

Original Research Article

A study of the prevalence of anxiety symptoms in school children and their association with parenting style

Smita Singh¹, T. K. Rath², Saurabh Mahajan^{3*}, Prashant Pandit⁴, Sameer Mehrotra⁵

¹Department of Community Medicine, Military Hospital, Sri Ganganagar, Rajasthan, India

²Department of Community Medicine, Base Hospital, Delhi Cantt, New Delhi, India

³Department of Community Medicine, Station Health Organization, Shakurbasti, Chandni Chowk, Delhi, India

⁴Department of Community Medicine, Military Hospital, Meerut, Uttar Pradesh, India

⁵Department of Hospital Administration Army Hospital Research and Referral, New Delhi, India

Received: 02 May 2025

Revised: 10 July 2025

Accepted: 11 July 2025

*Correspondence:

Dr. Saurabh Mahajan,

E-mail: saurabhmhjn@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial

ABSTRACT

Background: Anxiety disorders very often precede the onset of other psychiatric disorders. A continuum of factors including conflict or violence in the family, damaging life events or a low sense of connect with the environment can risk mental health causing an indelible effect on a growing adolescent. Parental behaviour may be the strongest and the earliest source of molding of habits and internalization for the children. Also, there is greater reluctance in seeking professional mental health for adolescents and especially so for girls.

Methods: A cross-sectional analytic study was carried out in children in age group 10 to 15 years to assess the prevalence of anxiety symptoms amongst them and their association with parenting style.

Results: The study participants (N=499) consisted of 53.31% males and 46.69% females. Children showing anxiety showed a consistently reducing pattern with increase in age till attainment of 15 years of age. High anxiety scores were associated with authoritarian parenting style adopted by father with odds ratio 1.633.

Conclusions: The study showed that parenting styles and academic scores are significantly associated with the anxiety symptoms in children of preadolescent age group. Screening children for symptoms of anxiety at an early adolescent stage and counselling of parents for showing responsive parenting behaviour is of paramount importance.

Keywords: Anxiety disorder, Parenting, School children

INTRODUCTION

India is home to most adults in the world and mental disorders as a cause of mortality and morbidity in adolescents has increased and topped in recent years.¹ They were the fourth leading cause of DALYs in South-East Asia in year 2000 and this rank remained stable in year 2015. It was estimated that anxiety disorders contributed around 4% of the DALYs. Even this minimum estimate was considerable given the under reporting and poor data coverage across the lower income countries due to significant attitudinal barriers, low mental health literacy, relative lack of mental health clinicians and structural deficiencies.² Data on global

burden of mental disorders suggest that approximately 35% of diseases have their roots in adolescence with most cases going undetected and left untreated. These disorders emerge often during the critical period of social and psychological development and can risk achievements like education careers as well as establishment of family relationships.²

Anxiety disorders very often precede the onset of other psychiatric disorders. Epidemiological studies suggest that anxiety symptoms may be predictors to worse outcome (e.g. suicidality, depression, substance abuse) and cause substantial impairment in all facets of life.³ A continuum of factors including conflict or violence in the

family, damaging life events or a low sense of connect with the environment can risk mental health causing an indelible effect on a growing adolescent. Socio-economic conditions, poor housing and living conditions can have a telling impact on the subsequent choices and opportunities in adolescence.⁴ Similarly, a positive association has been identified between academic demands and anxiety.⁵

Parental behaviour may be the strongest and the earliest source of moulding of habits and internalization for the children. Researchers have also discussed that mother's and father's influence differently as the role models to their children.⁶ Literature has identified relationship between several parenting behaviours and development of anxiety among children. Positive relationship has been established between high levels of criticism, overcontrol and low levels of warmth and grant of autonomy by parents and development of anxiety in children.^{7,8}

Anxiety is viewed as a continuous characteristic that, when elevated, represents a generalized vulnerability to mood disorders, but may not cause clinically significant functional impairment by itself, whereas anxiety disorders represent specific anxiety symptom clusters that cause distress or impairment.

Average age of first onset of mood and anxiety disorders has decreased and an earlier episode increases the risk of subsequent recurrence and can have long term impacts. Young children may lack verbal and cognitive capabilities to describe their anxiety thus causing delay in diagnosis and access to mental health treatment services. There is greater reluctance in seeking professional mental health for adolescents and especially so for girls, such barriers can be found in various studies.⁹⁻¹²

Objectives

To estimate prevalence of anxiety symptoms among 10-15-year-old school children using SCAS. To determine association of different parenting styles with anxiety symptoms in children.

METHODS

This was a cross-sectional analytical study with a child in the age group between 10 and 15 years and his/her parents forming the unit of study sample. The study was carried out in a co-educational school with classes from V to class XII school in a district in the western part of Maharashtra, India from September 2024 to December 2024. Medical cover is provided by nearby tertiary care hospitals along with two psychological counsellors who are available for counselling of the children and their parents from time to time. Simple random sampling was done for selection of children to be the part of study.

Sample size was calculated to estimate prevalence of anxiety symptoms in adolescents and to study association

of parenting style with anxiety symptoms among children. The minimum sample size required to estimate this prevalence of anxiety symptoms among school children with 98% confidence interval with absolute error of margin as 4% was 438. Considering a non-response rate of 20%, total students included for the study were 548. As per previous study, mean anxiety score among children who experience authoritarian style of parenting was 34.76 (13.84%) and mean anxiety score in children raised with permissive style of parenting was 21.21±9.45. Considering alpha error of 0.05 and power to be 90%, minimum sample size required was 16 child-parent dyads in each group. However, since we were studying 548 children for our first objective, all these 548 children and their parents were included for the second objective of the study.

Study population

The students in class VI to VIII (with eight sections each class) in the age group 10 to 15 years and who can read and interpret English or Hindi and were free of any pre-existing medical illness and/or disability were selected for the study.

Socio-demographic profile

The information about the birth order of child, modes of child's recreation while at home and type of family (nuclear or joint), total no of family members and any chronic illnesses among family members, education and occupation of parents, child's separation from parents (away for from either or both parents for at least 30 days in last 12 months for various reasons) and total family income was obtained from the socio-demographic questionnaire filled by child's parents. Parent who was gainfully employed for at least 8 out of 12 months, with financial remunerations was considered to be a working parent.

Academic achievement

The academic grades were collected from the school and results were averaged. The grades were divided into two categories of higher academic scores that constituted those with average of more than 50th percentile marks and lower academic scores with average of equal to less than 50th percentile marks.

Assessment of childhood anxiety was done using Spence child anxiety scale (SCAS) Questionnaire which is a questionnaire to measure "overall" anxiety disorder symptoms in children aged 8 to 17 years and is a Likert-type of scale with 44 items: 38 related to specific symptoms of anxiety and measure the six sub-scale scores and remaining 6 items are positive fillers, included so as to reduce negative response bias. The response to each item is scored as 0-3, making 114 as the maximum possible score.

Assessment of parenting style was done using parenting style and dimensions questionnaire (PSDQ): PSDQ to evaluate the parenting style. The 32 items questionnaire assesses parenting styles based on a five-point Likert scale ranging from 1 (never) to 5 (always).

Methodology

Necessary written permission to conduct the study was obtained from the school authorities. Ethical clearance was obtained from Institutional ethical committee. During one of the parent-teacher meetings, prior to the survey, teachers and parents were explained the nature and purpose of the study. Out of 548 student and parent dyads who were given assent and consent forms respectively, 499 parents gave their consent for the study. Children were instituted SCAS questionnaire for assessment of perceived symptoms related to anxiety disorders and both the parents were instituted PSDQ for assessment of their predominant parenting style. Demographic details were obtained through a separate questionnaire.

Statistical analysis

Continuous variables were summarized using mean and standard deviation while nominal variables were described by calculating percentage or proportions. Chi square test was used to calculate difference of proportion and odds ratio to assess association between different variables. Variables with significant association in the bivariable analysis were included in the multivariable analysis. Analysis of the data obtained was done using SPSS, version 20.0.

RESULTS

The study participants (N=499) consisted of almost equal representation of both the genders with 233 (46.69%) females and 266 (53.31%) males. Age wise distribution is as per Table 1. Age-wise distribution of children suggests that as the age increases the anxiety symptoms show reduction with OR: -0.766 (CI: 0.984-2.10, p value: 0.061). Odds of anxiety symptoms in girls was 1.437 times that in boys but this was not statistically significant (p=0.267).

Table 1: Age and gender of children in study population.

Age category	Males (%)	Females (%)	Total
10-11	7 (43.75)	9 (56.25)	16
11-12	44 (53.66)	38 (46.34)	82
12-13	64 (56.14)	50 (43.86)	114
13-14	70 (56)	55 (44)	125
14-15	51 (45.95)	60 (54.05)	111
15-16	30 (58.82)	21 (41.18)	51
Total	266 (53.31)	233 (46.69)	499*

Approx 392 (80%) children were living in a family of four or less, 448 (91.4%) were living as a nuclear family system. Most children 463 (94%) were living with both their parents, while rest were separated from either or both the parents. Approx. 69 (13.8%) children had family members suffering with chronic illnesses like asthma, cancer, diabetes, hypertension etc. 46 (9.4%) children were single child to their parents and there was equal representation of eldest and youngest child in the family.

Out of the total parents who responded to the question, 275 (57%) mothers were educated less than or up to class twelfth while 215 (43%) pursued education beyond class twelfth. Among fathers this distribution was approx. equal (49.6%, 50.4%). Most mothers (n=433, 88.2%) in the study population were housewife while all fathers were either employed (n=447, 91%) or pensioners (n=44, 9%).

Table 2: Parenting styles adopted by parents in study population- Baumrind's parenting styles (n=493).

Parenting style	Mother N (%)	Father N (%)
Authoritarian	95 (19.3)	95 (19.3)
Authoritative	135 (27.4)	114 (23.1)
Permissive	105 (21.3)	105 (21.3)
Uninvolved	82 (16.6)	82 (16.6)
Mixed	76 (15.4)	97 (19.7)

Parenting styles adopted by both the parents was mostly authoritative and uninvolved being the least common (Table 2).

Response and control by parents

In our study population, 245 (56.8%) mothers and 223 (54.3%) fathers showed high response, while 186 (43.2%) mothers and 188 (45.7%) fathers exhibit low response to the child. 240 (55%) Mothers and 222 (44.5%) fathers in our study population show high control. Among mothers, 32% and among fathers, 28.8% show both high response and control analogous to authoritative parenting style, while 19.7% mothers and 20.7% fathers show both low response and control, analogous to uninvolved parenting style. This also includes those exhibiting mixed parenting styles. 169 (56.9 %) of both the parents of a child exhibit high response and 186 (43.2%) exhibit low response in parenting. Similarly, 179 (56.6%) and 137 (43.4%) of both parents show high and low control in parenting respectively.

Child anxiety scores

Out of 473 children who filled the questionnaire approx. 166 (35%) children had increased scores for Anxiety symptoms, while 307 (63.6%) scored normal with no symptoms of anxiety. There was significant difference between mean scores of group showing no anxiety

symptom and those showing symptoms of anxiety (mean difference =17.995, 95% CI 16.421 to 19.568, $p<0.0001$).

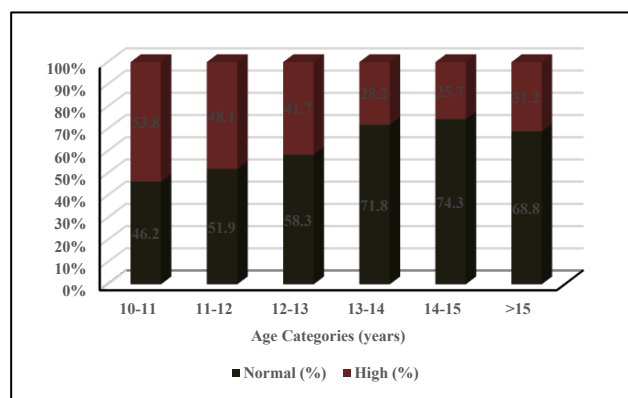


Figure 1: Age-wise distribution of anxiety scores in children.

Proportion of children showing anxiety showed a consistently reducing pattern with increase in age till

attainment of 15 years of age (odds ratio of 0.766, 95% CI: 0.660- 0.890; p value: <0.001) (Figure 1).

There was no significant association found between child's anxiety score and the recreation modes used by child. Similarly, occupation of either parent was also not significantly associated with child's anxiety score.

After excluding the mixed parenting styles, the various parenting styles did not show any association with increased total anxiety scores in children. However, high anxiety scores were associated with authoritarian parenting style adopted by father with odds ratio 1.633 (95% CI: 1.021-2.610) which was statistically significant (p value: 0.041). While the association between authoritarian parenting by mother and anxiety scores was not statistically significant. There was significant difference of means of anxiety score when exposed to different paternal parenting styles with p value of 0.009. While there was no significant difference of means of anxiety score when exposed to different maternal parenting styles with p value of 0.135.

Table 3: Association of father's response and with anxiety scores in children.

Child anxiety scores	Normal (%)	High (%)	Odds ratio (95% CI)	P value
High response	147 (69.7)	64 (30.3)	ref value	0.026
Low response	104 (58.8)	73 (41.2)	1.612 (1.060-2.452)	
Low control	125 (67.2)	61 (32.8)	Ref value	0.519
High control	134 (64.1)	75 (35.9)	1.147	

Table 4: Association of average academic scores of the child with parent's education.

Child's academic scores	Low (%)	High (%)	Odds ratio (95% CI)	P value
Mother's education				
≤12 th class	90 (33.33)	180 (66.66)	Ref value	0.002
Graduate/PG/diploma	44 (20.66)	169 (79.34)	1.920 (1.265-2.915)	
Father's education				
≤12 th class	84 (35.74)	151 (64.26)	Ref value	0.001
Graduate/PG/diploma	49 (20.42)	191 (79.59)	2.168 (1.436-3.274)	

Association of response or control in parenting styles with anxiety scores in children revealed a significant association between high anxiety scores for children and response exhibited in father's parenting behaviour with an odds of high anxiety scores among children with fathers showing low response in parenting as 1.612 times as compared to fathers showing high response and was statistically significant (p value: 0.026) (Table 3). However, neither control nor response in mother's parenting style shows any association with anxiety scores in child. Odds of academic scores being higher was 2.016 times in children with both mother and father showing high response parenting when compared to both parents with low response parenting and this association was statistically significant (p value: 0.009).

Academic scores and its association with various exposures in the study revealed female gender being associated with higher academic average with OR of 1.973 (CI:1.312-2.969) which was statistically significant ($p=0.001$). Association with education of the parents was significant with an OR of 1.920 and 2.168 for mother's and father's education respectively (Table 4).

Parenting style of both mother and father were significantly associated with academic scores of the child. Odds of child with non-authoritarian father having higher academic average was 2.168 (95% CI: 1.436- 3.271, $p<0.001$) times as compared to children having authoritarian father. Mothers parenting style showed significant association with child anxiety scores with odds of children experiencing non-authoritarian parenting by

mother, scoring higher marks was 1.92 times as compared to children with authoritarian mothers.

Association of child's anxiety scores with the average academic scores

Lower academic scores were significantly associated with higher levels of anxiety score. Odds of higher anxiety score in children having lower academic performance was 1.822 (95% CI: 1.204-2.759, p value=0.005) times that children with better academic performance.

DISCUSSION

Prevalence of anxiety symptoms was 35% in our study population of 473 children. The figure was larger than many other studies conducted in India. A meta-analysis by Ganguly has reported a prevalence rate of 16.5 in urban areas of India.¹³ Among other such studies anxiety disorders among adolescents can range from 4-20%.¹⁴ Community studies among school students in Western countries have suggested a period prevalence rate of at least one anxiety disorder between 9% to 32%.¹⁵ This discrepancy in prevalence rates can be due to under-reporting, poor screening instruments, exclusion of certain anxiety disorders from surveys, changing diagnostic criteria, etc. A study by Mousavi et al.¹⁶ indicated that when Asian samples are compared to European/American; they reported greater anxiety symptoms on all subscales of anxiety.

Our study revealed that there was a negative correlation between age and anxiety symptoms. The possible explanation could be due to the changes that occur during puberty around same age which. However, this needs to be collaborated with the findings of similar studies involving age group even beyond 15 years. In our study, although the odds of anxiety was more in girls as compared to boys however it was not statistically significant. Various studies in the past have commented on gender differences in anxiety among children with increased female preponderance.¹⁷⁻¹⁹ Bakhla et al reported high anxiety in students was significantly associated with female gender.²⁰⁻²³ These differences may be explained by the various environmental and biological factors that may play a moderation effect on the association.

In this study, children of mothers who pursued higher education were associated with lesser anxiety symptoms in the study population with a significant OR of 1.969 (p value: <0.001). The literature supporting or to contradict this finding could not be found on literature search. However, Maras et al found that parental education exerts a stronger influence (than even family income and social class) on parent-reported child mental health, which can be of help in diagnosing anxiety symptoms earlier.²⁴

Vast amount of literature suggests the finding that authoritarian type of parenting is not conducive to academic performance of children. Literature supports

authoritative parenting as the best for achieving better standards of academics in children.^{25,26} Same is reflected in present study.

Lower academic scores in our study population were significantly associated with higher levels of anxiety symptoms (OR=1.822, p value =0.005) as compared to children with better academic performance. In a study by Chen et al it was found that authoritarian parenting was associated positively with aggression and negatively with peer acceptance, sociability competence, distinguished studentship and school academic achievement.²⁷ In contrast, parental authoritative style was associated positively with indices of social and school adjustment and negatively with adjustment problems. In a study by Woodruff-Borden et al it was noted that IQ was not significantly related to the presence of an anxiety symptoms in Children.²⁸ Researchers have found academic stress to be a risk factor that heightened student anxiety suggesting that increased academic stress can lead to anxiety symptoms in adolescents.²⁸⁻³⁰

A few strengths of the study were that it had a good sample size and the study sample was largely homogenous. Pre validated questionnaires were used to assess various outcomes of the study.

Some methodological limitations were also present in the study. The study was conducted in school going children and does not include school dropout or children involved in child labour. The study sample is less to extrapolate to regional and national level trends. The study did not cover the disabled children and those with other illnesses. Scales used for assessment were self-reported. Hence, memory bias and/or distortion, Hawthorne effect can't be ruled out of the answers.

CONCLUSION

The study showed that parenting styles and academic scores are significantly associated with the anxiety symptoms in children of preadolescent age group. Screening children for symptoms of anxiety at an early adolescent stage and counselling of parents for showing responsive parenting behaviour is of paramount importance. School health program should be diligently followed and "health and wellness ambassadors" should be trained to screen anxiety symptoms and transact health promotion information.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Sivagurunathan C, Umadevi R, Rama R, Gopalakrishnan S. Adolescent health: present status

- and its related programmes in India. Are we in the right direction? *J Clin Diagn Res*. 2015;9(3):LE01-6.
2. Baranne ML, Falissard B. Global burden of mental disorders among children aged 5-14 years. *Child Adolesc Psychiatr Mental Health*. 2018;12(1):19.
 3. Stein DJ, Scott KM, Jonge P de, Kessler RC. Epidemiology of anxiety disorders: From surveys to nosology and back. *Dialogues Clin Neurosci*. 2017;19(2):127-36.
 4. Niagara Knowledge Exchange. Risks to mental health: an overview of vulnerabilities and risk factors. 2012. Available from: <https://www.niagaraknowledgeexchange.com/resource-s-publications/risks-to-mental-health-an-overview-of-vulnerabilities-and-risk-factors/>. Accessed on 11 May 2025.
 5. Rothblum ED, Solomon LJ, Murakami J. Affective, cognitive, and behavioral differences between high and low procrastinators. *J Counsel Psychol*. 1986;33(4):387-94.
 6. Huta V. Linking peoples' pursuit of eudaimonia and hedonia with characteristics of their parents: parenting styles, verbally endorsed values, and role modeling. *J Happiness Stud*. 2012;13(1):47-61.
 7. Niditch LA, Varela RE. Perceptions of parenting, emotional self-efficacy, and anxiety in youth: test of a mediational model. *Child Youth Care Forum*. 2012;41(1):21-35.
 8. McLeod BD, Wood JJ, Weisz JR. Examining the association between parenting and childhood anxiety: a meta-analysis. *Clin Psychol Rev*. 2007;27(2):155-72.
 9. Bhatia M, Goyal A. Anxiety disorders in children and adolescents: need for early detection. *J Postgrad Med*. 2018;64:75.
 10. Gulliver A, Griffiths KM, Christensen H. Perceived barriers and facilitators to mental health help-seeking in young people: a systematic review. *BMC Psychiatr*. 2010;10.
 11. Chang G, Sherritt L, Knight JR. Adolescent cigarette smoking and mental health symptoms. *J Adolesc Health*. 2005;36(6):517-22.
 12. Zachrisson HD, Rødje K, Mykletun A. Utilization of health services in relation to mental health problems in adolescents: a population-based survey. *BMC Public Health*. 2006;6(1):34.
 13. Ganguli HC. Epidemiological findings on prevalence of mental disorders in India. *Indian J Psychiatr*. 2000;42(1):14-20.
 14. Martin A, Volkmer FR, Lewis ME. Child and adolescent psychiatry: a comprehensive textbook. 4th edn. Lippincott Williams and Wilkins Publishers; 2007.
 15. Karande S, Gogtay N, Bala N, Sant H, Thakkar A, Sholapurwala R. Anxiety symptoms in regular school students in Mumbai City, India. *J Postgrad Med*. 2018;64(2):92.
 16. Mousavi S, Pahlavanzadeh S, Maghsoudi J. Evaluating the effect of a need-based program for caregivers on the stress, anxiety, depression, and the burden of care in families of children with attention deficit-hyperactive disorder. *Iran J Nurs Midwife Res*. 2019;24(2):96.
 17. Murthy Rs. National mental health survey of India 2015-2016. *Indian J Psychiatr*. 2017;59(1):21.
 18. Vasey MW, Dadds MR, eds. *The Developmental Psychopathology of Anxiety*. Oxford University Press; 2001.
 19. Walsh CJ, Roy AH, Feminella JW, Cottingham PD, Groffman PM, Morgan RP. The urban stream syndrome: current knowledge and the search for a cure. *J North Am Benthol Soc*. 2005;24(3):706-23.
 20. Chaudhury S, Bakhla A, Sinha P, Sharan R, Binay Y, Verma V. Anxiety in school students: role of parenting and gender. *Indust Psychiatr J*. 2013;22(2):131.
 21. Pillai A, Patel V, Cardozo P, Goodman R, Weiss HA, Andrew G. Non-traditional lifestyles and prevalence of mental disorders in adolescents in Goa, India. *Br J Psychiatr*. 2008;192(1):45-51.
 22. Yadav DU, Kumar AB. A wake up call: rising incidences of anxiety disorder in paediatric population. *Int J Pharm Bio Sci*. 2013;4:1056-62.
 23. Deb S, Chatterjee P, Walsh K. Anxiety among high school students in India: Comparisons across gender, school type, social strata and perceptions of quality time with parents. *Aust J Educ Develop Psychol*. 2010;10:18-31.
 24. Maras D, Flament MF, Murray M, Buchholz A, Henderson KA, Obeid N, et al. Screen time is associated with depression and anxiety in Canadian youth. *Prevent Med*. 2015;73:133-8.
 25. Masud H, Thurasamy R, Ahmad MS. Parenting styles and academic achievement of young adolescents: a systematic literature review. *Qual Quant*. 2015;49(6):2411-33.
 26. Ang RP. Effects of parenting style on personal and social variables for Asian Adolescents. *Am J Orthopsychiatr*. 2006;76(4):503-11.
 27. Chen X, Dong Q, Zhou H. Requests for reprints should be sent to authoritative and authoritarian parenting practices and social and school performance in Chinese children. *Int J Behav Develop*. 1997;21(4):855-73.
 28. Woodruff-Borden J, Kistler DJ, Henderson DR, Crawford NA, Mervis CB. Longitudinal course of anxiety in children and adolescents with Williams syndrome. *Am J Med Genet Part C Semin Med Genet*. 2010;154(2):277-90.
 29. Salili F, Lai MK, Leung SSK. The consequences of pressure on adolescent students to perform well in school. *Hong Kong J Paediatr*. 2004;9:329-36.
 30. Chen H, Lan W. Adolescents' perceptions of their parents' academic expectations: comparison of American, Chinese-american, and Chinese high school students. *Fam Ther*. 2006;33:113-8.

Cite this article as: Singh S, Rath TK, Mahajan S, Pandit P, Mehrotra S. A study of the prevalence of anxiety symptoms in school children and their association with parenting style. *Int J Community Med Public Health* 2025;12:3552-7.