CHAPTER III

METHODOLOGY
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The present study deals with workers working in sugar factories, located in the rural area. The major aim of the study is to find out the relationship between occupational stress, mental health and job satisfaction of the workers. The other relevant factors are Educational standard, age, experience, training, rural v/s urban background and number of dependents. For the measurement of the above said factors standardized psychological tests were used. These are occupational stress Index by Dr. A.K. Shrivastava and Dr. A.P. Singh. Mental Health Inventory by Dr. Jagdish and Dr. A.K. Shrivastava and Job-satisfaction Instrument by R.S. Mishra, Manorama Tiwari and D.N. Pandey.

LOCATION

Though from the title it appears that the universe of the study is factories located in the rural area, i.e. sugar factories located in the rural area of Jalna District (M.S.) in Maharashtra state. There are so many sugar factories located in the rural areas. In each factory 500 and above workers are working as a seasonable and non-seasonable workers. Out of these factories 'SAMARATH SAHAKARI SUGAR FACTORY' located at Ankushnagar, MAHAKALA Tq. Ambad Dist. Jalna and Ramnagar sugar factory located at Ram nagar Tq. dist. Jalna (M.S.) was selected for the study.
SAMPLE

At the first stage a separate list of the workers was asked from the factory. It includes the information of age, experience, educational standard, trained/untrained, salary etc. According to the available information 300 workers were selected for the study.

All the selected workers were educated none of them was illiterate. However, their educational standard ranged from VII std. to post-graduate level. Age range was 19 to 49 years, and having the work experience one to 22 years.

SAMPLE DESCRIPTION

Total $N = 300$

Training:

Non trained = 144; 48%
Trained = 156; 52%

Community type:

Rural = 164; 54.7%
Urban = 136; 45.3%

Educational:

<table>
<thead>
<tr>
<th>Code value</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non matric -1</td>
<td>41</td>
<td>13.7</td>
</tr>
<tr>
<td>Matric -2</td>
<td>178</td>
<td>59.3</td>
</tr>
<tr>
<td>XII std.</td>
<td>38</td>
<td>12.7</td>
</tr>
</tbody>
</table>
Graduate - 4 36 12.0
Post-Graduate - 5 7 2.3

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**Sample classification on the basis of Training by Type of community**

Non trained Rural = 119; 39.7%
Non-trained Urban = 25; 8.3%
Trained Rural = 45; 15%
Trained Urban = 111; 37%

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**Sample classification on the basis of Training by Education**

<table>
<thead>
<tr>
<th>Education (code value)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-trained</td>
<td>36(12%)</td>
<td>96(32%)</td>
<td>7(2.3%)</td>
<td>4(1.3%)</td>
<td>1(0.3%)</td>
<td>144(48%)</td>
</tr>
<tr>
<td>Trained</td>
<td>5(1.7%)</td>
<td>82(27.3%)</td>
<td>31(10.3%)</td>
<td>32(10.7%)</td>
<td>6(2%)</td>
<td>156(52%)</td>
</tr>
<tr>
<td>Total</td>
<td>41(13.7%)</td>
<td>178(59.3%)</td>
<td>38(12.7%)</td>
<td>36(12%)</td>
<td>7(2.3%)</td>
<td>300 (100%)</td>
</tr>
</tbody>
</table>

---

**Sample classification on the basis of Training by Type of community by Education**

**Education (code value)**

<table>
<thead>
<tr>
<th>Rural</th>
<th>Urban</th>
<th>Rural</th>
<th>Urban</th>
<th>Rural</th>
<th>Urban</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-trained</td>
<td>33</td>
<td>3</td>
<td>83</td>
<td>13</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Trained</td>
<td>2</td>
<td>3</td>
<td>34</td>
<td>48</td>
<td>3</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>6</td>
<td>117</td>
<td>61</td>
<td>4</td>
<td>34</td>
</tr>
</tbody>
</table>
DATA SCREENING

Accuracy of input: Checked twice till no error was detected.

Missing values: For case 247, no score on the number of dependents to the mean of number of dependents.

Normality assumptions: The distribution of scores for each variable was examined for normality by employing normal probability plot and detrended normal probability plot. The normality assumptions were also evaluated in MANOVAs, t-tests, and multiple regressions by carrying out the examination of residuals through normal probability plots and detrended normal probability plots. There were no problems posed in respect of marginal normality of the variables. Multivariate normality has been assumed on the basis of marginal normality of the variables. Moreover, the sample sizes in each group in MANOVAs and t-tests were quite large to claim the robustness of these techniques from the point of view of normality departures on the basis of central limit theorem. The other assumptions underlying different statistical models were also checked while analysing the data.

Tools used for Data Collection:

Following psychological tools were used for data collection.

1) Occupational stress Index:

This instrument was constructed and standardised by Dr. A.K.
Shrivastava and Dr. A. P. Singh. (1981)

Purpose: - The occupational stress Index purports to measure the extent of stress which employees perceive arising from various constituent and conditions of their job. However, stress researchers have developed the scales which measure the stress arising exclusively from job roles. (Rizzo, et al 1970; Pareek 1981). The tool may conveniently be administered to the employees of every level operating in context of industries or other non-production organizations.

Main features of the tool:

The scale consists of 46 items, each to be rated on the five-point scale. Out of 46 items, 28 are 'true-keyed' and rest 18 are 'false-keyed'. The items relate to almost all relevant components of the job life which cause stress in some way or the other, such as, role over-load, role ambiguity, role conflict, group and political pressures, responsibility for persons, under participation, powerlessness, poor peer relations, intrinsic impoverishment, low status, strenuous working conditions, and unprofitability.
constituting various sub-scales of the O.S.I. along with their indices of internal consistency. (As given in Manual).

<table>
<thead>
<tr>
<th>Sub-Scales</th>
<th>Serial Number</th>
<th>Range of rabis</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Occupational of the items in the schedule)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-Role Overload</td>
<td>1,13,25,36,44,46</td>
<td>.30-.46</td>
</tr>
<tr>
<td>2-Role ambiguity</td>
<td>2,14*,26,37</td>
<td>.20-.48</td>
</tr>
<tr>
<td>3-Role Conflict</td>
<td>3,15*,27,38*,45</td>
<td>.36-.53</td>
</tr>
<tr>
<td>4-Unreasonable grp. &amp; political pressures</td>
<td>4,16,28,39</td>
<td>.21-.52</td>
</tr>
<tr>
<td>5-Responsibility for-persons</td>
<td>5,17,29</td>
<td>.30-.57</td>
</tr>
<tr>
<td>6-Underparticipation</td>
<td>6*,18*,30*,40*</td>
<td>.55-.73</td>
</tr>
<tr>
<td>7-Powerlessness</td>
<td>7*,19*,31*</td>
<td>.44-.62</td>
</tr>
<tr>
<td>8-Poor peer relations</td>
<td>8*,20,32*,41*</td>
<td>.24-.49</td>
</tr>
<tr>
<td>9-Intrinsic impoverishment</td>
<td>9,21,<em>33</em>,42</td>
<td>.32-.64</td>
</tr>
<tr>
<td>10-Low status</td>
<td>10*,22*,34</td>
<td>.48-.63</td>
</tr>
<tr>
<td>11-Strenuous working conditions</td>
<td>12,24,35,43*</td>
<td>.40-.62</td>
</tr>
<tr>
<td>12-Unprofitability</td>
<td>11,23</td>
<td>.48-.51</td>
</tr>
</tbody>
</table>

*False-keyed items

Reliability (given in the manual)

The reliability index as determined by split-half (odd-even) method and Cronbach's alpha-coefficient for the scale as a whole were found to be .935 and .90, respectively. The reliability indices of the 12 sub-scales
were also computed through split half method. The following table records the obtained indices of reliability.

<table>
<thead>
<tr>
<th>Sub Scales</th>
<th>Reliability Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Role overload</td>
<td>.684</td>
</tr>
<tr>
<td>2. Role ambiguity</td>
<td>.554</td>
</tr>
<tr>
<td>3. Role conflict</td>
<td>.696</td>
</tr>
<tr>
<td>4. Unreasonable grp. &amp; pol. pressure</td>
<td>.454</td>
</tr>
<tr>
<td>5. Responsibility for persons</td>
<td>.840</td>
</tr>
<tr>
<td>6. Underparticipation</td>
<td>.630</td>
</tr>
<tr>
<td>7. Powerlessness</td>
<td>.809</td>
</tr>
<tr>
<td>8. Poor peer relations</td>
<td>.549</td>
</tr>
<tr>
<td>9. Intrinsic impoverishment</td>
<td>.556</td>
</tr>
<tr>
<td>10. Low status</td>
<td>.789</td>
</tr>
<tr>
<td>11. Strenuous working condition</td>
<td>.733</td>
</tr>
<tr>
<td>12. Unprofitability</td>
<td>.767</td>
</tr>
</tbody>
</table>

Validity

The validity of the O.S.I. was determined by computing coefficients of correlation between the scores on O.S.I. and various measures of job attitudes and job behaviour. The employee's scores on the O.S.I. is likely to positively correlate with the scores on the measures of such job related attitudinal and motivational and personality variables which have proved lowering or moderating the level
of occupational stress. The coefficients of correlation between the scores on O.S.I. and the measures of Job Involvement (Lodhal & Kejner, 1965), Work Motivation (Srivastava, 1980), Ego-strength (Hasan, 1970), and Job satisfaction (Pestonjee, 1973) were found to be \(-0.56\) (N=225), \(-0.44\) (N=200), \(-0.40\) (N=205) and \(-0.51\) (N=500), respectively. The correlation between the scores on the O.S.I. and the measure of Job Anxiety (Srivastava, 1974) was found to be \(0.59\) (N=400).

Scoring

Since the questionnaire consists of both true-keyed and false-keyed items two different patterns of scoring have to be adopted for two types of items. The following table provides guide line to score the responses given to two categories of items:

<table>
<thead>
<tr>
<th>Categories of response</th>
<th>Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>True keyed Items</td>
</tr>
<tr>
<td>Never/Strongly disagree</td>
<td>1</td>
</tr>
<tr>
<td>Seldom/Disagree</td>
<td>2</td>
</tr>
<tr>
<td>Sometimes/Undecided</td>
<td>3</td>
</tr>
<tr>
<td>Mostly/Agree</td>
<td>4</td>
</tr>
<tr>
<td>Always/Strongly agree</td>
<td>5</td>
</tr>
</tbody>
</table>

(2) JOBSATISFACTION INSTRUMENT

This instrument was constructed and standardized by R.D. Mishra, Manorama Tiwari and D.N. Pandey.
Purpose of the present test

The observations and published information of various public or private enterprises have shown that maximum achievement in terms of production is not upto the mark. Sometime this phenomenon becomes crucial for the management and tends to think over it. The efforts are being made in this scale to devised a technique of assessing each efficiency of a worker in relation to this job-satisfaction which has a high correlative values. Prominent factors responsible for satisfaction-dissatisfaction must be high lighted with their relative prominence. Suggestion can be made for use of this knowledge to enhance the level of satisfaction in the employee.

Scoring :

The responses will be recorded against each statement under the five point scale-Most unfavourable, Unfavourable, Neutral, Favourable and Most favourable. The scale continuum has been divided in 5 equal intervals scale and the arbitrary weightage the most unfavourable point was given one(1) mark and most favourable five(5) marks and the other marks are adjusted between these two lower and upper limits. But in case of negative statements the scoring will be in reverse i.e. most unfavourable response gets 5 marks and most favourable 1 mark. This mechanism of positive and negative statements have considerably reduced the subjectiveness.
Positive Statement No. 2, 3, 4, 9, 15, 16, 18, 19, 22, 24, 26, 27, 30, 32, 35, 36, 40, 41.
Negative Statement No. 1, 5, 6, 7, 8, 10, 11, 12, 13, 14, 17, 20, 21, 23, 25, 28, 29, 31, 33, 34, 37, 38.

Method of use: The scale can be used by collecting information on the basis of statement at five point scale. The scale is given individually to the respondents and 15 minutes will enough time for its compleatness. After collecting the test the marks for each statements are assigned (according the scoring system) and in the end total score will reflect the real position of level of job satisfactions.

Interpretation Method: On the basis of total scores three categories are made-

1. Fully satisfied Above 105 Scores.
2. Average satisfied 71-105
3. Dis-satisfied Below -70

Reliability: The coefficients of reliability was determined by split-half method and test-retest method. The test-retest reliability was determined by the administering the scale after 3 weeks time.

The following table shows the reliability coefficient-

| TABLE 1 |
|---|---|---|
| **Method** | **Sample** | **Reliability Coefficients** |
| Split Half | Male(N)75 | .78 |
| Test-retest | Male(N)50 | .69 |
Validity: The validation criterion used for this test was to correlate the scores of present test with scores of rating by the Head/Supervisor of the workers. The correlation coefficient was found to .68 (N=50).

3) MENTAL HEALTH INVENTORY: This instrument was constructed and standardized by Dr. Jagdish and Dr. A.K. Shrivastava.

The present 'Mental Health Inventory' (MHI) has been designed to measure mental health (positive) of normal individuals. Though, there are some scales for measuring mental health but most of them tend to assess mental ill health rather than mental health. Lower scores on the measure of 'mental ill-health' has been supposed to indicate high mental health whereas higher scores as the indicative of poor mental. Thus, only absence of mental ill-health was considered as an indicator of good mental health while inclusion of positive symptoms seems to be indispensable for constituting integrated mental health. Keeping in view this fact in mind, an inventory for assessing has been constructed and standardized. The salient feature of the scale lies in inclusion of the symptoms of psychological well-being or positive symptoms of mental health along with absence of mental ill-health.

The details of the dimensions of mental health is as follows.

1. Positive self-Evaluation (PSE): It includes self-confidence, self-acceptance, self identity, feeling of
worthwhileness, realization of one's potentialities, etc.

2. Perception of Reality (PR):- It is related to perception free from need distortion, absence of excessive fantasy and a broad outlook on the world.

3. Integration of personality (PR): It indicates balance of psychic forces in the individual and includes the ability to understand and the lshare other people's emotions, the ability to concentrate at work and interest in several activities.

4. Autonomy :(AUTNY): It includes stable set of internal standards for one's action, dependence for own development upon own potentialities rather than dependence on other people.

5. Group Oriented Attitudes(GOA): It is associated with ability to get along with others, work with others and ability to find recreation.

6. Environmental Mastery(EM): It includes efficiency in meeting situational requirements, the ability to work and play, the ability to take responsibilities and capacity for adjustment.

Reliability of the inventory

The realibility of the inventory was determined by 'split-half method' using odd-even procedure. The Table 1 gives the reliability coefficients of different dimensions of mental health and over all.

Table 1 : Showing reliability coefficients
### Dimensions of M.H. and Reliability Index

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Positive self evaluation</td>
<td>.75</td>
</tr>
<tr>
<td>2. Perception of reality</td>
<td>.71</td>
</tr>
<tr>
<td>3. Integration of personality</td>
<td>.72</td>
</tr>
<tr>
<td>4. Autonomy</td>
<td>.72</td>
</tr>
<tr>
<td>5. Group oriented attitudes</td>
<td>.74</td>
</tr>
<tr>
<td>6. Environmental Competence</td>
<td>.71</td>
</tr>
<tr>
<td>Overall</td>
<td>.73</td>
</tr>
</tbody>
</table>

### Validity of the Inventory

Construct validity of the inventory is determined by finding coefficient of correlation between scores on Mental Health Inventory and General Health Questionnaire (Goldberg, 1978). It was found to be .54. It is not worthy here that high score on the General Health Questionnaire indicates poor mental health.

Besides, the inventory was validated against 'Personal Adjustment' scale (a sub-scale of S-D Inventory) developed by Pestonjee (1973). The two inventory scores yield positive correlation of .5 revealing moderate validity.

### Scoring:

In the present scale, 4 alternative responses have been given to each statement, i.e. Always, often ..., 4 scores
to 'Always' 3 scores to 'Often' 2 scores to 'Rarely' and 1 score to 'Never' marked responses as to be assigned for true keyed (positive) statements where as 1, 2, 3 and 4 scores for 'Always', 'Often', 'Rarely', and 'Never' respectively in case of false keyed (negative) statements. The overlined items are negative while remaining positive.

PROCEDURE FOR DATA COLLECTION:

When the sample was fixed and all the preparation made, then different approaches were used for data collection.

At the first state, permission from the competent authority taken. They have given the proper dates and times for approaching with the workers. The authority has given the instructions to come every half an hour before shift starts. All the workers were collected in a separate hall and after establishing a good rapport necessary instructions were given. When they have followed the instructions, at first occupational stress Index ' was given to all the workers. The subjects were assured that the responses given by them will be treated as strictly confidential. No where their identity will be disclosed. The first scale was O.S. Index. The subjects were instructed as follows.

1) Instructions for occupational stress Index

"The questionnaire is meant for psychological investigation. It consists of numbers of statements that
employees feel or say about various components of their jobs. You are required to use the following "five point scale" to indicate the extent to which you agree with each statement to describe your own job and the experiences or feeling about your job.

A) Strongly Disagree (1)
B) Disagree (2)
C) Undecided (3)
D) Agree (4)
E) Strongly agree (5)

For example, if you "strongly agrees with the following statement in context of your job put (5) in the box given against it. "I have to do such works ought to be done by others." In case you strongly disagree with the above statement put (1) in the place of (5) and so on. Give your responses frankly. Your responses will be kept strictly confidential." A few example were explained to the S's. when it was found that 'S' had followed it well, They were given with the following items. The responses were noted down. There was no time limit for the scale. Care was taken that the 'S' had given responses to each of the statement on the scale.

After administering the occupational stress Index scale "Job satisfaction Instrument" was administered on the SS. The objective of this instrument was explained to the S's and then following instructions were given.
(2) **INSTRUCTIONS FOR JOB SATISFACTION SCALE:**

"This instrument is meant for research work. Information provided by you will be kept secret. Hence, feel free in responding to the questions.

In this instrument some statements have been given. Besides each statement five alternative answers have been given viz.

1) strongly disagree.
2) disagree.
3) average.
4) agree.
5) strongly agree.

You have to choose your response along these five alternatives only and put a right mark against the item with which you agree.

Once it was found that the 'S' had followed the instructions correctly the items were presented one after another and the responses were noted down.

(3) **MENTAL HEALTH INVENTORY**

**INSTRUCTIONS:**

"This questionnaire is meant for a psychological investigation. The questionnaire consists 56 statements. Each statement is having four alternatives for giving the answers; i.e. Always, often, Rarely and never. As per your experience which alternative you would like, make the right
mark against the proper alternative. There is no time limit for its completion; but do as fast as you can. Do not omit any statement.

When it was found that subjects has followed the instructions correctly the scale was given to them & after completion, it was collected.

In some cases only two scale were administered in one meeting. So in such cases meeting was concluded by giving them thanks. But in many cases all the tools were administered in one visit only.

4) Finally, with the help of interview schedule necessary information regarding working conditions, service conditions etc. were collected. All the formalities such as formation of rapport solving difficulties etc. were fulfilled.

Similar procedure was adopted while collecting data from different S’S.

When I have taken the proper permission from the competent authority say. Chairman or Vice-chairman of the concerned factory. They have made the special arrangement for administering the scales. At that time, the small group of workers was available. They were seated in the special room of the factory. As far as this arrangement was concerned, every day one or two scales was administered. Care was taken to establish rapport and proper instructions were also given.
In this way all the scales were administered and collected for further measurement. These three scales were scored as per scoring procedure given in the manual all the scores were recorded in the MASTER-CHART. The necessary demographic variables were also coded & recorded accordingly.

**VARIABLES UNDER STUDY**

In this study twelve occupational stressors, six mental health dimensions, seven demographic variables and one job-satisfaction are treated as dependent variables. The details of dependent variables are as follows .

* **OCCUPATIONAL STRESSORS :**

1) Role overload
2) Role Ambiguity
3) Role conflict
4) Unreasonable group and political pressure
5) Responsibility for persons.
6) Underparticipation.
7) Powerlessness.
8) Poor peer relations.
9) Intrinsic impoverishment.
10) Low status.
11) Strenuous working condition.
12) Unprofitability.

* Mental Health dimensions.
1) Positive self evaluation.
2) Perception of reality.
3) Integration of personality.
4) Autonomy.
5) Group oriented attitudes
6) Environmental mastery.

* Job-Satisfaction

All these 19 variables are treated as dependent variables. Training & type of community are treated as independent variables, other demographic variables were age, experience, educational standard, No. of dependents, salary etc.

* Statistical treatment of Data.

* Following descriptive & inferential statistical techniques were used.

Stage I - Mean & standard Deviation.

II- Multivariate Analysis of variance.

III- Univariate 't' test.

II- correlation.

IV- multiple regression Analysis.

V- Canonical correlations

VI- Factor analysis.

IA) Scrutiny of the correlation matrix Bartlett's test of sphericity.

IB) KAISER - MEYER - OLKIN

Measure of sampling adequacy.
II) Cattell's Scree test.

III) Factor pattern matrix (Unrotated factor)

IV) varimax rotated factors

V) OBLIMIN - ROTATED FACTORS.

VI) STEP-WISE OBLIMIN - ROTATED FACTORS.

These statistical techniques were applied and findings are interpreted in next topics.