Environmental Correlates of Adolescent Stress: A Path Analysis

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Abstract: *The study was an attempt to delineate the pathway behind the Home Environment and Adolescent stress. 567 adolescents from various schools of Kerala state of India were screened for their stress level using Student Stress Scale by ZaKi Akhtar . Home environment was assessed purely from the perception of adolescents using Home Environment Inventory by K. S. Misra. The mean stress level for the entire sample was moderate. Disciplinary HE and Negative HE exhibited significant predictive power in the stress level of adolescents, while Positive HE indicated a path through Disciplinary HE. Both positive and negative home environment could incur considerable variation in disciplinary environment of home. Which means positive home environment is not something that is totally independent of the constraints of disciplining. Disciplinary HE in the inventory constituted four dimensions namely "control, punishment, conformity, permissiveness". Negative HE consisted of pathological parenting practices like "rejection, social isolation and deprivation of privileges". And Positive HE comprised dimensions of nurture, reward and protectiveness.*

Key words: *Adolescents, Stress, Home Environment, Positive Home Environment, Negative Home Environment, Disciplinary Home Environment*

I. INTRODUCTION

It is a known fact that family environment can often perform as potential source of adolescent stress. But unraveling the underlying mechanism behind it should be a continuous process as cultural paradigms of all societies are subjected to incessant unpredictable shifts due to globalization. The environment of a family can not remain unaffected by the rapid erosion of previously set standards for rearing adolescents due to this shift. Among the key stressors, Moore[1] lists out biological, social and emotional changes that accompany puberty. Adolescence is described as a "developmental disturbance" by Freud [2] and Hall[3] proposed adolescent period as a phase of "storm and stress". And the common characteristics involve, risky and erratic behavior, conflict with parents, and mood disruptions [4].

It is interesting to note that all definitions of stress put forward by researchers and scientists highlighted some sort of "incongruence" between the environment and the individual under stress. According to Selye [5], stress is caused by physiological, psychological and environmental demands. According to Richard S Lazarus, [6]stress is a feeling experienced when a person thinks that "the demands exceed the personal and social resources the individual is able to mobilize." The transactional definition by Lazarus and Folkman [6] is, "Psychological stress involves a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (p. 19). Grant and his colleagues [7] views stressors as: "Environmental events or chronic conditions that objectively threaten the physical and/or psychological health or wellbeing of individuals of a particular age in a particular society." A common thread running through all these definitions is the role of environmental circumstances or conditions that threaten, challenge or disrupt the psychological or biological resources of individual [8]. The environmental component is an integral part of all these definitions though they differ in the degree to which they emphasize psychological process that occur in response to the environmental stressor [7].To complement this view, there is ample proof in many cross sectional and longitudinal studies dealing with stressors in interpersonal context and symptoms of depression in childhood and adolescence [7], [9],[10];[11];[12],[13],[14].

From these observations, researchers were encouraged to conclude that knowledge about individual/environmental factors that reduce or protect adolescents from the negative effects of stressors, would be helpful in designing effective prevention and intervention programs for youth exposed to stressors [15]. Diathesis stress model becomes all the more significant in this context. According to the model, genetic or biological factors interact with environmental stress which results in a disorder or condition. Particularly, individual's predisposition or vulnerability to a particular psychological disorder can be aggravated by stressful life events.

The present study is an attempt to delineate the pathway in which home-environment function as a stress inducer in adolescent life. Here, psychosocial environment of home has been assessed from the perception of adolescents about their homes. Our intention was to build up a theoretical frame work which will unearth a vivid picture of adolescent psychological experiences connected to their stress level at home. According to contextual approaches, such as transactional stress and coping models, the objective nature of a stressor is less important as a determinant of a person's response than the person's subjective interpretation or appraisal of a particular stressor [6]. When an individual appraises a situation or event as stressful and their resources as taxed, they will engage in one or more coping strategies in

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an attempt to manage the situation [6]. These views seems to be justifying the assessment of family and parenting factors from the stand point of adolescents in the present study to get a clear picture of their home environment.

This attempt to explore the underlying mechanism that operate behind the home environment and the stress levels of adolescents of Kerala, is in line with the views of Bronfenbrenner [16],[17] and family systems theorists like Broderick [18]. According to them, development always occurs within and across contexts. Therefore, when addressing the adolescents' stressors and coping strategies, the social environment, including the family context, of the adolescent must be considered [18], [19]. Finally, though there is ample evidence for the fact that adolescents whose family environment was warm, caring, communicative, understanding, and supportive had diminished negative influences of stressors on health [20],[21] and cohesion or connectedness in the family has been found to be related to types of coping strategies employed by adolescents [22,[23],[24]. Still, there is a serious dearth for studies exploring the exact pathway behind the phenomenon. "Developmentalists agree that the family has a profound influence on the adolescents' development, but how the specific dynamics of the family structure and relationships (e.g., family members awareness of one anothers' experienced stressors and coping strategies) are linked to the management of stress and the development of coping strategies during adolescence has not been adequately studied" [25], [22].

II. PARTICIPANTS

Participants consisted of 567 adolescent students selected from six higher secondary schools of Thrissur district of Kerala state. The mean age of participants was 15.62. There were 276 girls and 291 boys in the sample. 210 students were from aided schools and 156 from private sector the rest belonged to government higher secondary schools.

III. INSTRUMENTS

The psychological Environment of the homes of participants were assessed using Home Environment Inventory (HEI) Prepared by Karuna Shankar Mishra (1989). It consists of 10 subscales namely, A-Control, B-Protectiveness, C-Punishment, D-Conformity, E-Social Isolation, F-Reward, G-Deprivation of privileges, H-Nurturance, I-Rejection and J-Permissiveness. It is a 5 point Lickert scale and each subscale contains 10 questions. The responses ranged as "Mostly"-- "Often"—"Sometimes"—"Least"--- "Never" Home Environment Inventory (HEI) claims high content as well as criterion related validity. Established reliability coefficient of each dimension are A-.879, B-.748, C-.947, D-.866, E-.870, F-875, G-.855, H-.901, I-.841, J-.726 respectively.

Students Stress Scale (SSS) by ZaKi Akhtar was administered to the participants to estimate their stress level. It consists of 51 items. In addition to assessing the stress level, it claims to be helpful in exploring basic academic pressures burdening school going children. Split-half and test-retest reliabilities of the scale are .78 and .71 respectively. Its construct validity is .72

IV. METHOD

The Home environment Inventory was distributed among students after getting informed consent from the school authorities and parents. Students were given instructions for answering the items. Doubts raised during the answering session were clarified properly. After scoring, and cleansing data for outliers, of the 567 students 564 were retained for analysis.

In tandem with a study titled "Exploratory Factor Analysis Of Home Enviroment Inventory" by Jeny & Varghese[26] among a sample of 325 adolescents, the entire cluster constituting ten variables of Home Environment inventory was compressed into three factors namely 1) Positive Home Environment constituting B-Protectiveness, F-Reward, H-Nurture 2) Negative Home Environment constituting E-Rejection, G-Deprivation of privileges, I-Social isolation 3) Disciplinary Home Environment constituting A-Control, C-Punishment, D-Conformity, J-Permissiveness. Three factors extracted by exploratory factor analysis had eigen values 2.91, 2.51 and 1.04 indicating 64.92% of total variance together. Principal axis factoring and oblique rotation (promax) were adopted for the purpose.(refer the study)

Path analysis based on multiple regression was adopted for statistical analysis. Positive HE (Z_3), Negative HE(Z_4) and Disciplinary HE(Z_2) were independent variables. Stress (Z_1) was the dependent variable. Compatibility between the observed correlations and reproduced correlations was used as a criteria for accepting the final Model

V. RESULTS

Students exhibited moderate stress level. On finding probabilities of Mahalanobi's Distance, it was found that case numbers, 1, 156, 453 were found with probabilities less than .001 and removed from the data, being outliers. Mean for positive, negative and disciplinary home environments are given below. In the sample, disciplinary home environment exhibited high value compared to the other two.

Table-1 Descriptive Statistics

	N	Mean	Std. Deviation
Disciplinary HE	564	91.5355	13.15573
Positive HE	564	79.5177	14.82035
Negative HE	564	25.8085	13.18170
Stress	564	162.25	24.547

\Normality Tests

Table:2 *One-Sample Kolmogorov-Smirnov Test*

		Discipline	Positive	Negative	Stress
N		564	564	564	564
Normal Parameters[a,b]	Mean	91.5355	79.5177	25.8085	162.25
	Std. Deviation	13.15573	14.82035	13.18170	24.547
Most Extreme Differences	Absolute	.054	.074	.067	.034
	Positive	.023	.040	.067	.016
	Negative	-.054	-.074	-.039	-.034
Kolmogorov-Smirnov Z		1.275	1.748	1.590	.793
Asymp. Sig. (2-tailed)		.078	.004	.013	.556

For Positive and Negative HE, logarithmic transformation was applied to ensure normality. On proceeding for multi co-linearity tests, tolerance level of all variables fairly satisfied the criteria that is greater than .1.

It was hypothesized that negative HE (Z_4)and disciplinary HE (Z_2) will have direct paths to the Stress level (Z_1) of adolescents. And the positive HE (Z_3) will not have any direct relation with the stress. While a negative association between negative HE (Z_4) and positive HE (Z_3) was expected.

At first step Stress (Z_1) was regressed against Negative HE (Z_4) and Disciplinary HE (Z_2) and the β loadings obtained, for both exogenous variables Z_2 and Z_4 were significant. Following this, in the next step, The Disciplinary Home Environment (Z_2) was taken as endogenous variable and regressed against Positive HE (Z_3) and Negative HE (Z_4). Path coefficients of both were significant in this case too.

Table:3 Path Decomposition and Calculation of Reproduced Correlations For the Model

$\hat{r}_{12} = P_{21}$
$= .313$
(D)

$\hat{r}_{13} = P_{32} P_{21} + r_{34} P_{41} + r_{34} P_{42} P_{21}$
$= (.413)(.312) + (-.274)(.121) + (-.274)(.464)(.313) = .056325$
(I) (S) (U)

$\hat{r}_{14} = P_{41} + P_{42} P_{21} + r_{34} P_{32} P_{21}$
$= (.121) + (.464)(.313) + (-274)(.413)(.313) = .23081$
(D) (I) (U)

$\hat{r}_{23} = P_{32} + r_{34} P_{42}$
$= (.413) + (-.274)(.464) = .285864$
(D) (S)

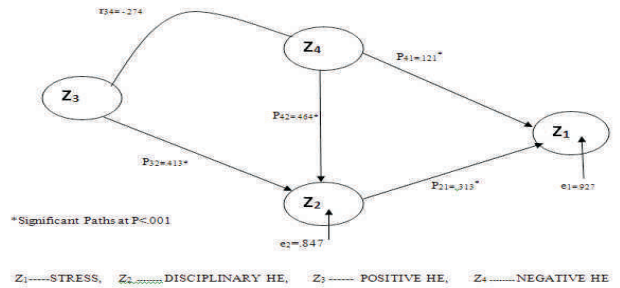
$\hat{r}_{24} = P_{42} + r_{34} P_{32}$
$= (.464) + (-.274)(.413) = .350838$
(D) (S)

D—Direct path, I--- Independent path, S—Spurious path, U---Undecided path

Observed And Reproduced Correlations

Observed Correlations---(Pearson's Correlation)				
	Z_1	Z_2	Z_3	Z_4
Z_1	1			
Z_2	.355	1		
Z_3	.025	.286	1	
Z_4	.231	.351	-.274	1
Reproduced Correlations From The Model				
Z_1	1			
Z_2	.313	1		
Z_3	.056	.2858	1	
Z_4	.230	.351	-.274	1

Figure:1 The Model



Z_1 -----STRESS, Z_2 ..... DISCIPLINARY HE, Z_3 ------ POSITIVE HE, Z_4 .....NEGATIVE HE

On going through the model, one can observe that, Both Disciplinary (Z_2) and Negative Home Environments (Z_4) have direct paths to the stress level of subjects (P_{41} &P_{21} respectively).. At the same time. Negative Home Environment (Z_4) bears an indirect path through Disciplinary HE (Z_2). Total path effect from Z_4 to Z_1 is .27 (Sum of D and I, Refer Table:1) .Total path effect from Z_2 to Z_1 is .313 (D only, Refer Table:1)

The Positive Home Environment (Z_3) does not bear any direct path to Stress (Z_1). But there do exist an indirect path from Positive HE (Z_3) to Stress (Z_1) through Disciplinary HE (Z_2) which is negative in effect. Findings indicate that stress caused from disciplining is comparatively higher than that caused by negative home environment. And Negative atmosphere characterized by rejection, social isolation and deprivation of privileges can cause considerable variation (46%) in the disciplinary home environment. The, predictive power of negative home environment --which is an extreme, pathological form of disciplining carried out by caretakers of adolescents without little regard for the emotional repercussions--- in disciplinary ambiance of home shows that there is some overlapping areas between two. Thus, evolving healthy disciplinary practices in homes is crucial for regulation of adolescent stress level. Negative Home environment can dilute the possible benefits from positive Home Environment. The inverse significant correlation between (Z_4) and (Z_3) indicates this. Variation in positive HE can cause variation in disciplinary HE. This indicates that positive home environment of the families is not something wholly devoid of the constraints of disciplining adolescents. The significant indirect path between positive home environment and Stress through disciplinary HE warrants this view.

The whole model is helpful in predicting, the type of home environment that is conducive to the well-being of adolescents. It also helps in determining behavioral and disciplinary patterns that is to be adopted by parents and care takers to ensure stress free life to them. What one notices as a specific outcome of the analysis is that both Positive and Negative environments incur more or less same amount of variation in Disciplining ie .41% and .46% respectively in the same direction. This leads to the information about Positive environment that, it can never remain independent of disciplining adolescents. For mentors of adolescents who are always in search of a healthy demarcating line that is to be maintained between unconditional love and disciplinary practices they have in store for the healthy development of adolescents such information will be helpful. Such empirical results can be used as a supplementary standardized reference for determining effective parenting practices that is to be conveyed through various parental training programmes. Verily, it will serve as a reference for protective measures adopted in the well-being of adolescents and will ensure effectiveness in adolescent counseling and psychotherapy if applied properly.

VI. LIMITATIONS OF STUDY

Study doesn't include the student demographic variables in the analysis. It is a limitation. On including it more specific

pathway can be depicted with moderation and mediation effects. And it may give explanation for variation in endogenous variables namely Stress (Z_1) and Disciplinary HE (Z_2) respectively e_1=.927 and e_2=.847 (refer figure:1) due to unexplained variables

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