ORIGINAL ARTICLE

PREVALENCE AND ASSOCIATED FACTORS OF PERCEIVED STRESS AMONG ADOLESCENT GIRLS IN NAWABSHAH CITY, PAKISTAN

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Background: The aim of this study was to determine the prevalence and associated factors of perceived stress among female adolescent in Nawabshah City, Pakistan. **Methods:** This study was a sub-analysis of a parent research. Analytical cross-sectional design was used to achieve the study objectives. The study population comprised of school-going female adolescents aged 10–16 years resident of Nawabshah City. Perceived Stress Scale (PSS) and structured questionnaire were employed to measure the prevalence and associated factors of stress respectively. Multiple linear regressions were done to determine the predictors contributing to stress among female adolescents by using SPSS-17. **Results:** The mean (±SD) of perceived stress score of the respondents was 27.84±2.84 with median 28 and the values were ranging from 19–37 scores for female participants. The final model indicated that among adolescents whose fathers are unemployed, the estimated mean score of stress was 0.734±0.493 higher than adolescents whose fathers are employed. As the number of rooms in the house increased by one, the estimated mean stress score decreases by 0.213±0.082. Among adolescents whose parents quarrelled, the estimated mean score of stress was 0.158±0.051 higher than adolescents whom parents did not quarrel. **Conclusion:** Almost every second female adolescent (58%) reported stress symptoms. The father's unemployment, number of rooms and parental quarrel is associated with risk of stress among female adolescents.

Keywords: Stress, Adolescent, House-hold, Sindh, Pakistan, Family

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INTRODUCTION

Adolescent is a unique population and has particular health needs and concerns.[1] Adolescence is viewed as most critical time for mental health and wellbeing[2] because it is a time of psychosocial as well as biological transition.[1] Adolescent consider as a stage of stress and srain.[3] Since in this period, there are rapid changes in physical, mental, social, cognitive and sexual domains; these changes ultimately lead to an increased level of stress.[4] Literature highlighted that stress in male and female adolescent could lead to behavioural and psychological problems.[5]

Stress of any type is a major risk for mental illness.[6] In adolescence mental illness symptoms are often considered normal stressor for youth.[7] Fifty percent of the adolescent population experiences their first mental illness symptoms prior to 18 years of age.[8] However, 85–90% of young people with mental health problems did not seek mental help services.[9] Female adolescent are more vulnerable for stress than males[4] due to varying hormonal changes and social developments.[10] Moreover, depression disorder is more evident in female adolescents.[7]

Poor mental health can have numerous impacts on female adolescent development such as use of illicit drug, withdrawal, poor coping skills, abnormal eating habits, anti-social behaviour, adolescent pregnancy, school dropout, unprotected sex and poor physical health.[1,7,11] Female adolescent are the source of hope for future generation[12] nonetheless, there are limited researches on female adolescent in Pakistan. This cross-sectional survey would attain baseline data on the prevalence of, and factors associated with stress among female adolescents. The identification of all the potential associated will help in formulating preventive strategies in order to control the current stressors among female adolescents. The purpose of this study is to estimate the prevalence and identify the factors associated with stress among female adolescents in Nawabshah City, Pakistan.

MATERIAL AND METHODS

This study is a sub-analysis of a parent research. The methods and subjects have been explicitly stated in parent study elsewhere.[13] The analytical cross-sectional design is useful when one wishes to demonstrate relationships between the factors studied and the outcome of interest, at a fixed period in time[14] hence, this design was employed in this study. The study population comprised of school-going female adolescents of 10–16 years of age and resident of Nawabshah City. The study was conducted in the secondary schools in Nawabshah City. In the first phase, 18 schools of Nawabshah City that consented to participate were selected. In the second phase, 474 female adolescents were recruited from the schools using a simple random sampling technique. Approval of

study protocol was sought from the institutional ethical review committee before starting the data collection process. Verbal and written consent and assent were sought from parents and adolescents respectively.

Face to face interviews were performed, using a structured questionnaire, to estimate the level of stress and determine various risk factors, e.g., gender, prior information about pubertal body changes, type of school, number of siblings, age of parents, employment status of parents, parental quarrel and number of rooms in the house. The outcome variable was assessed with the help of Perceived Stress Scale (PSS). A modified form of PSS scale was used in our study questionnaire. In the modified form of scale, there were 14 questions with three-point scale (1=never, 2=sometimes, 3=often). Seven items of this scale, i.e., 1, 2, 3, 8, 11, 12, and 14 were scored in an ascending order and the rest of seven items, i.e., 4, 5, 6, 7, 9, 10, and 13 were scored in descending order. The total score on PSS was taken as sum of score for all the 14 items. The content validity of the scale was established by a group of expert psychologists and the scale was modified according to understanding of adolescents and their cultural context. Measures of central tendency and dispersion for continuous variables and frequency and percentages for qualitative variables were computed. Multiple linear regression analysis was done to identify the factors associated with stress by using SPSS-17.

RESULTS

The Mean (±SD) of perceived stress score of the respondents was 27.84±2.84 with median 28 and the values were ranging from 19–37 scores for female participants. Taking midpoint of perceived stress scale, i.e., score of 28 as a cut-off point for estimating the prevalence of stress, 273 (57.6%) of the adolescents were found to be stressed. (Table-1).

Table-2 refers the univariate analysis that was performed through linear regression to evaluate the independent effect of each predictor variable with stress. Scatter plots were initially made in order to assess the linear relationship of each predictor variable with outcome. Employment statuses of father, number of rooms, and parents' quarrel were associated with stress in univariate analysis on $p<0.15$. Among adolescents whose fathers were unemployed, the estimated mean score of stress was 0.792 higher than adolescents whose father was employed (95% CI: -0.186, 1.770).

As the number of rooms increases by one, the estimated mean stress score decreases by 0.211 (95% CI: -0.372, -0.050). Among adolescents whose parents quarrel, the estimated mean score of stress was 0.612 higher than adolescents whom parents do not quarrel (95% CI: 0.058, 1.167).

Multiple linear regressions were run to determine the predictors contributing to mean stress scores. Variables were added in the model one by one, starting with the most significant variable in the univariate analysis. All variables that were not significant ($p>0.05$), not confounding the relationship of other variables, or were not biologically important were subsequently removed from the model.

The final model indicates that 2.3% of the variability in the mean stress scores is explained by father's employment, number of rooms and parental quarrel (Table-3). Although variable father's employment had $p>0.05$ (insignificant), it served as a confounder; therefore, it was kept in the model for further analysis. Adolescents whose fathers were not employed were at increased risk of stress [adjusted beta: 0.734 (95% CI: -0.236, 1.7.03)] compared to adolescent whose fathers were employed. Moreover, with one number increase of a room in house, the mean estimated stress score decreases by -0.213 (95% CI: -0.373, -0.053). Number of rooms was taken as a proxy for socioeconomic status; therefore, it shows that higher socioeconomic status has a protective effect on the level of stress. Among adolescents' home environment where there was parental quarrel, the mean estimated stress score increases by 0.158 compared to adolescents whose parents do not quarrel (95% CI: 0.056, 1.159).

Table-1: Perceived Stress Scale among school-going female adolescents in Nawabshah City (n=474)

Mean	27.84
Median	28
Standard deviation	2.84
Minimum	19.0
Maximum	37.0

Table-2: Univariate analysis of factors associated with stress among school-going female adolescents in Nawabshah City (n=474)

Characteristics	B (SE (β))	95% CI	*p*
Age (10–16 years)	-0.051 (0.095)	-0.238, 0.137	0.596
Age of father	0.023 (0.018)	-0.012,0.058	0.204
Father's Employment status	0.792 (0.498)	-0.186, 1.770	0.112
Age of mother	-0.001 (0.021)	-0.043, 0.004	0.946
Mother's Employment status	0.161 (0.459)	-0.74,1.064	0.725
Number of rooms	-0.211 (0.082)	-0.372, -0.05	0.001*
Body mass index	-0.003 (0.036)	-0.069, 0.074	0.937
Information about pubertal changes	0.107 (0.366)	-0.826, 0.611	0.77
Parental quarrel	0.612 (0.282)	0.058, 1.167	0.031*
Number of Siblings	-0.004 (0.053)	-0.826, 0.611	0.945

p-value for selection ≤0.15, *significant

Table-3: Multivariable analysis of factors associated with stress among school-going female adolescents in Nawabshah City (n=474)

Characteristics	β (SE (β))	95% CI	*P*
Father's Employment	0.734 (0.493)	-0.236, 1.703	0.138
Number of rooms	-0.213 (0.082)	-0.373, -0.053	0.001*
Parental quarrel	0.158 (0.051)	0.056, 1.159	0.001*

F=4.635, Adjusted R^2=0.023, p=0.003

DISCUSSION

Our study has estimated the prevalence of stress as 58% among school-going female adolescents in Nawabshah City, Pakistan, which is very alarming. Prevalence of stress in general population in Pakistan is unknown, therefore, it was not possible to compare the results in local context. However international studies of high school students have shown that the incidences of stress and depression among adolescents are greater for females than males.[7] A survey conducted among Swedish children showed that 60% of the females reported the symptoms of stress.[15] Similarly a study by Schraml *et al* on incidence of stress symptoms among adolescent found that every second female adolescent was experiencing stress symptoms.[4]

It is well recognised that adolescents who experience economic hardship are at the increased risk for social and emotional problems.[16] Our study has found an association between fathers' employment and stress; although it was not statistically significant but served as a confounder. This was measured as a proxy indicator to assess socioeconomic status of our study subjects. Parental long-term unemployment (especially of fathers) is associated with adolescents' subjective health.[17] Many studies have shown that parental unemployment has consequences for behavioural problem in children; stress and depression are one of them.[16–18]

This study provides evidence that there is an inverse relationship between the number of rooms and perceived stress among female adolescents. In our study, number of rooms was taken as proxy to assess socioeconomic status of subjects; ideally, we could have gathered information on household income which is a better predictor for socioeconomic status. However, it was unlikely to get precise information on this variable from adolescents 10–16 years of age. Previous studies have also manifested that lower socioeconomic status correlates with increased stress among adolescents;[17,19,20] furthermore, the finding is also inline with the results of the parent study.[13] It is also evident in the literature that the lower social status of females may increase the vulnerability of adolescent girls to depression.[4,10] One of the probable explanation for this relationship could be socially disadvantaged individuals have less access to basic need and psychological resources.

Our study has found a significant association between parental quarrel and the risk of stress. This study finding is consistent with the previous studies.[17,21,22] Previous studies suggest that conflicts and arguments within the home were clearly and directly associated with the prevalence of stress, depression and suicidal phenomena among adolescents, whereas family harmony and cohesion appeared to have a protective effect.[17] In our study, information regarding parental quarrel was captured by asking study participants about stressful conditions as a close ended questions. It was likely to have more adolescents reporting about parental quarrel had we added open-ended question in our questionnaire; in addition, it could have also led to non-differential misclassification.

In Pakistan, very limited studies have been conducted to address the mental health issues of female adolescents; therefore, the results of our study will potentially help policy makers and researchers for planning further researchers and deigning health policies. On the contrary, the study has certain limitations that need to be acknowledged in the interpretation of the results. There are several other important risk factors like, family history of psychiatric disorders, current illness, academic performance, cognitive status and peer relationship which were not addressed in this study. Our study was based on self-reported perceived stress information; therefore, this might have underestimated or overestimated the risk of stress in our study. Furthermore, adolescents might have responded negatively to the items of perceived stress scale because of social stigma that is attached to mental illness. In addition, this was a cross-sectional survey, so inferences could not be drawn about causality of association.

CONCLUSION & RECOMMENDATION

Despite the limitations of our study, we were able to determine some major risk factors for stress among female adolescents in Nawabshah City, Pakistan. This study has reported a 58% prevalence of stress in our study population and showed that father's employment, number of rooms, and parental quarrel are significantly associated with stress among adolescent girls. If the sensitivity of stress will persist; the day will not be far majority of female adolescent population will be suffering from the pathetic psychological condition of Depression. Therefore, by chalking out public health interventions and addressing the identified risk factors, we can prevent our future assets from getting into psychological morbidity, mortality and disability. This study recommends the following:

- There is need to screen adolescents who are at high risk of developing mental illness at earlier stage of life.
- Students exhibiting symptoms of maladjustment should be offered group counselling based on their specific needs and situation.
- Train health teams in multidisciplinary handling of adolescents and their families, promoting direct and interactive participation with adolescents and with

the people that live with them, in the establishment of a support and social attention network.

- Parental counselling is required for the better physical and psychological development of adolescents as it is a sensitive period of one's life.

Further studies are needed to identify the risk factors of stress that have not been inquired in the present study; longitudinal research should be given choice to establish temporality and causal associations.

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