CHAPTER III

RESEARCH METHODOLOGY
STATEMENT OF THE PROBLEM:

Workplace alcoholism has always been an issue of concern for managements of factories, co-workers, economists and policy makers alike. The issue being such that it brings in its wake a whole host of undesirable consequences for the worker, his peers, his supervisors and managers, which in turn result in a general deterioration of work-culture of organisations manifested in the form of high absenteeism and turnover, low morale, worker indiscipline, higher rate of accidents and a general downfall in individual and industrial productivity. Thus the problem has always been one of particular interest to scholars and practitioners from various disciplines. The economists are interested in calculating labour wastage, loss in man-hours and the resultant economic costs due to lost productivity and absenteeism. The industrial sociologists are interested in the dynamics and interplay of workplace alcoholism and existing work – relations and work-culture of organisations. The industrial psychologists are oriented towards understanding the psychological precipitators that contribute to workers ‘drinking behaviour with specific emphasis on factory related variables’. This being the case, the problem has been analysed from a wide range of perspectives and one point of convergence of these multifarious approaches has been a co-ordinated effort to frame an appropriate strategy that is workable, culture-specific, holistic and which will yield the desirable results. The problem in a general sense incorporates a whole range of issues as the origin of the problem does not confine itself to one parameter and neither does its implications bear relevance in a particular context or affect a specific target group. A host of factors ranging from environmental, cultural, economic, psychological and social besides organisational actors contribute to worker getting addicted and the implications of the issue have a bearing not only on the organisation’s management and staff but to the general society/community of
which the organisation is a part. So being labeled a major deterrent, the issue or workplace alcoholism naturally attracts the attention of planners and policy makers from the individual organisational level, to the professional bodies and associations and finally, the highest policy making body the government.

Understanding that there is no one best way of doing things and that instant solutions are not available for all problems a series of trial and error methods have been adopted by various companies depending on a wide range of factors ranging from the nature and size of the factory, the level of awareness about alcohol issues, the co-operation of worker representatives, the implications and manifestations of the problem, resources, infrastructure available and the management’s general attitudes and worker welfare policies.

**SCOPE OF THE STUDY**

The study limits itself to studying the policy components based on a checklist developed by the researcher suited to Indian conditions based on the ILO guidelines, successful practices followed in certain major corporates and with influences from the health behaviour model (Perry and Jessor 1983) and the health belief model (Rosenstock-1974) for alcohol intervention which is concerned with a multi-stage process of screening, prevention and awareness generation, medical and psychological intervention, follow-up and rehabilitation. These five dimensions and the scores on these dimensions form the yardstick by which the corporate policies are assessed and evaluated. So as far as the term policy in the study is concerned it refers to the policy components mentioned in the checklist. Other policy criteria, other that those mentioned in the checklist lie outside the purview of the study. Besides policy, the study also focuses on attitude towards the negative impact of alcohol problems and towards the need for management involvement and action in controlling the problem. The above form the chief focus of the study.
As regards the case study the case studied here is a factory chosen because of its high percentage of alcoholics among its workforce (according to the survey) and also because of its high score on the policy component checklist. The motive of the case study was to screen the workers for problematic alcohol consumption (AUDIT questionnaire), to study the attitude of the groups in the factory whose co-operation and involvement in the policymaking process and implementation is vital. The groups (workers and their representatives, management and their representatives) were identified as Executives and Supervisors representing the management, the workers who form the beneficiaries and the Trade Union leaders, who protect the interest of the workers and have a say in securing the workers’ co-operation in the management’s initiatives. The attitudes of the three group with regard to a) need for management initiative and b) company’s policies and strategies with regard to the issue. Besides the two attitude scales, two awareness scales were also framed thus a) to know the level of awareness about the pathological consequences of alcoholism at the workplace and b) to know the level of awareness regarding the company’s policy, for any policy to be effective, should be comprehensible by all the groups involved including the benefactors and the beneficiaries in order to ensure total commitment and involvement as well as enhancing easy implementation. These form the main focus and scope of the study. Though questions have been asked regarding reasons for drinking, probable factors responsible etc, these do not come under the mainstream analysis of the study.

**OBJECTIVES OF THE STUDY:**

**A. Survey Objectives :**

1. To study the management of alcohol problems at work and the policies / strategies adopted therein the factories surveyed.

2. To study the management’s attitude towards the negative consequences of alcoholism among the workforce.

3. To study the managements’ awareness regarding the negative consequences of alcoholism at the workplace.
4. To study the managements’ attitude with regard to the need for managements’ involvement and action with regard to managing alcoholism among the workforce.

5. To study the pathological manifestations / negative consequences of alcoholism. In the factories surveyed.

B. Objectives of the Case study:

1. To identify and screen the workers for problem drinking and harmful alcohol consumption, using the AUDIT screening instrument, study their drinking patterns and compare them with the abstainers with regard to certain important socio-demographic and work-related variables.

2. To study the attitude of the three groups involved ie a) workers, b) executives and c) Trade Union representatives with regard to the need for management initiative and action regarding alcoholism at the workplace.

3. To study the attitude of the three groups with regard to the current alcohol policy prevailing in their factory.

4. To study the level of awareness of the three groups with regard to the harmful consequences of alcoholism for the workplace and awareness regarding the policy components of their factory’s alcohol policy.

POPULATION OF THE STUDY AND SELECTION OF RESPONDENT GROUPS:

A: SURVEY:

A multi-stage process was adopted in delineating the population of the study. In the first stage, a list of factories was obtained from the factories inspectorate – Tiruchirappalli range and from this list, a list of factories with a) an average daily employment of more than 100 workers and b) factories which were not seasonal in employment in the three districts of Trichy, Pudukottai and Karur was drawn out. (a & b being the inclusion criteria). This list contained 135 factories.
In the next stage, the objective was to identify factories who had at least screened their worker (Class IV) for alcohol addiction and had an approximate assessment of the number and percentage of problem drinkers in their factory. This formed a major inclusion criteria, since the survey was being done to obtain information regarding alcohol policies, and detection/ screening was the most primary and important step in any alcohol management policy/ programme. Since the list from the factories inspectorate did not yield data on alcohol policy, this stage included a telephonic survey or telephone interview. The factory managers of the 135 factories were contacted over phone in order to find out whether their factories fulfilled the above inclusion criteria (Alcohol screening of its workforce). Out of 135 factories only 65 factory managers affirmed the existence of such a procedure in their units, and out of the 65, only 57 factories maintained records regarding the number and percentage of problem drinkers in their factories. All the 57 units thus identified were included in the survey (census method) and were given the survey questionnaires. However out of 65 factories who were given the questionnaires, questionnaires complete in all respects were obtained from 48 units only, and these 48 factories form the respondent group of the current study and data collected from these 48 factories were analysed.

B. CASE STUDY

A case study was done after having analysed the survey results, since the idea was to study one factory which is a typical case, where the problem of alcoholism among workers is high, reflecting on certain indicators of industrial ill-health like absenteeism, accidents, indiscipline etc, and where the management has a well drawn out alcohol policy. The factory thus identified was a textile unit with an average daily employment was 561 (class IV workers), the percentage of alcoholic workers (according to management records) is 35% rate of absenteeism being 21%, average number of accidents in the last 3 years being 14 and whose management had a score of 80 on the alcohol policy
checklist framed by the researcher, which was comparatively higher than the other factories surveyed. The case studied being a factory, the workers of the factory who form the main beneficiaries of the alcohol policy, the executives and the trade union leaders etc. who play a major role in the policy formulation and implementation were included as the respondent groups.

(i) Workers: Out of a total strength of 561, 228 were male workers and the AUDIT questionnaire was administered to all the 228, in order to screen them for problem drinking. So, at this stage, the census method was adopted. As a result of the screening the following data were obtained.

87 problem drinkers (with an AUDIT score of 8 and above)
94 total abstainers (with an AUDIT score of 0)
47 Non problem drinkers / social drinkers (below 8 on the AUDIT scale).

For the purpose of analysis, the problem drinkers and abstainers were taken as the respondents for the study, since the study attempts to compare the alcoholic workers with the non-alcoholic workers with regard to certain socio-demographic and work-related variables.

(ii) Trade Union leaders and Executives:
in the case of the other 2 groups trade union leaders and the executives, census method was adopted (15 executives and 12 trade union leaders). So far as the case study was concerned, the selection of the respondents was a multi-stage process. No sampling was involved since census methods was adopted based on Inclusion and exclusion criteria.

AREA OF THE STUDY:
The districts of Tiruchirapalli, Pudukkottai and Karur were taken as the area of the study. These 3 districts were so chosen because these 3 districts form the major industrial zone that came under the jurisdiction of the Inspectorate of Factories – Tiruchirappalli range. The district of Tiruchirappalli plays host to
number of factories both in the public and private sector, which include BHEL, OFT, Dalmia Cements a unit of Hindustan Lever etc besides having 2 major industrial estates. The Pudukkottai destrict is famous for its Viralimalai industrial belt and the Mathur Industrial estate, which account for the major part of the industrial activity in the district. The Karur district is famous for its textile industry. Besides, 2 major Cement corporations and a number public and private spinning and textile units are concentrated in and around Karur. Thus these 3 districts which account for a large amount of industrial activity with the maximum number of industrial units in the Tiruchirappalli range were taken as the area of the study.

PILOT STUDY:

A. SURVEY: A pilot study was undertaken in the factories identified as the population of the study. Discussions were hold with the Administrative heads, factory managers and the Chief executives of the factories, regarding the feasibility of data collection and the convenient timings that would suit the factories, without affecting their work schedules. As regards responses to the awareness / attitude scales was concerned, in order to get the proper perspective of the management, it was decided that the scales would be answered by the chief executive of the factory, who is the highest decision – making authority in the factory, while the other data pertaining to production, personnel policies etc would be provided by the respective department heads. Affirming the cooperation of the factory management, and confirming their participation in the study, the researcher, then decided to proceed with the study.

B. CASE STUDY: The case study was done after procuring the survey results based on certain indicators as provided by the survey data. The factory thus identified was a cotton yarn making unit in Tiruchirappalli district with a total, worker strength of 581, where alcoholism was a major problem and accounted for 35% of its workforce. Discussions were held with the managing director,
Deputy manager-Personnel and administration, labour welfare officer and the production manager of the unit and their co-operation and permission were sought. The management granted permission to interview their workers in shifts, and that interviews could be held with them on Saturdays and Sundays. The management decided to send the workers in batches of 5 each and that a maximum number of 3 batches could be interviewed on a single day in shifts. The management offered total support and co-operation towards this research effort and thanks to the co-operation, the researcher was able to undertake the study without any hurdles.

**RESEARCH DESIGN AND METHODS:**

The research design adopted by the researcher is basically a descriptive design since the study attempts to describe the alcohol policy components of the factories surveyed and also because it attempts to describe the prevalence, patterns and nature of alcohol abuse among workers in the factory chosen for the case study. One advantage of descriptive research is that it “quickly progresses from describing a single variable to describing relationships among variables. Descriptive research almost always involves determining how variables co vary, or how variables relate with one another, its methods are called correlational methods” (Mitchell and Jolley 1988).

In this basic descriptive research design, the methods adopted by the researcher vary according to the nature of data analysis required for the study. The two prominent methods employed are the survey and the case study methods. The survey method was employed in order to collect data regarding the alcohol policies / strategies factory management employ, while the case study was used to study in detail a typical case of a factory where the problem of alcoholism had assumed large propositions and where the factory managements had taken a number of initiatives to gain control over the situation, in consultation with the trade unions, which makes it an interesting case to study. The case study is an
in-depth investigation of a single instance; it can involve a unit as small as an individual or as large as an entire community or region. It provides the opportunity to apply a multi-method approach to a unique event or setting. Unlike other methods that break up a whole situation into smaller parts, the case study tends to maintain the integrity of the whole with its myriad of inter-relationships. It represents a holistic approach to research, and rests on the assumption that understanding is increased by considering the entire entity rather than breaking it into its constituent parts. (Sommer and Sommer 1997).

In the present case though, the factory’s alcohol policy is studied in-depth, as well as the extent of the problem among its workers. To facilitate a complete understanding of the problem, methods like interviews and questionnaires have been incorporated in the case study. The workers were interviewed with regard to their drinking pattern, and responded to the scales designed to know their level of awareness regarding the nature of the problem and policy of the company, and their level of satisfaction with the existing policy. The researcher also employed participant observational method in that she attended the periodical meetings of the managements and trade unions with regard to the factory’s alcohol policy. During the data collection period the researcher had attended four such meetings and contributed valuable suggestions in enhancing the policy and making it more effective.

All the four groups (alcoholic workers, non-alcoholic workers, executive and trade unions) were compared with regard to their scores on the awareness and attitude scales, in order to study the “value-consensus” which is essential from a structural functional perceptive. Thus the descriptive design incorporates a multi-method approach most suited to a study of such a nature involving multiple – groups and multiple response patterns. The design allows for flexibility and more freedom of choice in the selection of research methods thus proving advantageous to the researcher.
METHODS OF DATA COLLECTION:

Since, the awareness and attitude scales used in the study were framed by the researcher, reliability estimates had to be established for the tools. Keeping this in mind, the data collection procedure was repeated twice, i.e., both the survey questionnaire and the interview schedules and questionnaires administered in the case study were administered twice with an interval of 4 months between the first and second instances. In the first instance, the full schedules along with the basic socio-demographic and industrial variables were administered, while in the second instance, only the scales and the checklist for which reliability analysis had to be done were administered to the respondents. This was done in order to establish the reliability co-efficient (test-retest scores reliability) of the responses to the scales.

TOOLS OF DATA COLLECTION:

I. SURVEY: A survey questionnaire was framed which consisted of the following parts.

Part – A – General industrial variables.
Part – B – Awareness scale regarding the negative consequences of alcoholism for the workplace.
Part – C – Attitude scale to measure attitude towards the need for management initiative and action in managing alcohol problems at the workplace.
Part – D – Model alcohol policy checklist

All the above mentioned tools were developed by the researcher. A detailed description of how the tools were developed and the validity, reliability measures along with the norms and scoring patterns is described as under.
A – awareness scale regarding the negative consequences of alcoholism at the workplace:

Tool description: It's a likert type scale consisting of 20 positively keyed items with a 3 response mode (strongly agree, agree, do not agree).

Tool development: A set of 32 statements relating to the negative consequences of alcoholism at the workplace (based on the review of the results of previous studies) were generated and given to a 10 member panel of experts consisting of 5 personnel managers, 3 industrial counsellors, one medical officer, and one psychiatrist, who formed the major policy makers regarding the management of alcohol problems at work in major public sector concern and who have more than 20 years of experience and expertise in the field. The expert panel, on analysis, eliminated 12 statements, modified some, and decided to have 20 items in the scale.

Scoring: The scale has 20 items scored in the positive direction and these items are given a score of 2 for strongly agree, 1 for agree, and 0 for do not agree. The minimum score that one could obtain on the scale is 0 and the maximum possible score is 40. Higher scores indicate a higher level of awareness about the negative consequences alcoholism at the workplace.

Validity: Content validity was established by the panel of experts who scrutinised the statements, edited the scale and gave shape to its final form also validated against the rating of the experts $r = 0.66$. 
The same scale was also administered to the 3 groups in the case – study. Test retest reliability and split half reliability estimates were established for each group and are given as follows.

<table>
<thead>
<tr>
<th>Reliability estimate</th>
<th>Executives (n=5)</th>
<th>Workers (n=181)</th>
<th>Trade-union leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Split half</td>
<td>.702</td>
<td>.678</td>
<td>.654</td>
</tr>
<tr>
<td>Test-retest</td>
<td>.812</td>
<td>.709</td>
<td>.761</td>
</tr>
</tbody>
</table>

B. Attitude Scale to measure attitude towards need for management’s initiative and Action in managing alcohol problems at the workplace.

Tool description: It’s a Likert type scale consisting of 20 items with a 3 response pattern (strongly agree, agree, do not agree). A uni-dimensional scale, where high scores indicate higher level of agreement on the need for management’s initiative and action to manage alcohol problems at the work.

Tool development: a set of 42 statements relating to the need for management initiative and action were generated and checked by the panel of experts (as mentioned earlier).

The expert committee downsized the scale to a set of 20 item with a uniform response pattern of (strongly agree, agree and do not agree).

Scoring: the scale has 20 items scored in the positive direction and these items are given a score of 2 for strongly agree, 1, for agree, and on for disagree. The higher the total score, greater the level of agreement with regard to the need for management initiative and action towards managing alcohol problems. The minimum possible score is 0 and the maximum Possible is 40.
Reliability Estimates:
Test-retest reliability-\( r = 0.821 \) (\( n = 48 \))
Split half method (S.B.formula)-\( r = 0.716 \)

<table>
<thead>
<tr>
<th>Reliability estimate</th>
<th>Executives (( n = 15 ))</th>
<th>Workers (( n = 181 ))</th>
<th>Trade-union-leaders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Split half</td>
<td>.654</td>
<td>.543</td>
<td>.601</td>
</tr>
<tr>
<td>Test-retest</td>
<td>.785</td>
<td>.761</td>
<td>.703</td>
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</tbody>
</table>

Validity: Content validity was established prior to data collection by the experts panel who downsized the tool from a set of 42 statements to a set of 20 statements. Following data collection scores were validated against the scores of the experts \( r = .54 \) (factory management’s).

C. Model alcohol policy Checklist:

Tool description: A model alcohol policy checklist was prepared by the researcher with the help of the experts panel. This checklist which is based partly on the ILO’s model code of practice, partly on the health behaviour model (Perry and Jessor 1983), and partly on the practical experiences and experiments done in major corporates in India, consists of the following 4 dimensions – (a) detection / screening, (b) prevention, (c) intervention and (c) rehabilitation the follow-up. The response patterns are not uniform and vary from question to question. As the checklist was meant to be only a quantitative tool to grade the factories alcohol policies and not a rating scale, and does not measure any attitudinal or psychological variables, flexibility was allowed for in the response pattern. Such a multiple response pattern has been used in earlier researches and instruments measuring social phenomena eg. a) socioeconomic status scale developed by K.A. Singh and S.K. (Saxena – 1987, b) Individual and family status measures – Suman Shrivastava – 1981).

Scoring: The scoring pattern varies from dimension to dimension. Higher scores indicate higher management initiative with regard to the particular dimension.
a) Detection: A total of 3 questions make up this dimension. Possible minimum score is 0 and the possible maximum score is 12. The scores are in the positive direction.

b) Prevention: This dimension comprises of a total of 24 items. The possible score range is between 0 and 48.

c) Intervention: This dimension has 14 items with a possible minimum score of 0 and a maximum score of 27.

d) Rehabilitation: Number of items = 9. Possible minimum is 0. Possible maximum score is 13.

The overall checklist scores would range between 0-100 (total of all the maximum scores = -12+48+27+13). Higher the overall scores indicate higher the level of management’s initiative and action in managing alcohol problems among its workforce.

Content validity is good since it was developed by the panel of experts.

Reliability estimates were done for each dimension of the scale and are presented as under.

<table>
<thead>
<tr>
<th>Reliability estimates</th>
<th>Sub dimensions of Scales and Overall scores (N=48)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Detection</td>
</tr>
<tr>
<td>Overall</td>
<td></td>
</tr>
<tr>
<td>Split half</td>
<td>.682</td>
</tr>
<tr>
<td>Test – retest</td>
<td>.783</td>
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</table>

And follow up
II CASE STUDY: In the case study, the first step was to screen the workers for alcoholism. The AUDIT screening test developed by the WHO was administered in the form of an interview schedule to all the male workers in the factory (n=228). A detailed description of the AUDIT instrument and the rationale for using this instrument is given below.

Rationale: The AUDIT or The Alcohol Use Disorders Identification Test has 2 components the self administered core component and the clinical component. The AUDIT was developed by the WHO (babor et al 1987) and has the advantage of crossnational standardization (validated on hospital patients in six countries). This screening instruments was preferred to other screening instruments like (MAST. Or CAGE) because of its high sensitivity, specificity and good validity and reliability estimates.

Scoring: This ten items test taps frequency of drinking, dependence symptoms and signs of harmful consumption, each on a four point scale, giving a total score between 0 and 40 (table 1). The cut off suggested in the original study(babor et al 1987) is between 10 and 11.6 and this is the cut-off fixed by the ILO for detecting a positive case. However several studies have used various cut-off points. In one such rather renowned study (Claussen and Aasland – 1992) the authors have used two other cut-off points, between 8 and 9 (hazardous drinking), and between 18 and 19 (harmful drinking). The respondents in the current study are being categorised according to this study.

Reliability and validity of the AUDIT: The AUDIT incorporated in a health risk screening questionnaire is a reliable and valid self administered instrument to identify at-risk drinkers and alcohol – dependent individuals in primary care settings. Bradley KA, McDonell et al (1995) found that the test – retest reliability correlations between baseline and repeat measures 3 months later for four dimensions of consumption according to the AUDIT, (n=264) ranged from 0.765 to 0.85, among patients who indicated they had not changed their drinking
(Kendall’s Tau-b). Criterion validity – correlations between AUDIT and interview for four dimensions of alcohol consumption ranged from 0.47 to 0.66 (Kendall’s Tau-b). Discriminative validity – The AUDIT questions were specific (90 to 93%), but only moderately sensitive (54 to 79%), for corresponding criteria for heavy drinking. Responsiveness to change – The change of 7 drinks / week, suggesting excellent responsiveness to change.

After screening for alcoholism, the next step was to analyse the socio-demographic characteristics of the alcoholic and non-alcoholic workers and also to find out the differences between the groups involved with regard to their awareness of the problem and policy of the company and attitude towards need for management initiative and action and satisfaction with regard to the current policy. Interview schedules were administered to the workers and questionnaires to the trade union leaders and executives.

The structure of the instruments were as follows.
Part – A – General socio-demographic and work related variables.
Part – B – Awareness scale regarding the negative consequences of alcoholism for the workplace.
Part – C – Attitude scale to measure attitude towards the need for management initiative and action in managing alcohol problems of the workplace.
Part – D – Scale to measure level of awareness regarding the current alcohol policy.
Part – E – Scale to measure satisfaction with the current policy and its effectiveness.

Since a detailed description has already been provided regarding Part B (awareness scale on negative consequences of alcoholism) and Part C (attitude scale to measure attitude towards the need for management initiative and action) the tools mentioned in Part D and Part E are described below.

Part D : Scale to measure awareness regarding the company’s alcohol policy :
Total development: a list of 12 which from the major components of the company’s alcohol policy was drawn and was scrutinised by the company’s board of directors (n=4), the General Manager, the production manager the personnel manager and the secretaries of the 3 recognised unions. These authorities shortlisted 10 items as representing their alcohol policy and marked their approval. The 10 items were taken as the representative items of the alcohol policy and were used as the items to measure the awareness regarding the policy.

Scoring: The items are scored on a 5 point scale of agreement and the response pattern was as follows a) Strongly agree b) Agree c) Somewhat agree d) Neutral and e) do not agree., with the maximum score of 5 (response a) and a minimum score of 0 (response e) on each item. The maximum possible score on the scale is 40 and the minimum possible score is 0. All the 10 items are positively keyed and higher scores indicates higher the level of awareness.

Validity: Content validity was established by the policy makers – the board of directors, managers and the secretaries of the representative trade unions.

Reliability estimates for the 3 groups:

<table>
<thead>
<tr>
<th>Reliability estimate</th>
<th>Executives (n=15)</th>
<th>Trade union leaders (n=12)</th>
<th>Workers (n = 181)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>.721</td>
<td>.653</td>
</tr>
<tr>
<td>Test – retest</td>
<td>.802</td>
<td>.890</td>
<td>.876</td>
</tr>
</tbody>
</table>

Part E: Scare to measure satisfaction with regard to the company’s alcohol policy:

Tool Development: Similar to the previous scales, a list of statements were generated, expressing approval of and satisfaction with regard to the company’s alcohol policy and its effectiveness. 10 statements were generated and all the 10 were approved by the management and the trade union secretaries.
Tool Description: The statements were graded on a five point scale of agreement, thus forming a Likert type scale with all 10 items positively keyed. The response pattern and scoring is similar to the previous scale (Part-D-Scare to measure awareness about company’s alcohol policy).

Validity: As with the previous scales the management panel and the secretaries of the recognised unions (policy makers) unanimously approved of the items in the scale, giving the scale good content validity.

Reliability estimated for the 3 groups:

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</tr>
</thead>
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<tr>
<td>Split half</td>
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<td>.561</td>
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</tr>
<tr>
<td>Test – retest</td>
<td>.702</td>
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</tr>
</tbody>
</table>

DEFINITION OF CONCEPTS:

Problem drinking: An individuals drinking pattern which causes problems in his social and psychological functioning and prevents him from leading a normal life. In the case of this study, a score of 8 + on the AUDIT scale indicates a positive case of problem drinking.

Problem drinker: An individual with a drinking pattern which indicates problem drinking as defined in the above definition.

Abstainer: A tee-totaler or an individual who totally abstains from consuming any type of alcoholic beverage. In the case of this study one who has scored a score of 0 on the AUDIT scale is considered as an abstainer.

Absenteeism rate: This is an indicator of the percentage of absenteeism in an industry. And is calculated using the following formula.

\[
\text{Absenteeism rate} = \frac{\text{Number of employees days lost per month}}{\text{Average number of employees} \times \text{no of work days}} \times 100
\]
Alcoholism rate: The percentage of alcoholic workers in the industry calculated as

\[
\frac{\text{The number of workers detected as alcoholics}}{\text{Total no. of workers in the factory}} \times 100
\]

HYPOTHESES:

SURVEY

1. Higher the age of the factory, higher will be the percentage of alcoholic workers.

2. Higher the absenteeism rate in a factory, higher will be the percentage of alcoholic workers.

3. Higher the number of cases of indiscipline in a factory higher will be the percentage of alcoholic workers. Higher the number of cases of indiscipline in a factory higher will be the percentage of alcoholic workers.

4. Higher the number of accidents in a factory higher will be the percentage of alcoholic workers.

5. Higher the number of permitted Over Time hours in a factory higher will be the percentage of alcoholic workers.

6. Lower the average age of the workers in a factory higher will be the percentage of alcoholic workers.

7. Factories that have in-house hospital facilities score high on the alcohol policy checklist.

8. Higher the turnover of the factory, higher will be the score on the alcohol policy checklist.
9. There is a significant relationship between ownership of the factory and its score on the alcohol policy checklist.

10. Higher the amount spent on worker education programmes by the factory higher will be the score on the alcohol policy checklist.

II. CASE STUDY:
1. Problem drinkers are likely to work for more number of OT hours than the abstainers.

2. Problem drinkers are more likely to have a higher amount of outstanding debt than the abstainers.

3. Problem drinkers are likely to take more leave with Loss of pay than the abstainers.

4. Problem drinkers are more likely to be involved in accidents than abstainers.

DATA ANALYSIS:

The data collected were analysed using the following statistical tools:

a) Chi square test: This was used to study the degree of association between attributes of qualitatively defined variables as well as to indicate significant differences between two or more qualitative groups.

b) T-test: This test was used to assess the statistical difference between two groups when the attributes of reference had been quantified. It is based on the comparison of mean scores and standard deviation. The difference in the mean was estimated at 9.5% level of confidence (5% error) indicating a significant difference between the groups.
c) *Analysis of Variance*: One way analysis of variance was used when there was one nominal and one qualitative variable and significant differences between several groups had to be observed. The F ratio which is thus calculated indicates whether there is a significant difference between several groups.

d) *Product moment correlation*: Formulated by Karl Pearson, this index of correlation is used to find out the linear association between two quantitative variables. A co-efficient of .70 to 1.00 (plus or minus) indicates a high degree of association (positive or negative).