CHAPTER III

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METHODOLOGY

3.1 INTRODUCTION

The methodology used for this study is essentially a matched group method for testing the hypotheses of difference on the selected personality variables. The important steps consist of: (i) matching the comparison groups and testing the adequacy of matching, (ii) selecting appropriate measurement tools for the personality variables under study, (iii) collecting data from the subjects, and (iv) testing the hypotheses.

This chapter describes the methodology used in this research. It sets out the variables selected for study, defines them operationally, and explains the hypotheses and their rationale. The sample selected for study, the instruments, the procedure for data-collection, and the methods used for analyses of the data have been described.

3.2 VARIABLES, OPERATIONAL DEFINITIONS, AND HYPOTHESES

This study predicts the relationship of certain dependent variables with the independent variable, namely, the structure of families. These variables have been enumerated and operationally defined. The hypotheses have been stated and their underlying rationale has been
3.2.1 Variables

The independent variable in this study was the college students’ membership of either joint or nuclear families. The study aimed to discover the effect of this independent variable on the following main dependent variables:

1. Individual psychosocial competence comprising:
   (a) Self attitudes, operationalized in terms of locus of control;
   (b) World-attitudes, operationalized in terms of interpersonal trust;
   (c) Behavioural attributes or an active, planful, coping style;

2. Hardiness; and

3. The Type A behaviour pattern.

Data obtained from scales measuring self-attitudes, world-attitudes, and behavioural attributes were analyzed separately, as done by Tyler (1978).

The variables of self attitudes, hardiness, and the Type A behaviour pattern, consisted of several sub-variables which yielded separate scores.

The Levenson/Kopplin Control Scales described in section 3.4.2 were used as a measure of self-attitudes. They assess locus of control by scales designed to measure internality, and expectations of control by chance, by God, and by powerful others. These scales are used and treated
separately by the authors and also in the present study.

Hardiness, as measured by Kobasa and Maddi's Hardiness Scale (see section 3.4.3), has three components: commitment, control, and challenge. Separate scores for these components are obtained in addition to a composite hardiness score.

The Jenkins Activity Survey (Form B) used to measure the Type A behaviour pattern (see section 3.4.4), yields separate scores on four scales measuring Type A, speed and impatience (Factor S), job involvement (Factor J), and hard-driving and competitive behaviour (Factor H). In this study, the total TABP score was considered in addition to scores on the three factor scales. Items in the Job Involvement scale were adapted for use with the student population and termed 'work involvement'.

Fourteen dependent variables were thus selected for study:

1. Internality or personal control
2. Control by chance
3. Control by God
4. Control by powerful others
5. Interpersonal trust
6. Behavioural attributes of psychosocial competence
7. Hardiness
8. Commitment
9. Control
10. Challenge
11. The Type A behaviour pattern
12. Speed and impatience
13. Work involvement

3.2.2 Operational Definitions

The variables used in the present study have been operationally defined in this section. These definitions are based on the explanations of the terms found in relevant literature and the definitions proposed by the authors of the tools used.

Joint Family

The joint family was defined as one which consisted, besides the subject, his or her parents and siblings, if any, of the following members: the grandparent/grandparents and/or unmarried/married uncle/uncles with their families, if any. The family was termed joint only if all these members lived in the same building.

Large Joint Family

Those joint families from among the general sample of joint families which comprised of, in addition to the subject, his or her parents, and siblings, if any, the grandparent/grandparents, as well as married uncles with their families were termed large joint families.
Nuclear Family

This was defined as one which comprised only the subject, his or her parents, and siblings of the subject, if any.

Individual Psychosocial Competence

This is a three-dimensional configuration consisting of self-attitudes, world-attitudes, and behavioural attributes (Tyler, 1978). These three dimensions have been operationally defined in the forthcoming paragraphs.

Self-Attitudes

Self-attitudes have been operationalized in terms of locus of control. Measured by the I, C, G, and P scales of the Levenson/Kopplin Control Scales, they indicate, respectively, internality, and expectations of control by chance, God and powerful others. According to Tyler (1978), self-attitudes in competent persons refer to a sense of being causally important and able to control the events in one’s life. They also refer, in addition, to an at least moderately favourable self evaluation.

Internality

Internality refers to perceived mastery over one’s personal life. It involves the perception of events as resulting from one’s own actions.
Control by Chance

Control by chance indicates the belief that the world is unordered and that one's life or destiny is determined by chance or fate instead of by one's own efforts.

Control by God

This refers to the belief that one's life or destiny is controlled by God instead of by oneself.

Control by Powerful Others

This indicates the belief that one's life or destiny is not controlled by oneself but by other powerful people.

World-Attitudes

World-attitudes have been operationalized in terms of interpersonal trust. As measured by Rotter's Interpersonal Trust Scale, interpersonal trust is the "expectancy that the word, promise, verbal or written statement of another individual or group can be relied upon" (Rotter, 1967). According to Tyler (1978), world-attitudes express themselves in competent persons as a moderately optimistic trust in others on which a pattern of constructive interaction with the world is based.

Behavioural Attributes

As measured by Tyler's Behavioural Attributes of Psychosocial Competence Scale (BAPC), behavioural attributes
refer to active planfulness. They indicate competence or non-competence according to how realistically people set goals, plan to achieve them, and react to, and build on, outcomes.

**Hardiness**

Hardiness, as measured by Kobasa and Maddi’s Hardiness Scale, consists of three personality dispositions, namely, commitment, control, and challenge, which are operationally defined in the forthcoming paragraphs.

**Commitment**

Commitment is the tendency to experience involvement in activities and situations instead of feeling alienated from them.

**Control**

Control is reflected in the tendency to feel and behave as if one is able to influence the outcome of events in one’s life instead of feeling helpless when confronted by them.

**Challenge**

Challenge is expressed as the belief that change is more normal in life than stability and that the expectation of change actually fosters growth instead of being a threat to security.
The Type A Behaviour Pattern

The TABP is a style of living characterized by "extremes of competitiveness, striving for achievement, aggressiveness (sometimes stringently repressed), haste, impatience, restlessness, hyperalertness, explosiveness of speech, tenseness of facial muscles, and feelings of being under the pressure of time and under the challenge of responsibility" (Jenkins, 1975). In this study, the Jenkins Activity Survey (JAS) (Form B) was adapted for use with the college student population. The total score on this scale gave a measure of the TABP. The scale also yielded three component scores, namely, speed and impatience, work involvement, and hard-driving and competitive.

Speed and Impatience

The speed and impatience factor has reference to the time urgency observed in the behaviour style of the Type A person. Individuals scoring high on this factor are always in a hurry, tend to eat very rapidly, work against deadlines, become impatient with the conversation of others and hurry them along, have strong tempers, and become irritated easily.

Work Involvement

As measured by the modified Job Involvement scale of the JAS, work involvement expresses the degree of dedication to, and involvement in, one's study and work activity. It is
expressed mainly through involvement in one's work and studies, pressure for efficiency, and control of temper.

**Hard-driving and Competitive**

The hard-driving and competitive factor involves perceptions of oneself as being hard-driving, conscientious, responsible, serious, competitive, and as putting forth more effort than other people.

### 3.2.3 Hypotheses and Rationale

Certain hypotheses were formulated regarding the relationship between type of family structure and the personality variables selected for study. These were based on a study of the relevant literature on family structure and the personality variables of individual psychosocial competence, hardness, and the TABP (reviewed in Chapter II, sections 2.2 and 2.4-2.6).

The hypotheses predict that college students from joint families, as compared to those from nuclear families, will:

1. have less expectations of internality (i.e., less perceived mastery over their personal life);
2. have greater belief in control by chance;
3. have greater expectations of control by God;
4. have greater expectations of control by powerful
others;
(5) have a higher degree of interpersonal trust;
(6) exhibit less active planfulness (behavioural attributes of psychosocial competence);
(7) have less hardiness;
(8) have less commitment;
(9) have less internal control;
(10) have less sense of challenge;
(11) exhibit less of the Type A behaviour pattern;
(12) exhibit less speed and impatience;
(13) have less involvement in their studies and work;
(14) be less hard-driving and competitive.

Besides these specific hypotheses, the interrelationships among the fourteen dependent variables were also investigated. In addition, since data were available on the controlled variables of sex, educational achievement, income, parents' education, and caste, the effects of these variables on the dependent variables were also explored.

Rationale

The rationale behind the hypotheses stemmed from the reasoning that certain types of family environments are more likely to promote development of certain personality characteristics. The hierarchical structure of joint families with its stress on conformity to norms and traditions and submission to authority does not seem conducive to the
development of internal control which is a component of both psychosocial competence and hardiness. A sense of internal control is more likely to be fostered in a nuclear family system which allows a child ample scope for asserting its self-hood and independence.

On the other hand, the often inconsistent adult behaviour observed in joint families, the emphasis on religious practices, and the control exerted over children, would lead to expectations of control by chance, God, and powerful others.

It does not seem too, that the joint family environment would aid in developing either a sense of commitment to work or a sense of challenge, which, together with an internal locus of control, constitute the hardy personality. These dispositions are not likely to be fostered in a system where responsibility is shared, stability is valued, and emphasis on individuality and change regarded as threats to its existence.

On the other hand, interpersonal trust, another dimension of psychosocial competence, seems more likely to develop in a joint family where it would be an essential requirement for its existence.

As regards the BAPC, the "active coping orientation" and "high initiative" (Tyler, 1978, p.313) characteristic of the competent person are not likely to be nourished in a
joint family environment for the same reasons that they do not develop internality.

As for the Type A behaviour pattern and its factors of speed and impatience, work involvement, and hard-driving and competitive, there seems little possibility of their development in a joint family system which promotes a secure environment where responsibility is diffused, competition and conflict are minimized, and childrens' aggression is curbed. These conditions would be more likely to develop the easy-going disposition characteristic of the Type B personality.

3.3 SAMPLE

The research sample consisted of 100 college students each from joint and nuclear families matched on certain selected variables.

The subjects were unmarried college students of both sexes living with their families. Married students, foreigners, and hostelites were not included in the sample. An exception, however, was made in the case of a few students who had only recently been admitted to hostels. The students belonged, with three exceptions, to the Arts, Science, and Commerce faculties of five Junior and Senior colleges of Pune, and ranged from the Eleventh standard to the Third year of college (i.e., five successive year levels). The subjects were predominantly Maharashtrians but also included those originally belonging to other provinces. They varied widely
in previous educational achievement, economic status, and in the level of their parents' education. Hindu students belonging to various castes, such as the Brahmin, Maratha and disadvantaged castes were represented in the sample as were students from other religions. Students living in joint families up to a period of at least three years prior to the data collection for this investigation were included in the joint family sample.

Of the 152 students from joint families and 171 students from nuclear families who completed the questionnaires, only those who matched students from the other sample on the variables of sex, educational level (grade), faculty, educational achievement, income level, parents' education, and caste were selected for inclusion in the final research sample.

Subjects were matched exactly according to sex, and with a very few exceptions, according to educational level and faculty. Income level was determined by the per capita income, derived by dividing total family income by the number of its constituent members. Educational achievement was determined by averaging the percentage of marks at previous Board and University examinations. An index of parents' education was obtained by averaging the number of years of education of both the parents. Each of the variables of educational achievement, income, and parents' education was divided into three categories and students matched
according to category. Matching according to caste was also carried out, though this could not be enforced as rigorously as in the case of the other variables.

The final sample pool of 200 students thus consisted of matched groups of 100 students each from joint and nuclear families.

The chi-square ($X^2$) test was used to verify that the two samples did not differ significantly on the above-mentioned variables. The non-significant $X^2$ values obtained for all the variables confirmed that the samples had been adequately matched (see Chapter IV, Table IV-1).

3.4 INSTRUMENTS

The instruments used in this study have previously been used in numerous studies by their authors and other investigators. In addition to these pre-existing instruments, a personal data form was constructed and a subjective written report elicited from the students for use in this investigation.

3.4.1. Personal Data Form and Report

A personal data form (Appendices A & B) comprising 13 items was constructed and was required to be filled in by the students before the actual administration of the scales. The items were designed to elicit demographic information about the student and his or her family members.
In addition to this information, a subjective report was also obtained from the students covering the following points: (a) interpersonal relations among family members, (b) the degree of freedom allowed to him or her, and (c) the pressure, if any, experienced by the student for achievement.

The information in the personal data form was sought in order to match the two samples on the controlled variables and to investigate the relationship between the controlled and the dependent variables. The information elicited by the subjective report enabled exploration into the conditions likely to be related to the personality variables selected for study. This particular information was sought because a survey of the relevant literature suggested their possible bearing on the dependent variables.

3.4.2. Measurement of Individual Psychosocial Competence

The two aspects of self-efficacy and interpersonal trust which have been studied independently by other investigators (e.g., Rotter, 1966, 1967), have been combined by Tyler (1978) with behavioural attributes to develop the concept of a three-dimensional configuration of individual psychosocial competence. These three dimensions are self-attitudes, world-attitudes, and behavioural attributes, and are measured, respectively, by scales for internal-external control (Rotter, 1966; Levenson, 1974), the Interpersonal Trust Scale (Rotter, 1967), and the Behavioural Attributes of
Psychosocial Competence Scale (Tyler, 1978).

Levenson/Kopplin Control Scales (L/K Scales)

Self-attitudes, which form the first area of the psychosocial competence configuration, have been studied in this research by means of the L/K Scales (Appendices E & F).

Other scales commonly used for the measurement of internal-external control are the Rotter I-E, the Bialer, and the Nowicki-Strickland Scales. However, all these scales have been criticized on the ground that they are based on a conception of locus of control that is unidimensional and bipolar. The Levenson/Kopplin four factor measure of locus of control seems more appropriate in view of later investigations (Joe, 1971; Lefcourt, 1972; Mirels, 1970) pointing to the multidimensionality of the locus of control construct. The scales enable a more direct analysis of the factors contributing to attributions of causality in an individual's life. The L/K Scales have been used in a study of Hindu pilgrims in India (Tyler & Sinha, 1984). An additional reason for using the L/K Scales was the inclusion of items from Rotter's I-E Scale in the Hardiness measure used in this research.

The measure, as originally constructed and validated by Levenson (1974), consists of three scales: Internal (I), Chance (C), and Powerful others (P). The fourth dimension, control by God (G) has been added by Kopplin (1976) to
Levenson's scales at a later date.

Levenson's scales are seen to be adequately valid and reliable. Certain specific criteria have been predicted successfully by Levenson's three scales. Studies by Levenson on college students, adults, psychiatric inpatients, and prison inmates show scores to be differentially related to dimensions such as activism, psychopathology, prison sentence, philosophy of human nature, and perceived upbringing behaviours of parents (cited in Tyler, 1979).

Support for Levenson's tripartite division of locus of control also comes from Kleiber, Veldman, & Menaker's (1973) study which has derived three factors from Rotter's scale which resemble Levenson's three scales.

Kuder-Richardson, split-half, and test-retest reliabilities for Levenson's scales are in the range of .62 to .78 (Levenson, 1973 c).

As regards the fourth scale, namely, God control, Kopplin (1976) has found it to be negatively related to internal control (-.27) and unrelated to powerful others (-.07) and to chance (.00). A strong perception of control by God has been observed in individuals personally committed to a religious orientation and who endorse church attendance. Such individuals also moderately reject the view that events are determined by themselves, by powerful others, or by chance (Kopplin, 1976). Reliability for this scale has not
been reported by Kopplin.

The internal consistency of the four scales was independently assessed in this study for the two groups drawn from joint and nuclear families. The split-half reliability (Spearman-Brown) was found to be .57, .68, .88 and .68 for the Internal, Chance, God & Powerful Others scales, respectively, for joint families, and .50, .63, .91 and .71 for nuclear families.

**Scoring.** The L/K Scales comprise the Internal, Chance, God and Powerful Others Control scales, each consisting of eight items in a Likert format, which are presented as an unified attitude scale of 32 items. The extent of the subject's agreement with each item was indicated on Tyler's modified 5-point scale (A = strongly agree; E = strongly disagree) instead of on the original 6-point scale. The scales do not yield a single composite score but separate scores on each of the scales. Higher scores on the I, C, G, and P scales indicate, respectively, a greater degree of perceived mastery over one's personal life, a greater belief in chance, and greater expectations of control by God and by powerful others.

**Interpersonal Trust Scale (ITS)**

The Interpersonal Trust Scale (Rotter, 1967) has been used to study the second area of the psychosocial competence configuration, namely, world-attitudes (Appendices H & I).
Certain other scales for measuring trust have been constructed but their use is restricted only to specific situations. They include scales for measuring dyadic trust (Larzlerere & Huston, 1980), faculty trust (Hoy & Kupersmith, 1985), and organizational trust (K.M.Hart, Capps, Cangemi, & Caillouet, 1986). Rempel and Holmes (1986) have developed a scale to measure trust in terms of three major elements: predictability, dependability, and faith. All these scales were either not relevant to the purpose of this study or were constructed after the investigation was well under way. Game approaches involving trust also have been used but have the drawback that many subjects react to the situation as a competitive game regardless of special instructions (Rotter, 1967).

The ITS has been used by Tyler (1978) to measure world-attitudes, both in India (Tyler, Dhawan, & Sinha 1984) and in the U.S. (e.g., Tyler, 1978; Tyler & Gatz, 1977) and was hence selected as a suitable measure of interpersonal trust.

ITS scores are not significantly influenced by the social approval motive and by ability (Rotter, 1967). Rotter has pointed out that the social approval motive accounts for only a relatively small amount of the variance in the trust scale through the correlation between the ITS and the Marlowe-Crowne Desirability Scale is significant.
The ITS has relatively good construct and discriminant validity as indicated by the significant relationship of ITS scores to sociometric trust scores (.37). The ITS is also significantly related to the self-rating for trust, negatively to dependency, and positively to humour, friendship, and popularity. Both the trust scale and the sociometric rating of trust are also significantly correlated with trustworthiness. No significant correlation of trust with gullibility has been found (Rotter, 1967).

Test-retest reliability estimates of the scale vary from .56 to .68 indicating moderate stability of test scores. The internal consistency of the scale based on split-half reliability, corrected by the Spearman-Brown formula is .76 (Rotter, 1967). Split-half reliabilities (Spearman-Brown) in this study were found to be .53 and .39 for joint and nuclear families, respectively.

Scoring. The ITS consists of 40 items, of which 25 measure trust, the other 15 being fillers which are not scored. Of the 25 items measuring trust, 12 indicate trust for agreeing and 13, distrust for agreeing.

The ITS utilizes a 5-point scale ranging from 1 to 5 (1 = strongly agree; 5 = strongly disagree). Higher scores indicate higher levels of interpersonal trust.

Behavioural Attributes of Psychosocial Competence Scale (BAPC)

Behavioural attributes constitute the third dimension
of psychosocial competence. They are considered to be part of a configuration of skills and approaches by means of which people interact with the events in their lives.

The conceptualization of behavioural attributes as a dimension of the psychosocial competence configuration has been developed by Tyler and no other scale except the BAPC (Tyler, 1978) is available for its measurement.

The BAPC is independent of indices of intellectual capacity such as SAT scores or grade point average at the high school and entering college level (Tyler, 1978; Otero et al., 1982, cited in Tyler & Pargament, 1982).

The validity of the coping skills construct is indicated by the intercorrelations among the scales for measuring internal-external control, the ITS, and the BAPC which measure the three dimensions of psychosocial competence.

Correlations between the BAPC and the Rotter I-E are in the range of -.25 and -.45 in groups varying in race, culture, religion, socio-economic status, age, and sex (cited in Tyler & Pargament, 1982). Positive correlations between the BAPC and Levenson's Internal scale, and negative correlations between the BAPC and the Powerful Others and the Chance scales have been observed in black and white college males (Wood, 1979, cited in Tyler & Pargament, 1982). These
and other findings (Maish, 1979; Young, 1975; both cited in Tyler & Pargament, 1982) indicate the basic interrelatedness of active planfulness and a positive self-view.

Correlations between the BAPC and the ITS are of low order but significant, ranging from .10 to .30, and indicate the interrelatedness of active planfulness and a moderately favourable self-world view (cited in Tyler & Pargament, 1982).

The BAPC has both concurrent (e.g., Gatz, Wirzbicki, & Moran, 1977; Maish, 1979; both cited in Tyler & Pargament, 1982; Tyler, 1978, 1979) as well as predictive (Tyler & Pargament, 1982) validity. It can be used with a wide variety of subjects including high school and college students.

Form AR of the BAPC has been used in the present research (Appendices K & L). A Hindi translation of this form has been used in studies of adolescents in Allahabad (Tyler, Dhawan, & Sinha, 1984). Form AR is a slightly modified and improved version correlating approximately .90 with the original (F.B.Tyler, personal communication, November 11, 1983). It has been established that the items in the two original forms, A and B, are equivalent \( r = .88 \) and that both have adequate reliability (.84 & .86, respectively) and item internal consistency. They also have adequate dimensional sub-group reliabilities (Tyler, 1978). Split-half reliabilities (Spearman-Brown) for the BAPC in this study were .61 and .73, respectively, for students from
joint and nuclear families.

**Scoring.** The BAPC (Form AR) consists of 39 items of which 36 are scaled and 3 are fillers. The scale has a forced-choice format. Each item has two alternatives matched on area (personal, interpersonal, trust) and phase (search and organize; implement; culminate, conclude, and redefine), and at the same time offers the subject a choice between a more and less competent alternative on activity (coping stance; autonomy; self-maintenance). The items comprising the scale cover all phases, activities, and areas in a representatively balanced fashion.

Each item receives a score of 0 or 1, depending on whether it indicates incompetence or competence, respectively.

The phase, area, and activity subscales are not analyzed and scored separately as they are considered as useful conceptual guides instead of separate psychometric entities. Results are reported for the total scale and give a composite estimate of levels of active planfulness. Higher scores indicate higher levels of active planfulness or the behavioural attributes of psychosocial competence.

**3.4.3. Measurement of Hardiness**

Hardiness has been conceptualized by Kobasa and Maddi as a composite of commitment, control, and challenge (Kobasa, 1979; Kobasa & Maddi, 1977). It is a personality-based
inclination to transform and thus decrease the stressfulness of events, and operates as a buffer against the harmful effects of stress.

Hardiness Scale

The Hardiness Scale was developed by Kobasa and Maddi to measure the personality disposition of hardiness. This is the only scale of its kind measuring hardiness as conceptualized by the authors.

Originally, six scales from existing questionnaires were used as a composite measure of hardiness. These were the Alienation from Work and the Alienation from Self Scales of the Alienation Test (Maddi, Kobasa, & Hoover, 1979), External Locus of Control Scale (Rotter, Seeman, & Liverant, 1962), Powerlessness Scale (Maddi et al., 1979), Security Scale of the California Life Goals Evaluation Schedule (Hahn, 1966), and the Cognitive Structure Scale of the Personality Research Form (Jackson, 1974). Each of these scales has been reported to be adequately reliable and valid (Kobasa, Maddi, & Kahn, 1982).

Retrospective as well as prospective studies have shown hardiness to act as a buffer, decreasing the severity of illness symptoms associated with stressful life events (e.g., Kobasa, 1979; Kobasa, Maddi & Kahn, 1981; Kobasa, Maddi, & Courington, 1981; Kobasa, Maddi, & Puccetti, 1982; Kobasa & Puccetti, 1983). These studies also reveal that in
terms of discriminant validation, hardiness shows almost no relationship to stressful life events, job level, constitutional strengths, exercise, social support, age, education, marital status, or religious practice. Hardiness has been found to remain a significant predictor of health even when prior illness (Kobasa, Maddi, & Kahn, 1982), constitutional predisposition (Kobasa, Maddi, & Courington, 1981), the Type A behaviour pattern (Kobasa et al., 1983), and social support (Kobasa & Puccetti, 1983) are included as independent predictors.

Estimates of internal consistency for Hardiness composite scales have been in the .80's and test-retest stability over a five-year period was .61 (S.C. Kobasa & S.R. Maddi, personal communication, November 1, 1982).

The Hardiness Scale (Appendices N & O) used in the present research is a shorter and more refined composite measure of hardiness, containing 12, 16, and 8 items for commitment, control, and challenge, respectively. It replicates all the major findings obtained with the earlier scale. It has a reliability (Coefficient Alpha) of .86 and correlates with the earlier longer composite at .89 (S.C. Kobasa & S.R. Maddi, personal communication, November 1, 1982). Highly significant test-retest reliabilities for the Hardiness composite scale and for the three subscales of Commitment, Control and Challenge have been reported by Hull et al. (1987). In this study split-half reliability
(Spearman-Brown) was found to be .71 and .77, respectively, for the two samples drawn from joint and nuclear families. Reliabilities for the Commitment, Control, and Challenge subscales were .69, .52, and .43, respectively, for joint families, and .68, .53, and .33, respectively, for nuclear families.

**Scoring.** The Hardiness Scale consists of 36 items divided into two sections. In the first section, comprising item nos. 1 to 25, the subject rates each item on a 4-point scale, ranging from 0 to 3 (0 = not at all true; 3 = completely true). In the second section, which comprises item nos. 26 to 36, each item consists of two alternative statements, and the subject indicates which of the two better represents his or her attitude.

Each of the three subscales, namely, Commitment, Control and Challenge, was scored by summing the ratings on the items comprising the subscale. The hardiness composite score was the sum-total of the scores on all of the three subscales.

The Hardiness composite scale and its three subscales are negatively keyed: A lower score indicates a higher degree of hardiness.

3.4.4. Measurement of the Type A Behaviour Pattern

The Type A behaviour pattern is a coronary-prone
behaviour pattern that has been found in several studies to be associated with coronary heart disease (e.g., Jenkins, Zyzanski, Rosenman, & Cleveland, 1971).

The Jenkins Activity Survey (JAS)

The JAS has been constructed as a paper and pencil measure of Type A behaviour. Several forms of the scale are available, of which Form B (Jenkins, Rosenman, & Zyzanski, 1972) was used in this research. Form C (Jenkins et al., 1979) is nearly identical to Form B. Form T, developed for use with college students (Krantz et al., 1974) was not used in the study since it does not yield a job involvement factor. Instead, items related to job involvement in Form B were reworded to refer to study and work involvement and named 'work involvement'.

Other methods available for assessing Type A behaviour are the Structured Interview (SI) (Rosenman et al., 1964), the Framingham Type A Scale (FTAS) (Haynes, Levine, Scotch, Feinleib, & Kannel, 1978), Bortner's battery of performance tests (Bortner & Rosenman, 1967), and Bortner's Rating Scale (Bortner, 1969). The SI, however, relies almost exclusively on speech parameters and on clinical judgments of hostility, and requires training on the part of the investigator for its proper administration and interpretation. Its use was, therefore, not found to be practicable in this investigation. Besides, the JAS is an objective way of measuring the Type A pattern. The FTAS, like the JAS, is a self-report measure.
T.W. Smith & O'Keefe's (1985) study, however, suggests that whereas the JAS is closely correlated with core psychological components of the Type A pattern, the FTAS is rather uniquely associated with general emotional distress. Bortner's battery of performance tests requires a variety of equipment and a light-proof room. Besides, neither the battery nor Bortner's Rating Scale have been shown to be significantly associated with the incidence of coronary heart disease (Jenkins et al., 1979).

The JAS provides a Type A score as well as factor scores for three components of Type A behaviour: speed and impatience, job involvement, and hard-driving and competitive.

The validity of the JAS has been established through several lines of evidence. One is the agreement between JAS scores and SI pattern ratings (Jenkins et al., 1979). Another is the association between Type A scores and CHD. Significant differences have been observed in the Type A scores of individuals with and without a history of CHD (Jenkins, Zyzanski, Rosenman, & Cleveland, 1971; Kenigsberg, Zyzanski, Jenkins, Wardwell, & Licciardello, 1974). There is also a greater likelihood of heart attacks (Jenkins et al., 1974), recurrent myocardial infarctions and severity of coronary atherosclerosis (Jenkins et al., 1971; Jenkins, Zyzanski, & Rosenman, 1976; Zyzanski, Jenkins, Ryan, Flessas, & Everist, 1976) in those with higher JAS scores indicating
Type A behaviour.

Internal consistency reliability coefficients reported by Jenkins et al. (1979), are above .80. The four JAS scales, namely, Type A, Factor S, Factor J, and Factor H, show uniform reliability coefficients ranging from .73 to .85.

Test-retest reliability coefficients for an interval of from four to six months range from .65 to .82 (Jenkins et al., 1979). For retest intervals of from one to four years, the coefficients fall between .60 and .70 (Jenkins, 1978). For the purpose of this investigation, Form B of the JAS was modified for use with the Indian college student population (Appendices Q & R). Split-half reliabilities (Spearman-Brown) were computed for the entire scale and for the Speed and Impatience, Work Involvement and Hard-Driving and Competitive subscales. The reliabilities were .44, .31, .45, and .46 for joint families; and .44, .54, .47, and .44 for nuclear families, respectively.

In this modified form, certain items referring to job-related behaviours, as well as other items inapplicable to Indian college students, were reworded to make them appropriate for the specific sample under study (e.g., 'Christmas' changed to 'Diwali'). The word 'spouse' was either deleted or changed to 'parents' wherever appropriate, and items referring to job income dropped entirely. The
scale, as it was finally administered, consisted of 44 items.

**Scoring.** Of the 44 items comprising the scale, the first 39 are phrased in the form of questions, with varying numbers of alternatives provided as possible answers. For item nos. 40 to 44, the subject has to compare himself or herself with the average student in his or her college and mark one of the alternatives provided. High scores indicate the Type A behaviour pattern. Besides a total score indicative of the TABP, separate factor scores for its three components, speed and impatience, work involvement, and hard-driving and competitive, were also computed.

The JAS is typically scored according to an optimal weighting procedure in which items are unequally weighted in the determination of a total score. A more conservative approach was used in this study, instead, for three reasons. First, though the changes made in the JAS items in this study were minimal, their influence on the optimal weights is unknown. Second, the optimal weight scoring procedure is based on a standardization sample very different from the college student sample in India. The appropriateness of the item weights for samples varying greatly from the normative population is questionable. To avoid inappropriate use of item weights, the unit scoring procedure was used in this study. It may be noted that such a unit scoring procedure and the slight modification in the wording of items has been used previously (Krantz et al., 1974; Strube, Berry, Goza, &
Finally, not only have weights proved to be unreliable, but research suggests that it does not make much difference whether weighted or unweighted measures are used (G. W. Evans, personal communication, May 27, 1985). In the modified version of the JAS used in this study, the S scale comprised 20 items and the W and H scales 15 items each.

Each item was examined individually and the alternatives for each item combined, to enable scoring on a uniform 3-point scale (0 to 2). The points taken into consideration for combining alternatives were their weightage in the scoring key of the JAS, their meaning, and their redundancy in terms of the scale. Scores for the entire scale (TABP) and for the three subscales were thus obtained.

3.5 PROCEDURE

A pilot study was conducted, preliminary to actual research testing, on a random sample of college students to determine the clarity and suitability of the instructions and of the individual scale items. On finding these to be satisfactory, the scales were administered to the research sample selected for study.

Students were seated in small groups in a quiet room and first asked to fill in the personal data form (Appendices A & B) comprising 13 items, after which they were presented with the test booklet. They were assured through the

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* The total number of items in the three scales do not add up to the total for the JAS because of overlap in the scales.
general printed instructions (Appendices C & D) of the confidentiality of their information, and of the utilization of the information solely for research purposes. They were also verbally assured that it was not an examination, and specifically told to ask for clarification of any doubtful item. Specific instructions for each scale were printed at the beginning of the scale. No time limit was imposed for the completion of the scales. The estimated time for the entire session, based on the pilot study, was approximately an hour and a half.

On completion of the scales, the subjects were asked to write a brief report pertaining to certain intra-familial conditions specified by the investigator (see section 3.4.1).

3.6 ANALYSIS OF THE DATA

The present investigation involved testing differences as well as relationships. This necessitated the use of certain statistical techniques which were accordingly employed at appropriate stages of the investigation.

The graphical method was used to assess normality of the variables. Homogeneity of variances was determined by Bartlett’s test. As the distributions approached normality and most of the variances were found to be homogeneous, certain parametric statistics were used along with the non-parametric.

The internal consistency of the scales was assessed by
the split-half method, corrected by the Spearman-Brown formula.

Differences between groups were assessed by the t test, $x^2$ test, and F test.

The hypotheses of difference between joint and nuclear families were studied by means of the t test. It involved assessing the significance of the difference between means of matched students from joint and nuclear families on the dependent variables of individual psychosocial competence, hardiness, and the Type A behaviour pattern, and their respective components. Analyses by t test were carried out on the general sample as well as on a smaller subset of the general sample comprising matched students from large joint and nuclear families drawn from the general sample.

The $x^2$ test was used to determine whether the students from joint and nuclear families were adequately matched on certain predetermined variables and to analyze the subjective reports of the subjects. The latter analysis was carried out to discover significant differences, if any, in intra-familial conditions that might help in the interpretation of the research findings.

A two-way analysis of variance design was used to analyze the type of family with respect to classifications of sex, educational achievement, income, parents' education, and caste. Interaction between the two factors, type of family
and type of classification, was also considered. Duncan's multiple range test was used for post-hoc comparisons among means.

Pearson's product moment correlation method was used to determine the intercorrelations among components of self-attitudes (locus of control), hardiness, and the TABP, as well as the relationship of each of the fourteen dependent personality variables with the others. Coefficients of correlation were computed separately for students from joint and nuclear families.

3.7 SUMMARY

This chapter describes the methodology used in the present research.

This study was aimed at discovering the effect of the independent variable, namely, joint or nuclear family structure, on fourteen dependent variables. The terms used in the study have been operationally defined. The hypotheses clearly state the expected nature of the differences between students from the two family structures.

The sample consisted of 100 students each from joint and nuclear families, matched on the variables of sex, educational level, faculty, educational achievement, income, parents' education, and caste.

The tools employed to test the hypotheses were the
Levenson/Kopplin Control Scales, Interpersonal Trust Scale, Behavioural Attributes of Psychosocial Competence Scale (Form AR), Hardiness Scale (Short Version), and the Jenkins Activity Survey (Form B). Information about each scale, including administration and scoring procedures has been given.

Normality of the variables was tested by graphical representation and Bartlett's test used for determining homogeneity of variances. The t test, $\chi^2$ test, ANOVA, and correlation method were used for statistical analysis of the data. Post-hoc comparisons among means were carried out by Duncan's multiple range test. The subjective reports of the students were analyzed to help in interpreting the findings of the study.