Chapter III
OBJECTIVES AND METHODOLOGY

This chapter delineates the objectives of the present study, the research design, operationalization of variables under study and research hypotheses formulated for this study. In addition, sample selection, sample characteristics, measures used, data collection procedure have also been outlined. Different statistical analyses used in this study are also discussed elaborately in this chapter.

3.1. Objectives of the study:

To address the research gaps, the objectives of the present study are to investigate:

- The pattern of distributive justice of students with respect to different demographic variables such as age, gender, medium of instruction in schools, economic background, parental education, mother’s and father’s occupation & family type.

- The relationship of distributive justice of students with different dimensions of parenting style as perceived by them.

- The relationship of distributive justice of students with altruistic behaviour.

- The relationships of distributive justice of students with trait anger and anger control.

- The relationship of distributive justice of students with different dimensions of parenting style as perceived by mothers.

- Agreement between distributive justice of students and distributive justice views of students as perceived by their mothers.

The present study is to be conducted on early (13 years) and mid adolescents (14-15 years) as the aim of the study is also to determine the changes in the pattern of distributive justice between early and mid adolescents, because during adolescence radical changes occur in thought processes of an individual, which in turn may influence the development of distributive justice. Another reason for selecting early and mid adolescents for the present work is that the conventional level of moral development (Kohlberg, 1969; 1971) extends approximately up to early adolescence (13 years) and also approximately at the onset of mid adolescence (14-15 years), when children enter into post-conventional level of moral development. Hence, the study
wants to determine the changes in the pattern of distributive justice of students in this transitional period of development (end of conventional level and onset of post-conventional level). On the basis of the objectives of the study following research design has been prepared and presented schematically in Figure 3.1.1.

Figure 3.1.1: Schematic representation of research design
3.2. Operationalization of the variables:

A variable is a symbol to which numerals or values are assigned (Kerlinger, 1995). It is defined as an event or condition, which can have different values – ideally, in experiments it is an event or condition which can be measured (Morgan et al., 1993). In the perspective of the present study, two kinds of variables have been defined in the following section:

3.2.1. Response variable: The response variable of this study is the distributive justice of students. Distributive justice development describes a child’s progressive understanding of what constitutes fair criteria for the distribution of resources. Damon (1975, 1977, 1980) has proposed six levels of distributive justice development. The broad nature and six levels of distributive justice have been elucidated in the introductory section (Chapter I). The six levels of distributive justice are objectively measured by Distributive Justice Scale (DJS) of Enright et al., (1980a) (Section 3.7.1.1). Enright and his colleagues have scored the DJS by finding the child’s most preferred stage for each dilemma, then converting stage to a numerical score (0 for Stage 0-A, 0.5 for Stage 0-B, 1 for Stage 1-A, 1.5 for Stage 1-B, 2 for Stage 2-A and 2.5 for Stage 2-B). In the present study developmental stages of distributive justice of students have been considered as both nominal and ordinal categories (Enright, personal communication, 2005). While Damon (1975, 1980) suggested that the stages of distributive justice constitute an ordered developmental sequence and argued in favour of ordinality, Enright et al., (1984) suggested that Damon’s hypothesized unidimensional stage order was incorrect and, hence, developmental stages of distributive justice need not be ordinal. In particular, in their longitudinal study they observed regressions from Stage 2.0 (need) to Stage 1.0 (equality) and took those regressions as evidence that “distributive justice is not rigidly stagelike”. Each student will be assigned a particular stage of distributive justice.

Mothers are also selected as participants in order to express their perceptions regarding distributive justice of their children. This is done in order to determine the agreement between distributive justice of students and distributive justice of students as perceived by the mothers. Index of agreement will provide the similarities in the views on distributive justice of students by themselves and by their immediate ancestors (mothers). Earlier researches on parent-child congruence in familial issue revealed that parent-child congruence may facilitate family communication and leads to improved family relations (Galinsky, 1986; Magen, Levin & Yeshhurun, 1991; Stefanco, 1987). On the other hand, significant incongruence between
children’s and parent’s perceptions and expectations may lead to frustration, anger and friction (Greenberger, Steinberg, & Vaux, 1982; Patterson & McCubbin, 1987). Study conducted by Lanz, Scabini, Vermulst, and Gerris (2001) also suggested that congruence between parents and their children increases from early to mid adolescence. This result also indicated that early adolescence is a stage when the transition occurs from dependency on adults to self-autonomy and as a result incongruence between adolescents and their parents on familial issue may arise. The incongruence between adolescents and their parents decrease in mid adolescence because when children enter into mid adolescence parents and other guardians recognize adolescent as an adult or near adult and in mid adolescence children become more competent in interpreting their parents’ behaviours (Lanz, Scabini, Vermulst, & Gerris, 2001). The conflict in the perception and expectation is high between adolescent boys and their mothers than adolescent girls (Flanagan, 1986) as adolescent boys are high in the need for independence and self differentiation than girls (McDermott, Robillard, Char, Hsu, Tseng, & Ashton, 1983).

No study is found regarding congruence between parent-adolescent on the perception of distributive justice. So the present study aims to determine the index of agreement between distributive justice of students and distributive justice views of students as perceived by their mothers.

3.2.2. Predictor variables: These variables are those that can be varied and manipulated in order to predict their effects on response variable. The predictor variables of this study are divided into three categories. These are described in the following section:

3.2.2.1. Demographic variables: The demographic variables considered in this study are as follows:

❖ Age: By age is meant the physical maturation of an individual. In this study, early (13 years) and mid adolescents (14-15 years) have been selected in order to determine the pattern of distributive justice with progression of age, especially in the period of adolescence. Adolescence (Latin word adolescere which means to grow) is the most critical transitional period of human development between childhood and adulthood. Adolescence is defined as a distinct period of adjustment or as journey to adulthood where a teenager has to face a rapid physical, cognitive and social changes (Nurmi, 1997; Sprinthall & Collins, 1988). It is a developmental period when individuals acquire new cognitive skills, and become more mature in their reasoning.
Adolescence is commonly divided into three periods: early adolescence (10-13 years), mid adolescence (14-15 years) and late adolescence (16-19 years) (Guner, 2005).

The effect of age on the development of distributive justice has been indicated elaborately in Chapter II. Literature review (Chapter II) indicates that studies on age and distributive justice especially with adolescents in Indian context are remarkably few. So further researches in this field are necessary. In the present study adolescents aged between 13-15 years are selected because this study wants to explore the changes in the pattern of distributive justice of students in the first part of adolescence (early adolescence) and also in the mid part of adolescence (mid-adolescence). Another reason for selecting these students is that the conventional level of moral development extends up to 13 years (approximately) and the post-conventional level of moral development generally starts in the mid adolescence (14-15 years approximately).

❖ Gender: This commonly refers to the set of characteristics that help to distinguish between male and female entities. In our culture men and women are expected to differ with respect to their behaviour, attitudes, values and emotions as socialization processes and expectations of family members vary with respect to gender.

Review of literature (Chapter II) shows that there are very few studies on gender and distributive justice by using objective criteria of measurement. Such studies are also rare in Indian scenario. So there is a need of studying the effect of this variable in the pattern of distributive justice of school going adolescents.

❖ Medium of instruction in schools: This means the medium by which the instructions are given to the students in schools. School plays an important role in the formation of values among students. Teachers generally help pupil to develop values through examples, guidance and sometimes by direct teaching. School helps to build healthy personality among students so that in the long run they can be good citizens. Children learn proficiencies in various abilities like, learning process, home work, social communications, handling emotions, and the management of day to day interactions at home and school. Thus, it is quite logical to assume that school plays a deciding role in the pattern of distributive justice of students.

In the present study Bengali and English medium schools under the West Bengal Board of Secondary Education (WBBSE) are selected because the medium of instruction in schools of
Kolkata is predominantly either Bengali and English, and to a lesser extent, Hindi and Urdu. In Bengali medium school, the medium of communication is Bengali whereas in English medium school, medium of communication is English. The present study considers only students from Bengali speaking families studying in Bengali and English medium schools under WBBSE. As a result, in most of the cases students of English medium schools may face extra burden of "language barrier" because of discrepancy in the usage of language in school and home. Language barriers may lead to many negative outcomes such as anxiety, depression, and alienation (Trice, 2004). This in turn may affect the fair decision making ability. On the other hand, it is also observed that most of the English medium schools provide training to their students to face competition and control their negative emotions. Keeping in mind, all these advantages and disadvantages of Bengali and English medium schools, the present study wants to explore the effect of medium of instruction in schools on the pattern of distributive justice of students.

❖ Economic background: This indicates financial condition of the family. This has been measured here based on the family income per month. Intuitively, one might expect that in most of the cases students from low income group families develop negative psychological feelings and attitudes towards life because in low income group families most of the time parents are unable to satisfy the needs of children due to paucity of money. In most of the cases these negative feelings culminate anti-social qualities among them and make them incompetent in taking fair decisions in life. On the other hand, parents from high income group provide basic necessities of life and conducive home environments which satisfy their children's psychological needs and make them socially competent so that they can take mature decisions whenever they face social dilemmas.

The rationale for considering economic background as a predictor variable of this study is that there is dearth of researches regarding the effect of economic background on the pattern of distributive justice especially on adolescents. In this study, students are categorized into three groups based on their family income per month as per the Perspective Plan of CMA- 2025 (CMDA, 2000). These three groups are low income group (LIG), middle income group (MIG) and high income group (HIG). Consumer price index (source: www. rbi. org. in) was used to convert the income level of 2000 into 2005-2006. After conversion, the range becomes (a) low
income group (LIG) - upto Rs. 6102, (b) middle income group (MIG) - Rs. 6103- 12206 and (c) high income group (HIG) - Rs. 12207 and above.

❖ Parental education: This means educational qualification of the parents. This is another important variable that may affect the pattern of distributive justice. Study conducted by Guryan, Hurst, and Kearney (2008) has found that highly educated parents spend more time with their children, especially mothers with high school education and less than high school education spend an average of 12.1 hours per week in child care, while college educated mothers and mothers with education beyond college degree spend 16.5 hours and 17.0 hours in child care, respectively. According to the researchers the possible explanation for this is that educated women tend to have fewer children than women with high school degree or less. Educated parents are more concerned for their children and generally provide cognitively stimulating environment for their children and discuss different social issues with children which in turn make their children more logical and competent in social life.

There is no such study regarding parental education and distributive justice, so the present study wants to explore the effect of parental education on the pattern of distributive justice of students. Students are divided into two groups based on mother’s and father’s education separately. Then these groups are combined and total number of students are categorized into 4 groups: (A) both parents are graduate and above, (B) mothers are graduate & above and fathers below graduate, (C) mothers are below graduate and fathers at or above graduate, and (D) both parents are below graduate.

❖ Parental occupation: This refers to what both the parents (fathers and mothers) are doing for their livelihood.

❖ Mother’s occupation: Mothers engagement in external activities diminishes the time they spend with their children. Few researchers in developing countries found that working women spent less time with children than non-working women (Basu and Basu, 1991; Sivakami, 1997). Less interaction between mothers and children may affect their conception of fairness.

There is no study on mother’s occupation and distributive justice of adolescent students, so this variable may be viewed as relevant variable of this study. Non-working (housewives) mothers as well as working mothers are incorporated in this study. Working mothers are engaged in jobs like teaching, working in banks, offices and business.
Father's occupation: Too much work pressure and engagement in external activities by fathers may affect father-child relationship. With the above mentioned assumption, this variable seems to be important for the present study. In this study, four occupational groups are considered: (a) Service which includes fathers working in government & semi-government organization & academic institution, (b) Business category consists of those who are engaged in business, (c) Professional category includes doctors, lawyers and engineers etc. & (d) Other category consists of unskilled labourers. Generally fathers falling in the fourth category are less educated than the fathers in other categories.

Family type: Family is a group of two or more people who reside together in one house. Family type refers to how the members of a family are related to one another. It may be of two types: joint and nuclear family. Joint family is an extended family arrangement where all members live under the same roof. Joint family generally provides emotional and financial supports to its members and members can share their feelings, triumphs and failures with each others. Children in this type of family get guidance and learn moral values not only from parents but also from other elders of the family which make them morally competent. In spite of having all these merits of joint family, there are some disadvantages also. Sometimes generation gap among the members of a joint family may cause discrepancies in opinion and this may affect the solidarity of the family. A nuclear family is a family unit consisting of a father, mother and their children. The advantage of nuclear family over joint family is that parents can teach their children what is 'good' and what is 'bad' and take the decisions quickly regarding familial issues as there is no one else to interfere in their decisions. When the child becomes mature in nuclear family, he/she also learns how to take right decision quickly and smoothly. The major disadvantage of nuclear family is that children do not get affection, love and guidance from the other elder members of the family.

Keeping in mind the above mentioned advantages and disadvantages of joint and nuclear family, family type is found to be another relevant predictor variable in the development of distributive justice of adolescents. Students from both nuclear and joint family are considered in this study.
3.2.2.2. Socio-cultural variable: The following socio-cultural variable is considered for the present study:

❖ Parenting style: The parenting style is the type and amount of action taken by parents that lead to the development of child through discipline, support and encouragement. In other words, parenting style helps to describe the degree of interaction such as discipline, support, warmth and caring between parent and child (Coplan, Hastings, Lagace-Seguin, & Moulton, 2002). The perception of parenting style by adolescents refers to adolescents' perceptions of their parents' and guardians' behaviours, both verbal and non-verbal. Baumrind (1966) proposed three types of parenting styles. These are as follows: authoritarian, authoritative and permissive. The authoritarian parent attempts to shape, control, and evaluate the behavior and attitudes of the child in accordance with a set standard of conduct, usually an absolute standard, formulated by a higher authority. These parents value obedience as a virtue and favor punitive techniques and forceful measures to curb child's self-will. Parents of this category believe in restricting child's autonomy and keeping the child under their control. They do not encourage verbal give and take, and believe that the child should accept their decisions without asking any questions. The authoritative parents attempt to direct the child's activities but in a rational, issue-oriented manner. They encourage verbal give-and-take relationship between parent and child. This rational and supportive parenting style facilitates cooperative oriented and self-regulated individuals as opposed to submissive and direction taking oriented individuals. These parents exert firm control at points of parent-child divergence, but do not hem the child in with strict restrictions. They not only enforce their own perspective as an adult, but also recognize the child's individual interests. The authoritative parents not only affirm the child's present qualities, but also set standards for future conduct. The permissive parents attempt to behave in a non-punitive, acceptant and affirmative manner towards the child's impulses, desires, and actions. They consult with the child about policy decisions and give explanations for family rules. They make few demands for household responsibility and orderly behavior. These parents present themselves to the child as a resource for him/her to use as he/she wishes, neither as an ideal for him/her to emulate, nor as an active agent responsible for shaping or altering child's ongoing or future behavior. They allow the child to regulate his/her own activities as much as possible, avoid the exercise of control, and do not encourage the child to obey externally defined standards. They attempt to use reason and manipulation, but not overt power to accomplish their
ends. In 1991, Baumrind proposed the categorization of parenting style based on two dimensions such as parental demandingness and parental responsiveness. Based on these two dimensions four parenting styles such as authoritarian, authoritative, permissive and uninvolved parenting styles have been created. This last category is generally considered to be an absence of parenting rather than a separate parenting style, and therefore is not considered as a separate dimension of parenting style in the present study.

Literature reviews have indicated the relationship between parenting style and moral reasoning (Pratt et al., 1999; Steinberg, 2001; Walker et al., 1999). There is only one study indicating the association between adolescents’ distributive justice reasoning and mother-adolescent communication, satisfaction with family cohesion and empathy (Marshall, Adams, & Ryan, 2001). Except this study, the relationship between parenting style and distributive justice has not been widely studied. The present research makes an effort to study the relationship of distributive justice of students with different dimensions of parenting style as perceived by themselves and their mothers. Only mothers are considered for the present study because of following reasons:

- Study on parenting style and moral reasoning development in adolescents reveals that high responsiveness in mothers is linked to progression in moral reasoning over a two year period (Pratt et al., 1999).
- Mothers typically spend more time with adolescents and are involved in a broader range of activities with them, and are more likely to provide care giving than fathers. Fathers, in contrast tend to spend much of their leisure time with children and adolescents and involve in instrumental activities (Holmbeck, Paikoff & Brooks-Gunn, 1995; Youniss & Smollar, 1985). In addition, mother-child relationship may undergo more transformation than father-child relationship during the transition to adolescence. Mother-child relationship in adolescence tend to involve more mutuality, closeness and support than father-child relationship (Collins & Russell, 1991).
- Study on relationship between maternal parenting style and interpersonal relationship of African American and White adolescents’ reveals that students who describe their mothers as authoritative report better interpersonal relations than adolescents with authoritarian or permissive mothers (Hall & Bracken, 1996).
Study conducted by Choo (1999) reveals the significant associations in the mother-adolescent relationship such as maternal warmth and nurturance is linked to adolescents' autonomy development but no significant correlation is found in case of fathers. These findings clearly demonstrate that maternal support is the most important correlate of adolescents' psychosocial development. This is also expected that mothers engage in more parenting and spend more time in day-to-day interactions with their adolescents than fathers.

3.2.2.3. Personality trait: Personality traits are unique set of characteristics and qualities possessed by individuals. In the present study, the following personality traits have been considered because of their importance as described in Chapter I.

❖ Altruistic behaviour: Vaughan and Hogg (2002) defined altruism as a special form of helping behaviour that shows concern for human beings and is performed without expectations of personal gains. Altruism sometimes may be viewed as a behavior (or set of behaviors) or as a personality trait (character). In the present study, altruistic behaviour is considered as a personality trait as described in the study by Phillips, Barnard, Ferguson, and Reader (2008) and Rushton, Chrisjohn, and Fekken (1981).

Empirical research regarding distributive justice and altruistic behaviour (Blotner & Bearison, 1980) has suggested that subjects preferring both need and merit i.e. Level 2-B show significantly greater helping and sharing in all conditions than those preferring merit principle i.e. Level 1-B and principle based on the physical characteristics of recipients' i.e. Level 0-B (Damon, 1977, 1980). Except this study, there is no study regarding the relationship between altruistic behaviour and distributive justice. So research in this field is also considered necessary.

❖ Anger: It is a strong passion or negative emotion which impairs one's judgement, ability to process information and to exert cognitive control over behaviour. Anger generally impairs one's judgement, decision making ability and control over behaviour.

For the relevance of the present study only two dimensions of anger are considered. These are as follows:

➢ Trait anger: It is defined in terms of how often a person feels angry over time (Spielberger, 1988). Individuals high in trait anger are prone to experience anger more
intensely across situations because of an angry temperament and also, more frequently, as a result of negative appraisals across various situations (Fox & Spector, 1999; Spielberger et al., 1983). Individuals with high trait anger have the tendency to perceive a broad range of situations negatively and to react with intense anger (Gibson & Barsade, 1999; Spielberger et al., 1983). Those with higher levels of trait anger have reported lack of control over behaviour, impairment in judgement and decision making ability, engaging in a greater incidence of aggressive and antisocial behaviors such as doing or saying things purposely to harm others (Douglas & Martinko, 2001; Hepworth & Towler, 2004), striking out at the source of their anger, slamming doors, and using sarcasm (Domagalski & Steelman, 2004).

Persons with trait anger may feel angry most of the times and this predisposition may affect the concept of distributive justice/ fairness concepts. Hence, the inclusion of this variable is found to be necessary.

> Anger control: It is defined as how effectively one can control his/her angry feelings.

It is quite logical to assume that those who are competent in controlling anger can take right decisions most of the time because emotions like anger weakens individual’s thinking and decision making ability. Consequently, this variable is found to be another relevant predictor variable in this study.

3.3. Research Hypotheses:

The hypotheses formulated for this study are:

H1. The pattern of distributive justice of students will differ with respect to demographic variables considered under the study.

H1a. The pattern of distributive justice of students will differ with respect to age.
H1b. The pattern of distributive justice of students will differ with respect to gender.
H1c. The pattern of distributive justice of students will differ with respect to medium of instruction in schools i.e. students of Bengali and English medium schools will differ from each other with respect to their patterns of distributive justice.
H1d. The pattern of distributive justice of students will differ with respect to economic background.
H1e. The pattern of distributive justice of students will differ with respect to parental education.

H1f. The pattern of distributive justice of students will differ with respect to family type.

H1g: The pattern of distributive justice of students will differ with respect to mother's occupation.

H1h: The pattern of distributive justice of students will differ with respect to father's occupation.

H2. There will be significant relationship between distributive justice of students and different dimensions of parenting style as perceived by them.

H2a. There will be significant relationship between distributive justice and the perception of authoritative parenting style.

H2b. There will be significant relationship between distributive justice and the perception of authoritarian parenting style.

H2c. There will be significant relationship between distributive justice and the perception of permissive parenting style.

H3. There will be significant relationship between distributive justice of students and altruistic behaviour.

H4. There will be significant relationship between distributive justice of students and trait anger.

H5. There will be significant relationship between distributive justice of students and anger control.

H6. There will be significant relationship between distributive justice of students and different dimensions of parenting style as perceived by mothers.

H6a. There will be significant relationship between distributive justice of students and the perception of authoritative parenting style by mothers.

H6b. There will be significant relationship between distributive justice of students and the perception of authoritarian parenting style by mothers.

H6c. There will be significant relationship between distributive justice of students and the perception of permissive parenting style by mothers.

H7. There will be similarity between distributive justice of students and the distributive justice views of children as perceived by their mothers.

Hypotheses H1 to H5 are developed regarding students only and H6 and H7 are formulated relating students with their mothers.
3.4. Sample selection:

Among various sampling techniques, the stratified random sampling technique was followed in this study. First, the list of schools under the West Bengal Board of Secondary Education (WBBSE) of Kolkata was collected. The stratification was done based on the medium of instruction in schools i.e. Bengali and English medium schools. 20 Bengali medium and 20 English medium schools were selected from the lists of schools under WBBSE by following simple random sampling without replacement (SRSWOR) and the respective school authorities of the selected schools were approached. Out of 20 Bengali and 20 English medium schools, finally, 16 Bengali medium (9 girls and 7 boys) and 12 English medium (co-education) schools gave permission to collect data. Then after getting permissions from school authority, students were contacted. Students (both boys and girls) aged between 13-15 years (i.e. class VII to class IX) were chosen by using SRSWOR. About 24 students were selected from each school with about 8-10 students from three age groups (13, 14 and 15 years). Altogether 687 students were chosen, out of which 331 (48.18%) were boys and 356 (51.82%) were girls. In addition to this, the mothers of the selected students were also contacted. Finally, 400 mothers agreed to give response. The age range of mothers was from 35-46 years (mean 38.05 years; standard deviation=5.05). Out of the 400 mothers, 343 (85.74%) mothers reported their educational qualification. Of the 343 mothers, 70.55% received higher education (graduation and above) and only 29.45% mothers did not receive college education. The final sample distribution is presented in Figure 3.4.1.
Figure 3.4.1: Schematic representation of the final sample of this study

3.5. Demographic details of the selected samples:

Information about the personal details like age, gender, medium of instruction in schools, economic background, parental educational qualification and occupation, and family type were collected from the students and the demographic details are presented in Table 3.5.1.
Table 3.5.1: Percentage distribution of students (N=687) in different categories of demographic variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Categories</th>
<th>Percentages</th>
</tr>
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<tbody>
<tr>
<td>Age</td>
<td>13 years (N=219)</td>
<td>31.88</td>
</tr>
<tr>
<td></td>
<td>14 years (N=244)</td>
<td>35.52</td>
</tr>
<tr>
<td></td>
<td>15 years (N=224)</td>
<td>32.60</td>
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<tr>
<td>Gender</td>
<td>Boys (N=331)</td>
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<tr>
<td></td>
<td>Girls (N=356)</td>
<td>51.82</td>
</tr>
<tr>
<td>School type</td>
<td>Bengali (N=369)</td>
<td>53.71</td>
</tr>
<tr>
<td></td>
<td>English (N=318)</td>
<td>46.29</td>
</tr>
<tr>
<td>Economic background</td>
<td>Low income group (N=191)</td>
<td>36.59</td>
</tr>
<tr>
<td></td>
<td>Middle income group (N=111)</td>
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</tr>
<tr>
<td></td>
<td>High income group (N=220)</td>
<td>42.15</td>
</tr>
<tr>
<td>Parental education</td>
<td>A (N=224)</td>
<td>51.26</td>
</tr>
<tr>
<td></td>
<td>B (N=39)</td>
<td>08.92</td>
</tr>
<tr>
<td></td>
<td>C (N=54)</td>
<td>12.36</td>
</tr>
<tr>
<td></td>
<td>D (N=120)</td>
<td>27.46</td>
</tr>
<tr>
<td>Mother’s occupation</td>
<td>Working (N=95)</td>
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</tr>
<tr>
<td></td>
<td>Non-working (N=536)</td>
<td>84.94</td>
</tr>
<tr>
<td>Father’s occupation</td>
<td>Service (N=263)</td>
<td>38.28</td>
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<td></td>
<td>Business (N=265)</td>
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<td></td>
<td>Professional (N=91)</td>
<td>13.25</td>
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<tr>
<td></td>
<td>Others (N=68)</td>
<td>09.90</td>
</tr>
<tr>
<td>Family type</td>
<td>Joint (N=238)</td>
<td>35.00</td>
</tr>
<tr>
<td></td>
<td>Nuclear (N=442)</td>
<td>65.00</td>
</tr>
</tbody>
</table>

Note: Parental education: A, B, C and D denote: A = Both parents graduate and above, B = mothers graduate or above and fathers below graduate, C = mothers below graduate and fathers graduate or above and D = both parents are below graduate, respectively.
3.6. Measures used:

Following informed consent, all students responded on the following measures:

- Background Information Schedule
- Distributive Justice Scale
- Revised Parental Authority Questionnaire
- Self Report Altruism Scale and
- The State Trait Anger Expression Inventory

In addition to this, the mothers of the selected students were also interviewed on the following measures:

- Background Information Schedule
- Distributive Justice Scale and
- Revised Parental Authority Questionnaire.

3.6.1. Measure of response variable

3.6.1.1. Distributive Justice Scale (DJS): The Distributive Justice Scale (DJS) developed by Enright et al., (1980a) on the basis of Damon’s (1977) theory of distributive justice, was administered on students for assessing their distributive justice. It is a standardized and objectively scored paired-comparison test with pictures requiring the child to choose between solutions representing all six possible stages in solving justice dilemma (instead of pictures dilemma written in the form of sentences are presented in Appendix A; Enright, personal communication, 2005). It is an individually administered measure and there is no time limit to complete it. On an average, it takes around 10-12 minutes time per participant. The DJS consists of two separate dilemmas and statements representing a particular pattern of reasoning and justifications associated with Damon’s six stages of distributive justice development. In one dilemma, four children make paintings and are being paid for their paintings. One child makes 4 paintings while others make 2 paintings each. The children have to decide how the money is to be divided among four children based on their different characteristics: the first child is the “oldest one in the group”; the second child belongs to a poor family; the third child “makes maximum paintings”; and the fourth one wants money more than the others. In the first dilemma, 15 pairs \( \binom{6}{2} \) of pictures and statements are there. Each picture and its accompanying statement represent
a stage of distributive justice development. The child is presented with 15 pairs of pictures and statements. For each pair of pictures, the child is asked "which of the statement ends the story better?" For example, a child will choose whether "the first child gets most of the money because she is older than the others" (Stage 0-B) or "the third child gets most of the money because she is very poor and needs money" (Stage 2-A). In another example, "all children get the same amount of money" (Stage 1-A) or "the fourth child gets most of the money as he wants more money than anything else in the world than the others" (Stage 0-A). The second dilemma is similar in format but is based on a story of four children making crayon drawings and selling them at the school fair. In each dilemma, 15 pairs of pictures and statements are there. The order of picture pairing is randomized, and within each pair the decisions as to which stage would be presented first was randomized to control the order effects. Besides the 15 pairings per dilemma, 3 pairs are repeated to check for consistency. The repeated pairs are presented in reverse order of their original pairings to control for primacy or recency effects. The Spearman-Brown internal consistency for the original scale was found to be 0.60 to 0.70.

Some minor modifications such as the names of the characters in the pictures were changed with the permission of the author in order to suit our culture (Enright, personal communication, 2005). Pilot study conducted on a group of 50 school students revealed that students did not find any difficulty in relating the names of the characters and statements representing a particular pattern of reasoning and justifications associated with Damon’s six stages of distributive justice development. The reliability (Cronbach’s α) of this scale in the present study was found to be 0.67.

Based on the statements of Distributive Justice Scale (DJS), dilemmas were written in the form of sentences and was administered on mothers of the selected students in order to assess students’ distributive justice preferences as perceived by their mothers (Appendix B). The reliability (Cronbach’s α) of this scale is found to be 0.69.

The scoring is done by selecting the dominant stage (if a particular stage is chosen for five times) chosen by a student. That means, if a student chooses 1-A over all other stages, the student will be assigned that stage. The complication arises if a triangular relationship exists such as 2-A>1-B; 1-B>1-A; 1-A>2-A. In this case, the lowest stage in the triangle is chosen as this stage (1-A) beats its nearest highest stage (2-A). The final score is obtained by converting developmental levels into numerical levels (e.g. 0-A= 0.0, 0-B=0.5, 1-A=1.0, 1-B=1.5, 2-A=2.0 & 2-B=2.5). The numbers have nothing to do with the magnitude of the stages except the ordering between them.
The Stage 0 is considered as the lowest stage followed by Stage 0.5, Stage 1, Stage 1.5, Stage 2 and Stage 2.5 (the highest stage). Enright et al., (1980a) suggest that the mean of the two dilemmas represent the total score of participants. But in this procedure, sometimes after calculating the average, score becomes in between two levels which does not specify a particular developmental level as described by Damon (1977). This may create problem sometimes. In the present study only one dilemma is presented to students and a particular developmental level is assigned to them (Enright, personal communication, 2005). This is done in order to find out a thorough pattern of distributive justice of school going adolescents. The same scoring procedure is also followed in case of mothers.

3.6.2. Measures of predictor variables: Following measures were used in order to measure different predictor variables under study.

3.6.2.1. Background Information Schedule: In order to assess demographic variables, detail background information schedules were prepared and administered on students and their mothers. Background information schedule (Appendix C) administered on students include age, gender, class, parental educational qualification, occupation, family income (per month), nature of the family etc. Background information schedule (Appendix D) administered on mothers contain age, educational qualification, occupation, child's name, child's age, family income (per month), nature of the family etc.

3.6.2.2. Revised Parental Authority Questionnaire (PAQ): Adapted Bengali version (Karmakar & Ghosh, 2006) of Revised Parental Authority Questionnaire (Leman, 2005) was used to measure mothers' parenting style as perceived by students (Appendix E). Revised PAQ (Leman, 2005) is based on the scale originally developed by Buri (1991), which adopted three parenting styles as described by Baumrind (1971). These three parenting styles are authoritative, authoritarian and permissive. The original PAQ (Buri, 1991) consists of 30 items. There are five response options for each item. This scale has internal consistency ranging from 0.74 to 0.87. Leman (2005) has excluded 9 items of the original scale and provided four response options for each item in order to make it a bit simple. The Revised PAQ used in the present study consists of 21 items with 7 items for each style. There are four response options for each item. These are: fits a lot (score of 4), fits some (3), fits very little (2) and does not fit (1). Children are asked to complete the Revised PAQ regarding their relationship with their mother. The Cronbach’s alphas for
The adapted Bengali version of Revised PAQ was also administered on mothers of the selected students in order to know the perception of their own parenting style. In order to do this, wording of the Revised PAQ was changed to first person with the permission of the author so that it can be used as a self evaluation for mothers (Appendix F). The Cronbach’s alphas for authoritarian, authoritative and permissive parenting style subscales for the adapted version were 0.68, 0.70 and 0.69 respectively. Item-total correlation for each item was found to be above 0.35.

The responses for three separate parenting styles such as authoritative, authoritarian and permissive are summed up separately by following the standard scoring key. Each student and mother receives three scores for each of the three parenting style dimension—authoritarian, authoritative and permissive. Each parenting style dimension will provide scores that range from 7-28. The higher the score on the parenting dimension, the closer one perceives the parenting style of mothers (Buri, 1991).

3.6.2.3. **Self-Report Altruism (SRA) Scale:** The adapted Bengali version (Ghosh, 1998) of SRA scale (Rushton et al., 1981) was used to measure the altruistic behaviour of students (Appendix G). The split-half reliability of this scale was found to be 0.87. The scale consists of 20 items. Each item is provided with a five-point response scale (‘Never’, ‘Once’, ‘More than once’, ‘Often’ and ‘Very often’) with a scoring system that ‘0’ will be given for the response ‘Never’, ‘1’ for ‘Once’, ‘2’ for ‘More than once’, ‘3’ for ‘often’ and ‘4’ for ‘Very Often’. In each item a common situation of our day-to-day life is described along with an altruistic behavior. The respondents have to answer how often he/she will do that altruistic behavior in that situation by putting a tick mark against one of the five alternatives. The total score of a participant is obtained by adding 20 items by following a standard scoring key. The range of score is 0-80. High score indicates more altruistic behaviour of an individual. For the present study the Cronbach’s alpha is found to be 0.82.

3.6.2.4. **State Trait Anger Expression Inventory (STAXI):** The adapted Bengali version (Karmakar & Ghosh, 2006) of State-Trait Anger Expression Inventory (STAXI) by Spielberger (1988) was used to measure the experience and expression of anger (Appendix H). The inventory
consists of 44 items with four response options for each item. This inventory measures the following components of anger: State Anger (S-Anger), Trait Anger (T-Anger), Anger In (Ax/In), Anger Out (Ax/Out), Anger Control (Ax/Con), Anger Expression (Ax/Ex).

Only two dimensions such as trait anger (T-Anger) and anger control (Ax/Con) are considered here for their relevance in this study. These are as follows:

➢ Trait anger (T-Anger): This is a ten item scale that measures individual difference in the disposition of anger on a four-point rating format such as ‘almost never’, ‘sometimes’, ‘often’ and ‘almost always’. The internal consistency of this dimension of the original scale is found to be 0.86 (Speilberger, 1988). The high score on this dimension indicates a greater propensity to experience anger.

➢ Anger control (Ax/Con): This is an eight item scale that assesses the use of a restrained approach in the face of anger on a four-point response scale (‘almost never’, ‘sometimes’, ‘often’ and ‘almost always’). The high score on this dimension reveals the tendency to control the experience of anger.

The Cronbach’s alphas for T-Anger and Ax/Con dimensions of the adapted Bengali version of STAXI were 0.68 and 0.72, respectively. Item-total correlation for each item was found to be significant for all the items.

The responses for ten items of Trait anger and eight items of anger control are added separately. The score ranges from 10-40 and 8-32 for trait anger and anger control, respectively. High score on trait anger indicates that the person has high trait anger and high score on anger control reveals more ability to control anger effectively.

3.7. Procedure:

A group of 687 students (331 boys and 356 girls) aged between 13 to 15 years (i.e. class VII to class IX) were selected from Bengali (N=16) and English (N=12) medium schools under WBBSE of Kolkata by following simple random sampling without replacement (SRSWOR). Students were asked to volunteer for the study and it was assured that their responses will be kept confidential and will not be used in any other way apart from using in the present study. Those who agreed were placed in a quiet room and rapport was established with them. Students were administered Bengali version of background information schedule, adapted Bengali version
of Revised Parental Authority Questionnaire, adapted Bengali version of Self Report Altruism Scale and adapted Bengali version of State Trait Anger Expression Inventory. Proper instructions were given to them to fill up the questionnaires. After that each student was administered 15 pairs of pictures and accompanying statements of Distributive Justice Scale (DJS) individually. Finally, 400 mothers were agreed to give their responses on Bengali version of Background Information Schedule, adapted Bengali version of Revised Parental Authority Questionnaire and Bengali version of Distributive Justice Scale (dilemma written in the form of sentences). Mothers were either contacted individually or invited in schools with the permission of principal. Those who were absent on the respective day were contacted individually or another day was fixed up in consultation with the principal. In case of mothers same procedure was followed to collect data. At the end students, mothers and school authorities were thanked for their co-operation.

3.8. Statistical techniques to be used for the analysis of the data:

For the verification of the different hypotheses formulated in the study following statistical analyses are carried out:

3.8.1. Descriptive Statistics: Descriptive statistics are the statistics that are used to summarize and describe the data. Percentage distributions of different stages of distributive justice were calculated for total group of students.

3.8.2. Inferential Statistics: Inferential statistics are used to draw conclusions from the dataset. Following inferential statistics are used in the present study:

3.8.2.1. Pearson's chi-square test of independence ($\chi^2$): This test was developed by Karl Pearson (1857-1936). The Pearson’s chi-square test of independence assesses whether two discrete variables (nominal or ordinal), expressed in a contingency table are independent of each other. In other words, it may be said that the chi-square test of independence tests the association between two categorical (nominal or ordinal) variables. For contingency table of two variables in which there are R levels in the row and C levels in the column, the test statistic is as follows:

$$\chi^2 = \frac{\sum(f_o - f_e)^2}{f_e}$$
where $f_0$ is the observed frequency and $f_e$ is expected frequency. The associated number of degrees of freedom is $(R-1)(C-1)$.

In the present study Pearson’s chi-square test of independence ($\chi^2$) was used to verify sub-hypotheses H1a to H1h formulated under H1.

3.8.2.2. Log-linear analysis: Log-linear analysis is a method of analysis of categorical data which is carried out when contingency table contain more than two categorical variables simultaneously. In the 1970’s this analysis was introduced as the analysis of multi-way cross-classified data with the publication of series of papers by Bishop, Fienberg, and Holland (1975) and Goodman (1970, 1971). Log-linear analysis is an extension of two-way contingency table where the conditional relationship between two or more discreet, categorical variables is analyzed by taking the natural logarithm of cell frequencies within a contingency table. This analysis is based on the fact that the logarithm of a product is the sum of the individual logarithms of the individual terms in the product. In other words $\log (a \times b \times c \ldots \times p) = \log a + \log b + \log c + \ldots + \log p$. In log-linear analysis, tables containing one-way, two-way and higher order associations are formed. The basic saturated formulation for a, say, three way table is

$$\log (m_{ijk}) = \lambda + \lambda_i^A + \lambda_j^B + \lambda_k^C + \lambda_{ij}^{AB} + \lambda_{ik}^{AC} + \lambda_{jk}^{BC} + \lambda_{ijk}^{ABC}$$

where the expected cell frequencies are denoted by $m_{ijk}$ with the cell index subscripts $i$, $j$ and $k$. $\lambda$ is the intercept parameter (i.e. no effect) and the main effects for variables A, B and C are $\lambda_i^A$, $\lambda_j^B$, $\lambda_k^C$. The two-way interactions are denoted as $\lambda_{ij}^{AB}$, $\lambda_{ik}^{AC}$, $\lambda_{jk}^{BC}$. Finally, three-way interaction is given by $\lambda_{ijk}^{ABC}$. The aim of this analysis is to construct a model such that cell frequencies in a contingency table are accounted for by the minimum number of terms. This is done by the process of *backward elimination*. This means that the researcher begins with the maximum number of terms and then drops a term in each round. This means that initially the analysis includes all the variables, which is referred to as the *saturated model*. Then the highest order interaction is removed and its effect on how closely the model can predict the cell frequencies is noted. This process of *progressive backward elimination* is continued until the final model is obtained. The final model includes only the associations necessary to reproduce the observed frequencies.
This analysis was not used to verify hypotheses but to determine the associations between distributive justice of students and more than two demographic variables simultaneously.

3.8.2.3. Multinomial logistic regression analysis (MLR): The stages of distributive justice are considered as both nominal and ordinal in nature because according to Damon (1975, 1980) the stages of distributive justice constitute an ordered developmental sequence but in a longitudinal study Enright et al. (1984) suggested that Damon's hypothesized unidimensional stage order was wrong as they observed regressions from Stage 2.0 (need) to Stage 1.0 (equality). Therefore, we carried out two different multinomial regression analyses corresponding to the developmental stages of distributive justice as being nominal and ordinal, respectively.

Multinomial (polytomous) logistic regression (MLR) analysis, an extension of binomial logistic regression analysis provides an effective and reliable way to analyze the relationship between a response (dependent) variable with more than two nominal categories (unordered) and qualitative and quantitative predictor (independent) variables. Let Y denotes the distributive justice categories and X the vector of predictor variables. The multinomial logistic regression model is given by

$$ P \{Y = j \mid X = x\} = \frac{\exp(\alpha_j + \beta_j^T x)}{[1 + \sum_{j=1}^{k-1} \exp(\alpha_j + \beta_j^T x)]}, \text{ for } j = 1, 2, \ldots, k-1, \ldots$$

where \( j = 1, 2, \ldots, k-1 \) denote the categories of dependent variable, and \( k \) denotes the reference category. Here \( \alpha_j \) denotes the intercept parameter and \( \beta_j \) the vector of coefficient parameters representing the effect of \( X = x \) corresponding to the \( j \)th category, for \( j = 1, 2, \ldots, k-1 \). Under this model, the odds of choosing \( Y = j \) given \( X = x \), against the reference category is \( \exp(\alpha_j + \beta_j^T x) \), for \( j = 1, 2, \ldots, k-1 \). The logarithm of odds ratio is defined slightly differently if the vector of predictor variables \( X \) contain qualitative and quantitative variable. For a qualitative variable, the odds-ratio for a particular predictor variable at a particular level, given the levels of all other predictor variables, is defined as the ratio of odds evaluated at that level of the particular predictor variable and the baseline level of the particular predictor variable. This is given by exponential of the corresponding \( \beta \)-coefficient so that log (odds-ratio) is given by the corresponding \( \beta \)-coefficient. Similarly, for a quantitative variable, odds-ratio is defined as the
ratio of two odds obtained at two different values of this particular quantitative variable differed by one unit with all other predictor variables remaining fixed.

This analysis was used to verify several hypotheses such as H2a to H2c, H3 to H5 and H6a to H6c where the different stages of distributive justice of students (response variable) were considered as nominal (without ordering), but the predictor variables such as different dimensions of parenting style, altruistic behaviour and anger expression were continuous.

3.8.2.4. Ordinal logistic regression analysis (OLR): This analysis is an extension of multinomial logistic regression analysis. Multinomial logistic regression analysis treats different categories of ordinal response variable as nominal categories without exploring the underlying ordered structure. This sometimes may result in conflicting conclusions. For example, some times the odds of choosing two extreme categories are not significant while the same is found to be highly significant for two categories that are pretty close to each other. This problem can only be solved by considering the underlying order in different categories of ordinal response variable. OLR is the statistical method of analyzing the relationship between an ordinal response (dependent) variable and qualitative and quantitative predictor (independent) variables. When the response categories are ordered, it is necessary to work with models that incorporate such ordered structure so that (a) the extreme categories are treated differently from the intermediate ones, and (b) the general conclusion is not affected by the number or choice of response categories (McCullagh and Nelder, 1989, pp. 149-151). Therefore, a model based on cumulative response probabilities, known as parallel regression model (McCullagh and Nelder, 1989, p. 152) is needed to be considered.

\[
\log \left( \frac{P_j}{1 - P_j} \right) = \alpha_j - \beta^T X \\
\text{where, } P_j = P[Y \leq j \mid X = x] = \frac{e^{\alpha_j - \beta_1 X_1 - \beta_2 X_2 \ldots \beta_p X_p}}{1 + e^{\alpha_j - \beta_1 X_1 - \beta_2 X_2 \ldots \beta_p X_p}} \\
1 - P_j = 1 / (1 + e^{\alpha_j - \beta_1 X_1 - \beta_2 X_2 \ldots \beta_p X_p}) \\
\log \left( \frac{P_j}{1 - P_j} \right) = \alpha_j - \beta^T x \quad (2)
\]

where Y is the ordinal dependent variable, Y can take any value from 1, 2, \ldots, k, \alpha_j's denote the intercept parameters and \beta denotes the vector of common (for all j=1,2,\ldots,k-1) coefficient
parameters representing the effect of $X=x$. Under this model, clearly, one considers the odds of \{y \leq j\} given $X=x$, against \{y > j\}, which is $\exp (\alpha_j - \beta^T x)$. The log (odds-ratio), therefore, for any particular predictor variable is given, as before, by the corresponding $\beta$-coefficient with a negative sign. Since this is independent of $j$, by parallel regression model (2), the $\beta$-coefficients are interpreted as the corresponding log (odds-ratio) for choosing the higher stages against the lower stages.

This analysis was used to verify several hypotheses such as H2a to H2c, H3 to H5 and H6a to H6c where the different stages of distributive justice of students (response variable) were considered as ordinal variable, but the predictor variables such as different dimensions of parenting style, altruistic behaviour and anger expression were continuous.

3.8.2.5. **Weighted Cohen’s Kappa (κ):** Cohen’s Kappa (1960) is a statistical measure of agreement between two raters with respect to their ratings for each of a group of subjects on a binary response qualitative feature. In order to ascertain the strength of agreement between two raters (Rater 1 vs. Rater 2) in 2 x 2 case as mentioned above, (unweighted) Cohen’s Kappa may be used and it is given by

$$\kappa = [P_0 - P_e] / [1 - P_e]$$

where, $P_0$ is the proportion of observed agreement and $P_e$ is the proportion of chance agreement, that is, the proportion of agreement expected to occur by chance alone.

If the 2 response categories are denoted by I and II, then agreement occurs when the responses of the raters are of the form: (I, I) or, (II, II). In the other two cases viz., (I, II) and (II, I), the two raters fail to agree. Therefore, $P_0$ equals the sum $P(I, I) + P(II, II)$. For agreement by chance, the raters are assumed to behave ‘independently’. The chancy agreement is measured by $P_e = P(I, \cdot) \times P(\cdot, I) + P(II, \cdot) \times P(\cdot, II)$.

It turns out that $-1 \leq \kappa \leq 1$. It behaves like the Pearsonian Correlation Coefficient (rho). That means, $\kappa = +1$ for perfect agreement; $= -1$ for perfect disagreement and $= 0$ for no agreement at all.

But in case of more than 2x2 table, i.e. when there is multiple response categories, weighted Cohen’s Kappa (1968) is more appropriate, as it considers ‘Nearest Neighbour Effect’. The tests statistic for weighted Cohen’s kappa is:
\[ K(W) = \frac{P_{ow} - P_{ew}}{1 - P_{ew}} \]

where \( P_0 \rightarrow P_{ow} \) [in \( P_{ow} \), o and w denote 'observed' and 'weighted']

\( P_0 \rightarrow P_{ew} \) [in \( P_{ew} \), e and w denote 'expected by chance' and 'weighted']

It turns out that

\[ P_{ow} = \text{sum sum } P(i, j) w_{ij} \]

\[ P_{ew} = \text{sum sum } P(i, .) \times P(., j) w_{ij} \]

For this test the following choices of weights have been suggested:

- \( W(i, j) = 1 \) & Symmetric
- \( W(i, j) = 1 - [(i-j)^2 / (R-1)^2] \) (Fleiss & Cohen, 1973)
- \( W(i, j) = 1 - [|i-j| / (R-1)] \) (Cicchetti & Allison, 1971)

\( R \) being the number of response categories.

This analysis was used to verify H7.

The results of the analyses are described in detail in the next chapter.