CHAPTER IV
METHODOLOGY

This chapter includes the sample studied, tools used, procedure (data collection), scoring, and statistical techniques used.

4.1 Sample:

This study was conducted on a sample of 300 technocrats (Mean and SD age of the technocrats was 37.30± 5.27 years). Subjects were randomly selected from the offices of Himachal Pradesh State Electricity Board (H.P.S.E.B.). The minimum qualification level of the technocrats was diploma in engineering. The technocrats from various departments of this organization; such as circles, divisions, sub-divisions, and sections participated in this study on volunteer basis. All the subjects were male, married and having an urban middle class background.

4.2 Research Tools:

4.2.1 Organizational Role Stress Scale (Pareek, 1983):

The organizational Role Stress Scale is a 5 point scale, indicating how true a particular statement is for the role. The following stresses are assessed by this instrument:

Self role distance (SRD), role stagnation (RS), inter role distance (IRD), role ambiguity (RA), role overload (RO), role-isolation (RI), role erosion (RE) and resource inadequacy (Rln.).

Originally, the instrument was named as “your feelings about your role” and consisted of 40 items (5 for each of the eight role stresses mentioned above). Later, this instrument was named as Organizational Role Stress Scale. In the light of findings of factor analysis two stressors, namely role ambiguity and role inadequacy were split into four. Role ambiguity was split into role ambiguity (i.e. lack of clarity) and role...
expectation conflict (or conflict expectation). Role inadequacy was split into personal-inadequacy (i.e. inadequacy of internal or personal resources and resource inadequacy (i.e. lack of external resources for effective performance of the role). Thus the new instrument i.e., ORS-scale has 50 items. The score of each role stress may range from 0 to 20 and the total organizational role stress score may range from 0 to 200. The answer sheet is given separately to facilitate quick calculations of the role stress scores. The ratings of the respondents can be added row-wise to have the scores on 10-role-stress dimensions which added together provide total ORS score. Test-retest reliability coefficients were calculated on a sample of 500 employees from three banks (Sen, 1982) for the eight identified stresses and the total role stress score. The reliability coefficients, except one are significant at .001 level, one coefficient was significant at .003 level. The scale has acceptable reliability (Pareek, 1981, 1983). Some evidences about validity is provided by a measure of self-consistency of an instrument, such items being correlated with the total score on the instrument for 500 respondents. All but two correlations were significant at .008 levels. The result depicts high internal consistency of the scale (Pareek, 1981, 1983).

4.2.2 Organizational Role PICS (O) (Pareek, 1983):

The organizational role PICS (O) is a semi-projective instrument for the assessment of various coping strategies employees adopt to deal with organizational role-stress. PICS is a short form of projective instrument for coping style. Role PICS has three forms — E, G and O. Role PICS (E) is meant for use with entrepreneurial role. Role PICS (G) has been developed for assessment of coping styles in relation to general role stresses experienced by people in their lives. Role PICS (O) assesses coping styles in relation to organizational roles. This instrument consists of 24 pictures or situations in which a role occupant is involved in conversation with another person, and the role occupant or the other person makes a statement about
a role stress situation. To maximize projection, these are presented in cartoon like pictures. A respondent is required to write down what the person to whom a statement has been made would respond. It is presumed that the responses will be a projective expression of the way the respondent would cope with a particular stress.

Internal consistency of the scale has been tested by split-half and even odd methods. Values of correlation coefficient for 52 respondent were found to be 0.71 for split-half and 0.93 for even odd method, which are significant at .001 level. The data has been analyzed to see consistency amongst the various coping styles. For each category (consisting of 3 situations or items), the score of 52 respondents on 8 styles were rank ordered, for frequency, and rank order correlations were calculated. The results indicated high internal consistency of the instrument. There is a similar pattern of ranks of the various coping styles as in the entire test. The results further showed that there is less similarity of responses amongst some stress categories.

In order to get some insight into the nature of coping styles in the Indian organizations and to have some indicators of meta strategies, data from about 500 employees from banks (Sen, 1982) were factor analysed. Principal component analysis was used. The factors were rotated with varimax method. The eight variables of coping styles gave 4 factors viz, ‘defensive externalization’, ‘problem-solving’, ‘dependent persistence’ and ‘collaborative internalization’, explaining 100 percent variance of coping styles.

4.2.3 State-Trait Anxiety Inventory – STAI (Spielberger, Sharma and Singh, 1973):

The trait-anxiety is measured by the Hindi version of state-trait anxiety inventory (Spielberger, Sharma & Singh, 1973). This version has been empirically demonstrated to provide internally consistent reliable and
valid scale for measuring general anxiety. The STAI has also been translated into 36 languages in the world over and hence reliable cross-cultural comparisons can be made.

The STAI, (A–Trait) Scale consists of 20 statements that ask people to describe how they generally feel. Subjects respond to each item by rating themselves on following four point scale: (i) Almost Never, (ii) Sometimes, (iii) Often, (iv) Almost Always. Individual items were selected for the STAI, (A–Trait) scale on the basis of the concurrent validity of each item as determined from correlations with two widely accepted A–Trait measures, the Taylor MAS and IAPT Anxiety Scale. Each A-Trait item was also determined to be impervious to situational stress and relatively stable over time. Cross-language equivalence of the Hindi and English version has been amply demonstrated in the samples of bilinguals. In order to determine test-retest reliability of the Hindi STAI, a sample of 72 graduate students was retested under more or less similar class-room conditions after periods of 30, 50 and 90 days. The Hindi STAI, A-Trait scale was stable over time as indicated by high test-retest correlations for this scale, which ranged from 0.77 to 0.83 over the 30 to 90 days periods. The concurrent validity of the Hindi STAI A-Trait scale was evaluated for a sample of 100 Indian graduate students to whom the scale was administered, along with (i) An Indian adaptation of the Taylor (1953) Manifest Anxiety Scale (Krishnan 1968), (ii) the IAPT Anxiety Scale (Cattle & Scheir, 1961); and, (iii) the Sharma Manifest Anxiety Scale (1973).

4.2.4 Anger Expression (AX/EX) Scale (Spielberger et. al, 1985; Krishna, 1988):

The AX/EX Scale is comprised of 24 times. The three sub scales assess individual differences in the tendency to (i) express anger toward other people or objects in the environment (AX/out), (ii) experience but hold in (suppress) angry feelings (AX/in), and (iii) control the experience of
expression of anger (Ax/con). The Hindi version of anger expression (AX) scale has been developed by Krishna (1988) and further cross validated by Rana (1990).

The item remainder correlations range from 0.35 to 0.74 for males and 0.19 to 0.84 for females in the English AX-Scale whereas in the Hindi AX-Scale, item remainder correlations range from 0.38 to 0.80 for males and 0.58 to 0.93 for females. In Hindi AX/out the item-remainder correlation range from 0.66 to 0.77 for males; 0.24 to 0.60 for females. In Hindi AX/con the item-remainder correlation range from 0.30 to 0.78 for males and 0.15 positive and significant item-remainder correlation were found for both the Hindi and English AX/scale on Indian sample as well.

The Hindi version of Anger Expression Scale (AX/in, AX/out and AX/cont.) and the total STAXI have been developed by Krishna (1988) and Rana (1990) respectively on bilingual subjects. The alpha co-efficients for English AX/EX Scale and AX/in, AX/out and AX/con sub scales were 0.96, 0.90, 0.93 and 0.88 for males and alpha co-efficients were 0.91, 0.85, 0.70 and 0.88 for total anger-expression and its respective sub scales for females. The alpha reliability of Hindi scale in respect to total AX, AX/in, AX/out, AX/cont. are 0.89, 0.88, 0.62, 0.82 (females) and 0.96, 0.92, 0.92 and 0.82 (males) respectively.

The alpha co-efficients for Hindi AX-Scale and sub scale were 0.96, 0.92 and 0.82 respectively. All these significantly high alpha values prove that both Hindi and English test items are quite homogeneous in their contribution of variance to the total scale scores. These highly significant alpha co-efficients also established the internal consistency of both Hindi and English AX/Scale.

4.2.5 Zung Self Rating Depression Scale – SDS (Zung 1965):

The SDS developed by Zung (1965) to fill the need for assessing depression, whether an affect, a symptom or a disorder was chosen,
because of its accepted clinical value. It covers a broad range of depressive symptomology, dealing with the areas of pervasive affect, physiological equivalents and psychological concomitants (Zung 1965). It has a well established reliability, validity and replicability (Zung 1965). Additionally, it is short form and is convenient to administer and being self-completed, and is not subject to the halo-effect of rater bias.

Knight et al. (1983) assessed the internal consistency of SDS,. The alpha co-efficient for the SDS was 0.79, which indicates a satisfactory level of scale homogeneity. The mean scores on the SDS are higher for patient group than those for the normal group reported by Zung (1965). The mean SDS score reported by Zung is 26, while for the sample used by Knight et al. (1983), the equivalent mean SDS score for males was 31 and for females 33.5. This discrepancy emphasizes the need for sex and age specific norms for use in situations where people are being screened for depression. Upmanyu and Reen (1991) on Indian sample of employed and unemployed female subjects found alpha coefficient for SDS to be 0.84.

4.2.6 Satisfaction-Dissatisfaction Employees Inventory (SDEI: Pestonjee, 1981):

Job satisfaction has been assessed by Satisfaction-Dissatisfaction Employees-Inventory (SDEI). This inventory has been developed and standardized by Pestonjee (1973, 1981). The inventory is based on the interactional model of job satisfaction with the number of on-the-job and off the-job factors. SDEI is 80 item questionnaire consisting of 4 broad areas, namely:

(i) **Job**: Nature of work, hours of work, fellow workers, opportunities for on the job promotion and advancement (prospects), overtime regulation, interest in work, physical environment, machines and tools etc.

(ii) **Management**: Supervisory treatment, participation, rewards and punishment, praise and blame etc.
(iii) **Personal Adjustment:** Emotionality, health, home and living conditions, finances, relations with family members etc.

(iv) **Social Relations:** Neighbours, friends and associates, attitudes towards people in the community, participation in the social activities, sociability etc.

The first two together are termed as on-the-job while the later two are known as off-the-job factors. These on-the-job satisfaction areas include supervisory treatment, considerations, equity-regarding work load and pay, supportive function, interest in work, rules and regulations, working conditions, co-operation of the coworkers, supervision of subordinates. Off-the-job satisfaction covers relations with the family members, emotionality, neuroticism anxiety about health, neighbourhood, intra-psychic factors, isolation, trust and living conditions. Each area includes equal number of items (20 items in each area). The items have been framed in the form of interrogatory statements. Each item can be responded in terms of "yes" or "no". The area-wise split-half reliability has been found to be 0.99 for job; 0.99 for management; 0.98 for personal adjustment and 0.90 for social relations. The construct validity has been determined by using the known group and items-test correlation techniques (Pestonjee 1973, 1981).

4.2.7 **Functional Social Support Questionnaire – FSSQ (Singh and Srivastava, 1997):**

The self-administered, functional social support questionnaire consisting of 80 items has been developed by Srivastava and Singh to measure availability of support from various organizational (work-related) and extra-organizational (non-work) sources. These items refer to what other people do (the function they perform) rather than only the existence of other people in social structure. There are two sections in questionnaire. The first section measures extra-organizational sources of support, which include support from family, friends and spouse. The second section of the
questionnaire aims to measure organizational sources of support, which include support from co-worker and supervisor/immediate officer. Further each scale consists of three sub-scales, which measure three types of social support (viz., emotional support, informational support and instrumental support) as classified by Cohen and Wells (1985).

In the present scale all the 80 items were found to be significant at .01 level. The score of friend support range from 15 to 64, spouse support range from 16 to 64, family support range from 16 to 64, coworkers support range from 16 to 64 and supervisor/immediate officer range from 17 to 68. The internal-reliability of the FSSQ was measured by using the Chronbach's alpha coefficient method for the groups of about 200 people working at diesel loco-motive works (D.L.W.) Varanasi, including managers and professionals. The reliability coefficient was found to range between 0.68 to 0.97. All the inter correlations are positive and significant at 0.01 level, showing evidence of convergent validity (Comphell and Fiske, 1959).

4.3 Procedure:

All measures were administered individually to all respondents. The order of presentation of the measures was:

Organizational Role Stress (ORS) Scale, Anger-Expression Scale, Trait-Anxiety Scale, Zung's Depression Scale, SD Employees Inventory, Functional Social Support Scale and Role PICS (O).

4.4 Scoring:

4.4.1 Scoring for Organizational Role Stress Scale:

There are 50 items in the organizational role stress scale and scores have been obtained on a 5 point scale i.e. the respondent indicated his response by writing 0,1,2,3,4 on the answer sheet against the serial number of each item as given in the scale. The abbreviations in the last column of the answer sheet stand for the following role stresses:
Role Ambiguity (RA), Role Expectation Conflict (REC), Self Role Distance (SRD), Role Overload (RO), Role Stagnation (RS), Role Erosion (RE), Resource Inadequacy (RIn), Personal Inadequacy (PI), Inter-Role Distance (IRD), and Role Isolation (RI).

The summation or of scores for each role stress (row wise) provided the total organisational role stress score. Each individual had eleven scores (10 scores on role stresses and one summation of all the 10 role stress scores). Maximum score on each role stress was 20 and minimum 0 and the total organizational role stress score ranged from 0 to 200.

4.4.2 Scoring for Anger Expression Scale:

The items on the anger expression scale are classified as under:

Anger-out (AX/out): 2, 7, 9, 12, 14, 19, 22, 23
Anger-in (AX/in): 3, 5, 6, 10, 13, 16, 17, 21
Anger-control (AX/con): 1, 4, 8, 11, 15, 18, 20, 24

Anger-out-in and-control, sub scale scores are computed by summing the column of item score for each scale. The range of possible scores for the three sub scales varies from a minimum of 8 to a maximum of 32.

In computing AX/EX scores a constant (16) is added to eliminate negative scores. AX/EX scores which ranged from 0 to 72 can be calculated by solving the following equation:

\[ AX/EX = AX/out + AX/in - AX/con + 16 \]

4.4.3 Scoring for Hindi Version of the A-Trait Scale of the STAI:

The scoring for the Hindi version of the A-Trait scale of the STAI has been done on the basis of the answer marked by the respondent on a four-point scale. Reverse order scoring is done for items 1, 6, 7, 10, 13, 16, 19, i.e. if the score is marked 4 by the subject, it is actually counted as one. The scores of the total items have been summed up to obtain the total trait-anxiety score for each respondent.
4.4.4 Scoring for Zung’s Self-Rating Depression Scale:
This scale consists of 20 items, rated on a 4 point scale, assessing the depressive symptoms selected by the author as being most typically experienced by patients with depressive disorders (highest rating indicating greater psychopathology). The score ranges from 20 to 80.

4.4.5 Scoring for S.D. Employees Inventory:
Scoring of S.D. employees, Inventory has been done with the help of the standardized key. The scores have been obtained by arithmetic summation of ‘true keyed’ and ‘false keyed’ endorsements for each area of the inventory. ‘One’ mark was given for each desired score.
(a) Job: 1, 2, 6, 7, 13, 14, 17, 18, 19, 21, 22, 26, 27, 33, 34, 38, 46, 53, 54, 58, 59, 62, 67, 71, 77, 78 & 79.
(b) Management: 11, 31, 37, 39, 41, 42, 47, 51, 57, 61, 66, 73, and 74.
(c) Social-Relations: 3, 5, 9, 25, 45, 50, 64, 75, and 76.
(d) Personal-Adjustment: 4, 8, 10, 12, 15, 16, 20, 23, 24, 28, 29, 30, 32, 35, 36, 40, 43, 44, 48, 49, 52, 55, 56, 60, 63, 65, 68, 69, 70, 72 and 80.

By adding the scores for job and management, on-the-job facet of job satisfaction has been obtained. By adding the scores on personal adjustment and social relations the score for off-the-job facet of job satisfaction have been obtained. The summation of all scores together provided the total job satisfaction scores.

4.4.6 Scoring for Coping Scale:
Role PICS is a semi projective instrument for assessment of styles on strategies used by a respondent while coping with role stress. ‘PICS’ is the short form of projective instrument for coping styles. Role PICS has been developed for the assessment of coping styles in relation to the general role stresses experienced by people in their lives. Some typical
situations have been depicted in a pictorial form, where a role occupant is involved in a conversation with another person and a statement about a role stress situation is made by either of them. A respondent is required to write down the responses of the person addressed. It is presumed that the responses will be a projective expression of the way the respondent would himself cope with a particular stress. A score sheet is provided for scoring the responses.

(i) Externality
Feeling that the external forces were responsible for stressful situation resulting in aggression and blame on such external factors. It may also indicate the tendency to expect and get solution for the stress from the external sources. Externality may be high or low.

(ii) Internality
It is opposite to the externality. The respondent may perceive himself responsible for the stress, and may therefore, express aggression towards himself. The respondent may expect solution for the stress from himself. Internality may be high or low.

(iii) Mode of Coping
Coping may either take the form of avoiding the situation (re-active strategy) i.e. dysfunctional styles or confronting and approaching the problem (pro-active strategy) i.e. functional styles.

Combining the two aspects of each of the three dimensions given eight possible strategies to cope with stress. The dysfunctional styles are Impunitive (M), Intropunitive (I), Extrapunitive (E) and Defensive (D): the four functional styles are Impersistive (m), Intro-persistive (i), Exterapersistive (e) and Interpersistive (n).
(i) Impunitive (M)

Impunitive has a combination of low internality, low externality and avoidance. This is a fatalistic attitude. Statements indicating either simple admission of the stress, or indicating that the stress is unavoidable and nothing can be done about it are served under this style.

(ii) Intropunitive (I)

Intropunitive is characterized by high internality, low externality and avoidance. Blame and aggression are directed by the respondent to himself. Responses showing self blame, remorse or guilt are scored under I.

(iii) Extrapunitive (E)

Extrapunitive is characterized by low internality, high externality and avoidance. Both Rosenzweig's extrapunitive (the presence of the frustrating obstacle is insistently pointed out) and extrapunitive (blame, hostility etc. are turned against some person or object in the environment) styles are included here. Both irritation with the situation, and aggression and blame for the outside factors and persons are scored under E.

(iv) Defensive (D)

Defensive is characterized by high internality, high externality and avoidance. With involvement of both self and others, but having avoidance mode, the respondent avoids aggression or blame by use of defensive mechanisms. Rosenzweig (1979) used defensive responses as variants of intropunitive category. The assumption here is that with high involvement of the self and of others in the stress, the superego becomes more active and therefore defensive behaviour is stimulated. Defensive is scored for denial of stress for rationalization of stressful situation and for benefits pointed out for the stress.
(v) **Impersistive (m)**

Impersistive is characterized by low internality, low externality and approach. Rosenzweig’s (1979) impersistive category relates to “expression given to the hope that time or normally expected circumstances will bring about the solution of the problem, patience and conformity are characteristics”.

(vi) **Intropersistive (i)**

Intropersistive is characterized by high internality, low externality and approach. Statements showing that the respondent himself will take action in relation to stress, are scored under i.

(vii) **Extrapersistive (e)**

Extrapersistive is characterized by low internality, high externality and approach. Statements of request made to some one to solve the problem or indicating expectation that the solution will come from other people are scored e.

(viii) **Intropersistive (n)**

Intropersistive is characterized by high internality, high externality and approach, and is opposite of defensive (D) style. This style is indicated in statements suggesting joint effort, by the respondent and some others, to deal with stress.

Out of these eight strategies first four show “avoidance” oriented behaviour and they are considered as dysfunctional styles of coping with stress situation. By using this styles the person either tries to accept or deny the problem or simply blames himself or others for the problem. The remaining four strategies are “approach oriented” and are regarded as functional styles. By using these styles the person shows awareness about the problems and tends to take action to solve it either himself or with others’ help.
The scores on avoidance and approach modes are bipolar. Increase in avoidance scores shows a decrease in approach scores and vice-versa. Thus broadly speaking these two stress coping strategies i.e. avoidance and approach have been arranged and specially identified in terms of four stress sub-coping strategies i.e. avoidance-internality, avoidance-externality, approach-internality and approach-externality. In the present study, the dominant approach and avoidance groups were determined on the basis of the individual's scores, which were derived from the application of formula \( \frac{a-b}{a+b} \) to the scores taken from the score sheets of the subjects (Pareek, 1983). These resultant scores were further tested for their level of significance from the table given in the manual.

4.4.7 Scoring for Functional Social Support Questionnaire:

The questionnaire consists of both true-keyed and false-keyed items. Two different patterns of scoring have been adopted for two types of items. The scores have been obtained by arithmetic summation of true-keyed and false-keyed responses. True keyed and false-keyed score are as:

<table>
<thead>
<tr>
<th>Extra-organizational (Non-work) Sources of Social Support</th>
</tr>
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<tbody>
<tr>
<td><strong>(1) Friends' Support (Total = 15)</strong></td>
</tr>
<tr>
<td>1, 4*, 7*, 8*, 11*, 14*, 3*, 5, 10*, 12, 2, 6*, 9, 13*, 15.</td>
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<tr>
<td><strong>(2) Spouse Support (Total = 16)</strong></td>
</tr>
<tr>
<td>1, 4*, 8, 9, 11*, 12*, 14*, 15*, 16*, 3*, 6, 7*, 2, 5*, 10, 13.</td>
</tr>
<tr>
<td><strong>(3) Family Support (Total = 16)</strong></td>
</tr>
<tr>
<td>1, 2, 3, 5, 6, 8*, 13*, 16*, 9*, 10, 12*, 14, 4*, 7, 11, 15*.</td>
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<tr>
<th>Organizational (work-related) sources of Social Support</th>
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<tbody>
<tr>
<td><strong>(4) Co-Worker Support (Total = 16)</strong></td>
</tr>
<tr>
<td>1*, 2, 3, 5*, 8*, 12*, 4, 9*, 10*, 14, 16*, 6*, 7, 11, 13, 15*.</td>
</tr>
<tr>
<td><strong>(5) Supervisor/Immediate officer Support (Total = 17)</strong></td>
</tr>
<tr>
<td>1, 2, 3, 5*, 7*, 8, 11*, 12*, 15*, 17, 6, 9, 10*, 13*, 4*, 14*, 16.</td>
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</table>

*denotes the false-keyed score.

Scoring for true-keyed item was made as 1, 2, 3, 4 and for false-keyed items was made as 4, 3, 2, 1.
The summation of all scores together provided the total functional social support score.

4.5 Statistical Analysis:
1. Group comparisons were made by employing t-test.
   In the present study sub grouping was done to compare technocrats on positive and negative indicators of well-being and ORS in terms of dominant coping styles (approach versus avoidance) and perceived organizational support (high versus low). Grouping in the case of perceived organizational support was made on the basis of $M \pm \frac{1}{2} SD$ with the subject scoring less than mean $\pm \frac{1}{2} SD$ and above mean $\pm \frac{1}{2} SD$ being designated high and low on organizational support. Further, grouping of technocrats on dominant coping styles (approach and avoidance) was done on the basis of formula given by Pareek (1983).

2. The Pearson's product moment coefficients of correlation were computed for studying the relationship of ORS, trait-anxiety, anger-expression, depression, and job-satisfaction among technocrats with avoidance and approach coping strategies and organizational support.

3. Step wise multiple regression analysis was performed to ascertain the effects of the two modes of coping (avoidance and approach) and organizational support on the indicators of organizational role stress (ORS) as well as total organizational role stress (ORS) and negative and positive indicators of psychological well-being.