal importance. Mental health disorders increase during adolescence and 75% of the mental issues occur before age 24.[3] According to WHO 13% of the global burden of disease in adolescent age group is because of mental health issues.[4] National Mental Health Survey 2016 shows 9.8 millions of Indian aged 13–17 years suffer from serious mental illness.

Much of the mental health issues in adolescents are not addressed adequately pushing them to carry the burden of the disease to adulthood. This can cause long term effects in family and society. Identifying the problem and starting treatment early can have a better outcome. Anxiety disorders are the most prevalent mental health issues faced by adolescents. During adolescence the brain structures like amygdala and prefrontal connections which control emotions undergo slow development thus making teens more vulnerable for anxiety disorders. Results from large population-based surveys shows 33.7% people will have anxiety disorders in their lifetime.[5] A systematic review from 87 studies conducted in 44 countries shows that global prevalence of anxiety disorders ranges from 0.9 % to 28.3%.[6]

In spite of high prevalence only half of the anxiety disorders are diagnosed and treated. This is because many of the time the adolescents with anxiety present as physical symptoms which are given little attention or only treated symptomatically. Some children with anxiety will be irritable and angry which are considered as disobedience. But in fact they show the child's attempt to avoid the anxiety-provoking stimulus. Some adolescents hide their feelings so that parents or teachers cannot notice anxiety symptoms. Another presentation is the occurrence of more than one type of anxiety disorders in the same individual. Learning disabilities or attention deficit hyperactive disorder also sometimes occur along with anxiety. The health seeking behaviour of adolescents are very low. In order to cope up with anxiety some may start substance use or alcoholism. The situation is aggravated when they develop comorbidities like depression along with anxiety which can lead to suicides. A report published by the WHO showed that the prevalence of suicide is 21.1/100,000 of which a large proportion are students aged 0-19 years.[7] So early recognition and treatment of anxiety is very important in adolescents. Establishment of Child and Adolescent Health programmes are essential for early diagnosis and treatment. In spite of the high prevalence and known adversities very few studies were done in our settings to address this problem. Hence this study was undertaken to understand the prevalence and associated factors of anxiety disorders among adolescents.

METHODS

Study design

A cross sectional study was conducted among adolescents of Arpookara Panchayat in Kottayam District, Kerala from June 2021 to July 2022.

Sample size

Sample size was calculated based on a study by Nair et al among adolescents in Alappuzha District, Kerala which showed the prevalence of anxiety as 25.8%.[8] Taking 95% level of confidence and a relative precision of 5%, the sample size required for the study was 294. Since sampling method adopted was cluster sampling, a design effect of 2 was applied and the final sample size was $294 \times 2 = 588 \sim 590$.

Study tools

Pretested semi-structured questionnaire for collecting sociodemographic details. SCARED (screen for child anxiety related emotional disorder) tool developed by Birmaher for assessing the anxiety disorders in adolescents translated to local language Malayalam and translated back to English to ensure reliability and validity. It consists of 41 questions with each having options as not true (score 0), somewhat true (score 1) and very true (score 2). A total score of more than 21 indicate the presence of an anxiety disorder. This questionnaire also helps to find the 5 major divisions of anxiety namely panic disorder, general anxiety disorder, separation anxiety disorder, social anxiety disorder and significant school avoidance.

Inclusion criteria

Adolescents who are residents of Arpookara Panchayat for more than 6 months and whose parents give consent and adolescents themselves give assent to participate in the study were included.

Exclusion criteria

Adolescents with chronic medical illness like congenital heart diseases, chronic kidney diseases etc and Adolescents with mental retardation were excluded.

Sampling method and technique

Cluster sampling method was employed. There are 16 wards in Arpookara Panchayat. Either 36 or 37 adolescents were included from each of the 16 wards so as to meet the required sample size.

A location near the centre of the ward was selected and then a random direction was chosen by spinning a bottle and choosing the direction that bottle neck points to. Next a random household along the chosen direction pointing outwards from the centre of the community to its boundary was selected. The next household on right side of the first one is taken and was continued until the required number of adolescents are obtained. From each household one adolescent was taken in order to avoid repetition of socio - demographic factors. When more than one adolescent was present in a household, one of them was selected by lottery method.

Study procedure

After getting the Institutional Review Board clearance and consent from Arpookara Panchayat a community based cross sectional study was conducted among adolescents of age group 10-19 years in Arpookara Panchayat. Informed consent was obtained from parents and assent was obtained

from study subjects. Investigator herself visited each of the household and collected data using the pretested semi-structured questionnaire and scoring was done subjectively by the investigator. The participants detected to have anxiety were advised to go for expert management. Data was coded and entered in Microsoft Excel and analysed using IBM SPSS software version 20. The main outcome variable, the prevalence of anxiety among adolescents was expressed as percentage and 95% confidence interval was calculated. The rest of the study variables as applicable were calculated as proportion or mean and standard deviation for qualitative and quantitative variables respectively. Then association between anxiety and other variables was tested using Chi square test. The level of statistical significance was fixed at p value <0.05 and factors having significant relationship with anxiety was analysed using binary logistic regression.

RESULTS

Sociodemographic profile

A total of 590 participants were studied which include males 39% (230) and females 61% (360). The mean age of the study population was 15.04 with a standard deviation of ±3.02. The median age was 15. Sixty percentage of the adolescents were from nuclear family, 39.5% from joint family and 0.3% from separated family. More than 96% of adolescents had at least one sibling and 3.9% were single child. About half (51%) of the study participants were first child in their family. Fourteen adolescents had their father facing the problem of unemployment. More than half of adolescent's mothers were homemakers (57.3%). Education status of parents at least up to high school level was 91.7% for fathers and 96.3% for mothers. More than 60% of the study participants were from lower middle class based on Modified Kuppuswamy scale updated for the year 2022.

About 0.8% of adolescents gave history of alcohol or substance use and 2.5% had sleep disturbances. Almost one fourth of the adolescents were not getting opportunity to spend time with their father while 91.4% spent quality time with their mother and had adequate space to discuss their problems. Findings show that 46.8% of adolescents were studying in government institutions followed by 39.3% in aided institutions and only 13.9% in private institutions. Majority of adolescents (92.4%) were studying in English medium (Table 1). The prevalence of anxiety disorders among adolescents in this study was 21.4% (Confidence interval 18.1-24.6) (Table 2). In our study the subtype of anxiety disorder having the highest prevalence is found to be Generalized anxiety disorder having 16.1% prevalence among the study population (Table 3). Among females 25.7% and males 14.5% had anxiety and the relation between gender and anxiety was statistically significant (p=0.001). The factors like age group, number of siblings, birth order, type of family, socioeconomic status of parents, occupation of parents, type of school studying, class studying and medium of instruction in school were not found to have significant association with anxiety.

Table 1: Sociodemographic profile of study participants.

Parameters	N (%)
Age group (years)	
10-13	205 (34.7)
14-17	218 (36.9)
18 and 19	167 (28.3)
Gender	
Males	230 (39)
Females	360 (61)
Type of family	
Nuclear	355 (60.2)
Joint	233 (39.5)
Separated	2 (0.3)
Socioeconomic status (Based on modified Kuppuswamy scale 2022)	
Upper	2 (0.3)
Upper middle	41 (6.9)
Lower middle	355 (60.2)
Upper lower	192 (32.5)
Number of siblings	
No sibling	23 (3.9)
One or more sibling	567 (96.1)
Birth order	
First order	301 (51)
Other orders	289 (49)
Type of school	
Government	276 (46.8)
Aided	232 (39.3)
Private	82 (13.9)
Class studying	
Primary school	149 (25.3)
High school	183 (31)
Higher secondary and above	258 (43.7)
Medium of instruction	
English	545 (92.4)
Malayalam	45 (7.6)
Father's education	
High school and above	541 (91.7)
Below high school	49 (8.3)
Mother's education	
High school and above	568 (96.2)
Below high school	22 (3.8)
Father's occupation*	
Unemployed	14 (2.38)
Employed	573 (97.62)
Mother's occupation**	
Unemployed	338 (57.3)
Employed	248 (42.7)

*N=587, father of 3 adolescents expired, **N=586, mother of 4 adolescents expired

High educational status of mother had significant association with anxiety among adolescents (p=0.036). But there was no association with educational level of father.

Table 2: Distribution of study participants based on prevalence of anxiety disorder.

Anxiety	N	%
Present	126	21.4
Absent	464	78.6
Total	590	100

Table 3: Distribution of study participants based on different types of anxiety disorder.

Type of anxiety disorder	N	%
Panic disorder	2	0.33
Generalized anxiety disorder	95	16.1
Separation anxiety disorder	6	1.01
Social anxiety disorder	34	5.76
Significant school avoidance	0	0
Total	137*	23.2

*Here total =137 as some of the participants had coexistence of more than one subtype of anxiety disorder.

Table 4: Table showing variables having statistically significant association with anxiety on univariate analysis.

Variables	Factors with highest (%)	Chi square value	P value
Gender	Female (25.7)	10.48	0.001
Mother's education	Education more than high school level	4.405	0.036
Adequate time spent with father	Time not spent for problem sharing (48.4)	33	0.001
Adequate time spent with mother	Time not spent for problem sharing (40.5)	10.846	0.001
Sleep	Not adequate (80)	31.517	0.001
Family history of mental illness	Family history present (41.2)	4.094	0.043

Other factors which had significant association with anxiety on univariate analysis were family history of mental illness (p=0.043), time spent with father (p=0.001), time spent with mother (p=0.001) and inadequate sleep (p=0.001) (Table 4). The factors like history of low birth weight, BMI, body image perception, adverse life events, history of substance use, family history of alcohol or substance use, were not found to be statistically significant. On binary logistic regression the following factors were found to be independent predictors of anxiety among adolescents. (p value <0.05) (Table 5).

DISCUSSION

In this study the prevalence of anxiety among adolescents (10-19 years age group) was 21.4% (95% CI is 18.1-24.6) This was comparable with the parent study by Nair et al in South Kerala, Alappuzha district where the prevalence was 25.8% using SCARED tool.[8] Similar results were obtained by studies done by Madasu et al in North India using SCARED tool (22.7%).[9] But a lower prevalence was obtained in similar study by Priyanga in Salem Tamil Nadu using SCARED tool (12.2%) and higher prevalence of anxiety was observed in study by Jayashree et al in Mangaluru city Karnataka using same tool (54.7%).[10,11] This difference in prevalence may be due to the difference in sociodemographic factors. Similar prevalence was seen in studies using other tools also.[4] This includes study by Dodangi et al in western city of Iran using Schedule for affective disorders and schizophrenia scale (23.7%), and Durka Nartiang in Mangaluru city using Westside anxiety scale and Anxiety self-rating scale (22.6%).[12,13]

Prevalence of anxiety disorders among adolescents in the current study is more in female compared to males (p=0.001). Similar findings are seen in the parent study by Nair et al, Auerbach et al, Silove et al, Kessler et al, Bhatia et al, Manuel et al and Archana et al.[8,13-19] Female preponderance in anxiety disorders is seen in most studies irrespective of the geographic settings and the tools used. This may be due to difference in brain chemistry or frequent hormone fluctuations to which the women are exposed. So female adolescents should be given special attention to combat against anxiety disorders. In this study significant association was found between inadequate sleep and anxiety disorders. (p=0.001). The increased levels of anxiety about scholastic performance or comparison of achievements among friends may be the reason for inadequate sleep. Similarly study by Islam et al also found association with anxiety and unsatisfactory sleep quality.[20] The present study shows a statistically significant association between family history of mental disorders and anxiety. (p=0.043). Anxiety disorders have strong association with family history as proved in many genetic studies and studies among identical twins. Study by Milne et al showed similar findings and his study showed that family history of mental illness is associated with recurrent course and worse impairment of anxiety disorder.[21] An association was noticed between mother's education and anxiety among adolescents. Here prevalence of anxiety is more in children born to mother with high education. This may be because educated mothers are more concerned about the scholastic performance of their kids and give more pressure for their children to attain good results in exam. In our study significant association was seen between adequate time spent with father (p=0.001) and mother (p=0.014) and the anxiety among adolescents. The quality time spent with parents is found to be protective against development of anxiety. The highest prevalence of anxiety was seen among adolescents who were not able to discuss their problems with father and mother.

Table 5: Logistic regression.

Factors	Constant	SE	P value	Odds ratio	95% CI
Female gender	0.711	0.672	0.002	2.037	1.285-3.229
Adequate time spent with father	-0.338	0.078	0.001	0.713	0.612-0.832
Adequate time spent with mother	0.041	0.264	0.878	1.041	0.621-1.748
Sleep	2.690	0.672	0.001	14.726	3.949-54.919
Family history of mental illness	1.259	0.542	00.020	3.521	1.217-10.189
Mother's education	0.385	0.125	0.002	1.469	1.151-1.875

Nagelkerke R square 0.157

CONCLUSION

The present study shows prevalence of anxiety among adolescents to be 21.4% with significant association with female gender, mother's education status, inadequate time spent with father, sleep disturbances and family history of mental illness. Parents should be given health education for providing a supportive family for adolescents and to identify symptoms of anxiety among children. Capacity building of the primary care physician to identify and treat mental illness will help to alleviate the stigma of seeking treatment from mental health experts and decrease the need for referral to specialist centres. School mental health programme should be strengthened and teachers should be given training to identify the problem among adolescents in early stage. Peer group empowerment should be ensured through awareness programme. The present study could not establish a temporal association, hence further studies to establish the same should be conducted.

ACKNOWLEDGEMENTS

Authors would like to thank all study participants for their full participation and we are grateful to the faculty and staff of Government medical college Kottayam for their generous support and valuable advice.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Suhra RS, Sobha A, Geethadevi M, Prithiba B, Philip S. Prevalence of anxiety disorders and its associated factors among adolescents in Arpookara Panchayat. Int J Community Med Public Health 2023;10:3613-8.