Original Research Article

Resilience level among adolescent children: a school-based study in Kolkata, India

Rajarshi Banerjee, Aparajita Dasgupta, Jayeeta Burman*, Bobby Paul, Lina Bandyopadhyay, Sweta Suman

Department of Community Medicine, All India Institute of Hygiene and Public Health, Kolkata, West Bengal, India

*Correspondence:
Dr. Jayeeta Burman,
E-mail: drjayeeta86@gmail.com

ABSTRACT

Background: The rat race of modern life is affecting each and every strata of our society and adolescents are not exempted from this underlying stress. Lack of resilience in adolescents may lead to psychosocial maladaptation and psychopathology in adulthood. This study was undertaken to determine the resilience level and its possible predictors among adolescents of a Kolkata based school.

Methods: This was an institution-based, observational cross-sectional study done from June-August'17 among 151 students of 7th-9th standards in a school of Kolkata. A pre-designed, pretested, structured, self-administered questionnaire along with CYRM-12 ('Child and Youth Resilience Measure-12') questionnaire was used. The scoring of each question was from 1-3 (higher score indicates more resilience) in CYRM-12 and in this study median attained score of 31 was taken as cut off for determining resilience level. Ethical issues were addressed. SPSS (v.16.0) was used for data analysis.

Results: Among 151 students of 12-14 years, 57(37.7%) students were resilient and factors like 'class' [OR=4.01(1.85-8.67)]; 'family type' [OR=7.73(3.66-16.30)]; 'time spent with father' [OR=8.64(4.07-18.37)]; 'time spent with mother' [OR=5.97 (2.87-12.42); 'physical activities' [OR=9.11 (4.07-20.37) and self-rated school performance [OR=3.12(1.39-6.96)] were associated with high resilience during univariate logistic regression analysis. In the final model of multivariable logistic regression analysis by LR forward method factors like 'family type' [AOR=4.45(1.73-11.45)]; 'time spent with father' [AOR=5.27(2.04-13.6)]; 'time spent with mother' [AOR=4.83(1.80-12.90)] and 'physical activities' [AOR=8.14(2.95-22.47)] retained its significance.

Conclusions: Quality parental time for children and engagement in physical activity will help to increase resilience level and build up the coping capacity.

Keywords: Adolescent, CYRM, Resilience, Resilient, Student

INTRODUCTION

Once upon a time, the school days were called the best part of one's life. If we rewind back by only 2 decades, we would find children are going school with much lighter weights on their back as well as on their brain. The rat race of modern life is affecting each and every strata of our society and students are not exempted from this decadence.

The unmet virtual needs of life, the gap between demand and achievement are affecting our health, to be precise, our mental health silently and the worst sufferers of this

dreadful situation are none other than the tender most part of our society i.e. students.

Students have to tackle a number of day to day challenges with their incompetent intellect and immature mind. Major changes of social structure like change from joint to nuclear family, working parents, high expectation from teachers and parents, adherence to mobile-internet-video games and lack of physical activities are few of them, probably responsible for this menace called mental disorder.

Researchers have identified that lack of resilience in children and adolescents may lead to psychosocial maladaptation and psychopathology in adulthood.[1] Resilience is defined by the ability to respond positively and thrive in response of adverse situations.[2] This is a quality that affects an individual's ability to cope with tension.[3]

Resilience of a person depends upon a number of factors e.g. optimism, self-efficacy, impulse control, perseverance, flexibility and emotional awareness.[4,5] The Penn Resilience programme proposed that building self-belief and self-efficacy makes an individual more likely to seize power and overcome setbacks.[6] Now a days incidents of mental disorders, self-harm and suicide are increasing in leaps and bounds in adolescents, with rates of self-harm being high in the teenage years and suicide being the second most common cause of death in young people worldwide.[7]

Lack of resilience is an important factor for these adverse outcomes. Researchers have demonstrated that resilience can be taught to students.[8] Thus the early recognition of resilience level and the factors that may influence resilience should be determined in early age, So, that proper training program for resilience can be included in the curriculum and screening of the high-risk individual for development of mental disorder, suicidal tendencies etc. becomes possible. With this background the present study was done in a Kolkata based school to find out the resilience of adolescent students and the factors determining the resilience among study subjects.

METHODS

This was an institution based, observational, cross-sectional study which was conducted from1st July to 31st August 2017. The study was conducted among students of 7th, 8th and 9th standards of a private secondary school located in a Kolkata, West Bengal.

A health camp was organized on 12th August 2017 in the school premises and students who attended the health camp were taken as subjects in this study. Informed consent and ascent from guardians were sought before initiation of the study and those who declined were excluded.

Complete enumeration method was used as sampling technique in this study. A total of 177 students were enrolled in school in these three classes and out of these, parents of 151 students gave consent to attend health camp. On this particular day, all the students who attended the school were first given a questionnaire. It was a pre-designed, pre-tested, structured self-administered questionnaire containing both open and close ended questions regarding socio-demographic profile, life style and social-physical as well as academic activities along with CYRM-12 (Child and Youth Resilience Measure-12) questionnaire.[9]

Review of literature was done to enumerate various factors determining the outcome variable i.e. resilience. Face validity of the instrument was checked by the experts of A.I.I.H. and P.H, Kolkata.

The tool was translated into local language i.e. Bengali and back translated into English and the Bengali version was administered to the students. Students were briefed by the researcher regarding the questions and anonymity and confidentiality was also assured to them. After submission of the filled up proformas, a session on ways to maintain a healthy lifestyle was conducted by the researcher.

Data entry of the completely filled in questionnaire was done for analysis of questionnaire. Each question of CYRM-12 questionnaire has three options with '1' as lowest score for unfavourable and '3' as highest score for favorable response. This questionnaire has no reverse coding. So, the highest and lowest attainable scores are '36' and '12' respectively. In this study highest and lowest attained score were '36' and '21' respectively with median as '31'. So those who had scored above '31' were considered as 'resilient' and those who scored 31 or less were considered as 'non-resilient'.

Statistical analysis

Data were analysed using SPSS statistical software programme (version 16). Descriptive results are presented through tables. Logistic regression analysis was performed to determine the strength of association between variables and 'P value' less than '0.05' were considered as statistically significant.

RESULTS

In this study authors have found that 57 (37.7%) students were resilient while 94 (62.3%) students were non-resilient. Among all students who had participated the health camp, 48 (31.8%) were from class-7, while 46 (30.5%) and 57 (37.7%) students were from class-8 and class-9 respectively.

Among participants 10.6% were 12 years old, 34.4% were 13 years old, 34.4% were 14 years old and 20.5% had age of 15 years. Among students 55.6% were boys.

Table 1: Distribution of study participants according to life style and behavioural characteristics (N=151).

Characteristics	No. (%)
School performance (self-rated)	
Very good	32 (21.2)
Good	66 (43.7)
Average	53 (35.1)
Involvement in social work*	
Yes	128 (84.8)
No	23 (15.2)
Time spent with father (in completed hours)	
(Mean=3.92, Median=4, S.D.=1.99, Range=8)	
0-4	86 (57.0)
5-8	65 (43.0)
Time spent with mother (in completed hours)	
(Mean=6.44, Median=6, S.D.=2.04, Range=9)	
1-5	47 (31.2)
6-10	104 (68.8)
Physical activities**	
Yes	79 (52.3)
No	72 (47.7)
Takes part in competition	
Yes	98 (64.9)
No	53 (35.1)
Extracurricular activity***	
Yes	137(90.72)
No	14(9.28)

*Social work= cultural program, flood relief volunteer, tree planting program; **Physical activities= sports, yoga, swimming, cycling, dancing; ***extracurricular activities= drawing, recitation, drama, singing, reading story books.

Majority of parents are educated and most of them had studied till graduation or above (83.2% fathers and 66.2% mothers).

It is evident from this study (Table 1) that majority of the study participants take parts in different competitions (64.9%) e.g. drawing, recitation, quiz, debate, singing, sports etc. and perform physical activities (52.3%) e.g. yoga, playing football, cricket, table tennis, badminton, dancing etc. 90.72% had one or more extracurricular activities e.g. drawing, playing drama or musical instrument, reading story books, recitation etc. and 84.8% of them had participated in different social work like plantation, relief work, cultural program etc.

Only 21.2% participants had rated themselves as very good students and majority (43.7%) rated themselves as good and 35.1 % as average student. 57% of participants spent 4 hours or less with their father per day and 53.64% had spent 6 hours or less with their mother (4 hours and 6 hours were median of time spent with father and mother respectively).

During analysis of responses against CYRM-12 questionnaire (Table 2), it was found that for first 9 questions and for the last question on family celebration, majority had marked 'yes' (most favorable response) and when they were asked whether they were treated fairly or not, most of them (47%) answered that sometimes they were treated fairly.

Table 2: Distribution of answers given by study participants against the questions of CYRM-12 questionnaire (N=151).

Question	No(1)	Sometimes(2)	Yes(3)
Do you have people you want to be like?	23(15.2)	24(15.9)	104(68.9)
Is doing well in school important to you?	6(4)	19(12.6)	126(83.4)
Do you feel that your parent(s)/ caregiver(s) know a lot about you (for example, what makes you happy, what makes you scared)?	19(12.6)	35(23.2)	97(64.2)
Do you try to finish activities that you start?	5(3.3)	24(15.9)	122(80.8)
When things don't go your way, can you it without hurting yourself or other people (for example, without hitting others or saying nasty things)?	17(11.3)	43(28.5)	91(60.3)
Do you know where to go to get help?	42(27.8)	31(20.5)	78(51.7)
Do you feel you fit in with other children (holidays or learning about your culture)?	3(2)	38(25.2)	110(72.8)
Do you think your family cares about you when times are hard (for example, if you are sick or have done something wrong)?	16(10.6)	26(17.2)	109(72.2)
Do you think your friends care about you when times are hard (for example if you are sick or have done something wrong)?	18(11.9)	61(40.4)	72(47.7)
Are you treated fairly?	26(17.2)	71(47)	54(35.8)
Do you have chances to show others that you are growing up and can do things by yourself?	35(23.2)	72(47.7)	44(29.1)
Do you like the way your family celebrates things?	5(3.3)	16(10.6)	130(86.1)

When authors asked them whether they could do things independently or not, most of them (47.7%) answered that sometimes they got chances to show other that they could do things by themselves. So, for none of the question the least favorable option i.e. 'no' was answered by majority (Table 2).

To find out the strength of association between resilience and various other factors binary logistic regression analysis (univariate and multivariable) had been done (Table 3).

Table 3: Association between resilience and various factors: univariate and multivariable logistic regression analysis (N=151).

Factors	Referent	Resilient	OR CI (95%)	AOR CI (95%)
Class 7 and 8	class 9	46 (48.9)	4.01 (1.85-8.67)	
Female	Male	24 (35.8)	0.86 (0.44-1.68)	-
Joint	Nuclear	42 (62.7)	7.73 (3.66-16.30)	4.45 (1.73-11.45)
Time spent with father (in completed hours) ≥4 hours	< 4 hours	42 (64.6)	8.64 (4.07-18.37)	5.27 (2.04-13.60)
Time spent with mother (in completed hours) ≥ 6 hours	< 6 hours	42 (58.3)	5.97 (2.87-12.42)	4.83 (1.80-12.90)
Father's educational qualification (n=149)* graduate and above	Below graduate	50 (39.7)	1.69 (0.66-4.35)	-
Mother's educational qualification graduate and above	Below graduate	41(41)	1.52 (0.75-3.1)	-
School performance (self-rated) very good	Good and average	19 (59.4)	3.12 (1.39-6.96)	-
Involvement in social work**Yes	No	48 (37.5)	0.93 (0.38-2.32)	-
Physical activities***Yes	No	47 (59.5)	9.11 (4.07-20.37)	8.14 (2.95-22.47)
Extracurricular activities**** Yes	No	52 (38)	0.91 (0.29-2.86)	-

Nagelkerke R^2 = 0.687, Hosmer and Lemeshow test value = 0.897; *father of 2 students were died; **Social work= cultural program, flood relief volunteer, tree planting program; ***Physical activities= sports, yoga, swimming, cycling, dancing; ****extracurricular activities= drawing, recitation, drama, singing, reading story books.

During univariate binary logistic regression analysis it was found that association was significant for factors like family type [OR=7.73 (3.66-16.30)] where authors have compared the students of joint family with those from nuclear family as referent, time spent with father [OR=8.64 (4.07-18.37)] where authors have compared students spending 4 hours or more with their father with those spending less than 4 hours as referent (4 hours was the median) and mother [OR=5.97 (2.87-12.42)] where authors have compared students spending 6 hours or more with their mother with those spending less than 6 hours as referent (6 hours was the median), physical activities [OR=9.11 (4.07-20.37)] where authors have compared students engaging themselves in some sort of physical activities e.g., sports, yoga, swimming, cycling, dancing etc. with those not engaging in such activities as referent.

During univariate logistic regression analysis, it was also evident that lower class students (class 7 and 8) when compared against class 9 students, they were found to be more resilient [OR= 4.01 (1.85-8.67)] and students regarded themselves as 'very good' were found with

more resilience [OR=3.12 (1.39-6.96)] in comparison to those regarded them as 'good and average'.

During multivariable binary logistic regression analysis by LR forward method, only four factors retained their significance when adjusted for other factors and two factors were excluded from the final model of predictors of resilience.

Those four factors were family type [AOR= 4.45 (1.73-11.45)], time spent with father [AOR= 5.27 (2.04-13.60)], time spent with mother [AOR= 4.83 (1.80-12.90)] and physical activities [AOR=8.14(2.95-22.47)]

DISCUSSION

In this study, 37.7% of the adolescent school children were resilient which is less than the findings of the study conducted by Manijeh et al in Tehran where 46.6% participants were resilient.[3] The study conducted by Manijeh et al in Tehran found that resilience scores were high in girls but in this study, boys were more resilient than girls though the association between gender and resilience was not significant (p=0.663).[3] In the same

study conducted by Manijeh et al has found that resilience of higher class students were better than lower class students in contrary to the findings of this study, where we have found that with increase in class resilience was decreasing and the association was significant. But it became non-significant when adjusted for other factors in multivariable logistic regression. In this study, we have found that factors like 'time spent with father'; 'time spent with mother'; 'type of family'; 'physical activities' were associated with high resilience and those remained significant when adjusted in multivariable logistic regression analysis by LR forward method. We have also found that extracurricular activities like recitation (p=0.027) was associated with resilience though it became non-significant when adjusted for other factors in multivariable logistic regression analysis. Gender, religion, parental education, extracurricular activities except recitation, number of friends, and access to social media or possession smart phone were not associated with resilience as found out from this study. These findings were grossly matching with study conducted in Thailand by Sujitra et al.[10]

A number of factors that may have some association with resilience had been studied in detail. As self-administered answers were analyzed, there was no scope for cross checking. The sample size was small. As the study was done in a school, so it cannot represent the general population of that age group. The respondents were the children aged 12-15 years, so the socio-economic status of the family could not be precisely determined.

Resilience training should be incorporated in academic curriculum of every school so that students can learn how to handle stress. Physical activities in any form should be included in academic calendar especially for higher class students who rarely get any time for these after their school and coaching hours. Parents should give more time to their children. Further studies are required to evaluate the importance of resilience among adolescent.

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