CHAPTER -III

METHODOLOGY
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The present study was designed to analyze the role of communication in enriching women power. The study was conducted during July-December, 2004. The present chapter deals with the methodology employed for the study and the detailed procedure followed is presented here in the following sub-headings.

3.1 Locale of the Study
3.2 Research Design
3.3 Sample & Sampling Procedures
3.4 Measurement of Variables
3.5 Data Collection Procedure
3.6 Statistical Methods and Procedure Used in the Study

3.1 LOCALE OF THE STUDY:

The State of Karnataka is chosen for empirical study. The purpose with which Karnataka is selected as the locale and final field study conducted is because of the following factors:

a. Karnataka has more media facilities and is educationally advanced.
b. It is culturally an important landmark in India.
c. More importantly 33% political reservation in local self Government bodies for women is implemented in the state.
d. One third of the jobs for women in teaching at primary and secondary levels have been reserved.
e. Women participation in the economic sector in Karnataka is also encouraging.
f. Women have taken a greater role to play in the micro-financing (SHG) and Stree Shakti Yojan which are supported by the state to enrich women power in Karnataka.

3.2 RESEARCH DESIGN:

The ex-post facto research design is adopted for achieving the objectives of the study. Robinson (1976) defines "ex-post facto" as any systematic empirical inquiry in which the dependent variables have not been directly manipulated because they are inherently not manipulative. Research design as defined by Kerlinger (1995) is "the plan and structure of investigation which is conceived as to obtain answer to research questions." Cooper and Schinder (1999) claimed "ex-post facto" as a research design where one can only report as to what has happened or what is happening. Considering the adoptability of the proposed design with respect to the type of variables under investigation and the phenomenon being studied, the ex-post-facto design was selected as an appropriate research design.

3.2.1 Pilot Study

An interview schedule for data collection was drafted and the draft interview schedule contained the items with regard to measuring communication's role in enrichment of women power. The draft schedule was pre-tested in a non sampling area comprising about 10% of the total respondents i.e. 50 respondents were identified and the schedule was administered, to the sampled respondents. Based on the
pilot study findings the necessary changes were made and incorporated in to the final schedule after a thorough consultation with the experts. Further the schedule was administered for eliciting the responses to various questions and items from the respondents. The final form of interview schedule is given in Appendix-2.

3.3 **SAMPLE AND SAMPLING PROCEDURES:**

Random sampling procedure was adopted for selection of respondents.

3.3.1 **Selection of Districts**

Out of 27 districts in Karnataka, Davanagere and Gulburga districts from two different regions were purposively selected and are given in the following table:
Table 3.1
List of Regions Chosen in the Two Districts for Field Study

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Davanagere</th>
<th>Gulburga</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Progressive</td>
<td>Less progressive</td>
</tr>
<tr>
<td>2.</td>
<td>Before independence ruled by Mysore-Maharaj</td>
<td>Hyderabad Nizams</td>
</tr>
<tr>
<td>3.</td>
<td>Centrally located in the state</td>
<td>Located in the border</td>
</tr>
<tr>
<td>4.</td>
<td>State’s financial influence is less</td>
<td>State’s financial influence is high</td>
</tr>
<tr>
<td>5.</td>
<td>Government’s nominal developmental activities are less</td>
<td>Governmental nominal developmental activities are very high.</td>
</tr>
<tr>
<td>6.</td>
<td>Influence of Kannada is more</td>
<td>Border situation has varied languages.</td>
</tr>
<tr>
<td>7.</td>
<td>Wet land</td>
<td>Dry land</td>
</tr>
<tr>
<td>8.</td>
<td>Media usage is more (figures presented)</td>
<td>Media usage is less(figures presented)</td>
</tr>
<tr>
<td>9.</td>
<td>SHG groups was 3,358 in numbers</td>
<td>SHG groups was 6,500 in numbers</td>
</tr>
<tr>
<td>10.</td>
<td>No Radio and T.V. Stations</td>
<td>Both Radio and T. V. Stations established</td>
</tr>
</tbody>
</table>

3.3.2 Selection of Taluks

Davanagere District has six taluks and Gulbarga District has ten taluks. By systematic random method Davanagere taluk from
Davanagere district and Afzalpur taluk from Gulbarga district were chosen.

### 3.3.4 Selection of Villages

Davanagere taluk has 153 villages and Afzalpur has 89 villages. The villages were categorized into three groups on the basis of households as "small" with below 500 households, "medium" with 501 to 1000 households and "large" with 1001 and above. From each category two villages were chosen randomly. Totally six villages were selected. The details are given in the following table:

<table>
<thead>
<tr>
<th>Districts</th>
<th>Taluks Selected</th>
<th>Villages Selected</th>
<th>Total No. of Households Existing</th>
<th>Total Respondents Selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davanagere</td>
<td>Davanagere</td>
<td>Eachagatta</td>
<td>269</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hutchavvannahalli</td>
<td>700</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lokikere</td>
<td>1,100</td>
<td>110</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td>2,069</td>
<td>210</td>
</tr>
<tr>
<td>Gulbarga</td>
<td>Afzalpur</td>
<td>Mallabad</td>
<td>420</td>
<td>42</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bellurgi</td>
<td>601</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mannar</td>
<td>1,878</td>
<td>188</td>
</tr>
<tr>
<td></td>
<td>TOTAL</td>
<td></td>
<td>2,899</td>
<td>290</td>
</tr>
<tr>
<td></td>
<td>GRAND TOTAL</td>
<td></td>
<td>4,968</td>
<td>500</td>
</tr>
</tbody>
</table>
3.3.4 Selection of Respondents

The active women member of a household who holds certain responsibilities of the family is considered as the respondent.

The population frame of households was obtained from the Thasildar office and the office of the Grama Panchayat of the concerned villages and Directorate of Census Operation, Bangalore. According to the 2001 census, there were 4968 households from all the six villages put together. It was decided to have 10% of the female respondents from total number of households in each of the selected villages. The main criteria for identifying the respondent were women of the houses who were holding a responsible position in the family. For instance women could be housewife, unmarried, widow or divorcee, head of the family etc. This means that such a woman would be able to manage house probably by taking decision on her own, or in consultation with others or earning livelihood for the family, or help the family in any way for its effective functioning. Normally one woman in a family was found to be a woman with such merit.

Care was also taken to see that the respondents came from all sections of the communities in the sampled village. Using simple random method the respondents were selected.
3.4 MEASUREMENT OF VARIABLES:

Focus of the study is on the enrichment of women power in rural areas. The two variables are the independent variable “communication” and dependent variable “women power enrichment” were considered for the study. The independent variable is conceptualized in such a way that the role it plays in enriching the dependent variable “power” in the context of rural women.

The independent variable communication is looked into with regard to the available communication system i.e. the mass media and the interpersonal communication in the rural society.

The dependent variable i.e. power is related to ability, capacity, inner strength etc, all them in relation to rural women. The dependent variable is conceptualized as enriching power.

Enrichment implies here, “to increase”, or to enhance. The variables were measured according to the requirement of the study objective using the following procedure.

The content categorization of the socio-economic variable was done using various procedures followed by Patil and Kunnur, Trivedi and Dharmadhikari etc. The media exposure content categorization was done by following the schedule developed by Sheela.
To study the socio-economic characteristics of women, media role, participation of women in social organizations, interpersonal communication behaviour or analyzing the enrichment of women power, the Likert scale was used.

List of variables and Scoring Procedure

<table>
<thead>
<tr>
<th>I.</th>
<th>A. Dependent variable</th>
<th>Scoring procedure is developed for this study.</th>
</tr>
</thead>
<tbody>
<tr>
<td>II.</td>
<td>B. Independent Variables</td>
<td>The following socio-economic status of the respondents is considered as independent variables because they are correlated with the media exposure and interpersonal communication</td>
</tr>
<tr>
<td>II.</td>
<td>A. Socio-economic variables</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Age</td>
<td>Number of years completed at the time of interview</td>
</tr>
<tr>
<td>3.</td>
<td>Marital Status</td>
<td>Based on marital status of woman.</td>
</tr>
<tr>
<td>4.</td>
<td>Religion</td>
<td>Categorization developed by Trivedi (1963) and Dharmadikari (1991)</td>
</tr>
<tr>
<td>5.</td>
<td>Income</td>
<td>Total income of the family.</td>
</tr>
<tr>
<td>6.</td>
<td>Land Holding</td>
<td>Total land owned by the family</td>
</tr>
<tr>
<td>7.</td>
<td>Occupation</td>
<td>Occupation was categorized as housewife, govt. employee, non govt. employee, self-employed, labourers &amp; others.</td>
</tr>
<tr>
<td>10.</td>
<td>Family Type</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Family Size</td>
<td>Total no. of members living together</td>
</tr>
</tbody>
</table>
### B. Media Exposure

1. Newspaper
2. Magazines
3. Radio
4. Television
5. Sources of Govt. Programmes
6. Participation (Social Participation)
7. Perceived knowledge / self perception
8. Impact of self-help
9. Critical awareness
10. Political participation
11. Decision making power
12. Suggestions for political participation
13. Attitudes towards other women

Followed the schedule developed by Sheela (1990).

<table>
<thead>
<tr>
<th>C. Interpersonal Communication</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interaction with friends and relatives</td>
<td></td>
</tr>
<tr>
<td>2. Enrichment contents of media</td>
<td></td>
</tr>
<tr>
<td>3. Ability / capacity / knowledge assessment</td>
<td></td>
</tr>
<tr>
<td>4. Source of capability / knowledge</td>
<td></td>
</tr>
<tr>
<td>5. Decision making</td>
<td></td>
</tr>
</tbody>
</table>

### 3.4.1 Operationalization and Measurement of Dependent Variables

**Enrichment of Women Power**

For the present study, enrichment of women power was operationally defined as “the individuals perceived sense of psychological power and actual or real change in power (knowledge enrichment).” For the measurement of this variable the scale developed by Mangasri (1991) is adopted.
Enrichment of power score for each woman was obtained by aggregating the scores on information and knowledge dimensions.

**Psychological Enrichment of Power**

Psychological enrichment of rural women is operationally defined as the Psychological process of enrichment in their critical consciousness, attitudes, clear perception of their roles, favorable attitudes towards society, a positive self definition or self perception in terms of self-esteem, self-efficacy and self confidence and a desire for controlling the environment and situations so as to gain control over life.

3.4.2 Operationalization and Measurement of Personal, Socio-economic Variables (Refer to Table-1.1 to 1.4 in analysis)

a) Operationalization and Measurement of Independent Variables

1. **Age**

   Age is defined as the number of years completed by the rural women at the time of interview. The age group was classified with an interval of 10 years.

2. **Marital Status**

   Based on martial status of women, they are classified into married, unmarried, widow, divorce and separated.
3. Educational status of the respondents, husband, father and mother.

It is defined as the level of formal education attained by them. With little change, education was measured using the scoring procedures followed by Trivedi (1963), Kunnur (1989) and Patil (1999) as

- Illiterate,
- Primary (upto 4\textsuperscript{th})
- Higher Primary (upto 7\textsuperscript{th})
- High School (upto 10\textsuperscript{th})
- PUC (11 & 12), and
- Degree

4. Occupation

It is defined as the position of the family, which acts as a source of income in which she spends major part of her time and attention. Same is also applied to father’s, mother’s and husband’s occupation.

The occupational structure categorized as:

- Housewife
- Service (Government & Non Govt.)
- Self Employed (Business)
- Agriculture

5. Land Holding

Land holding refers to the total land owned by the family. This variable was measured by directly asking the respondents about the total land possessed by the family. The respondents were categorized as

- No Land,
- 1-3 Acres,
- 4-9 Acres, and
- Above 10 Acres
1. Annual Income

Annual income is defined as the total earnings of the family for one year. This was obtained by adding the income earned by land and other sources for one year. The income categorization was done as

- Below Rs. 10,000,
- Rs. 10,001-20,000,
- Rs. 20,001-50,000 and
- Rs. 50,001 and Above

7. Family Type

Respondents were asked about type of family as nuclear or joint family.

8. Religion

Respondents were asked about their religion and were categorized as Hindu, Muslim and Christian.

9. Family Size

In the present study, family size refers to the specific number of members in the family living together in a particular house at the time of investigation. Considering the number of family members in a house the family size was categorized as follows:

<table>
<thead>
<tr>
<th>Family Category</th>
<th>Members</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>Upto 4 Members</td>
</tr>
<tr>
<td>Medium</td>
<td>5 to 6 Members</td>
</tr>
<tr>
<td>Large</td>
<td>Above 6 Members</td>
</tr>
</tbody>
</table>
3.4.3 Operationalization & Level of Measurement

1. **Mass Media Exposure**: It is operationally defined as the exposure of the respondents to different sources of mass media and the extent of participation in the related activities such as reading newspaper, magazines, watching television and listening to the radio. In order to measure the mass-media exposure of the respondents, categorization developed by Sheela (1990) is used. In the schedule responses were obtained with respect to:

2. Subscription of newspapers, magazines and their preferences of reading items. ‘Yes’ or ‘No’ options were given, components were politics, culture, education, health, economic, women issues, recreational issues, and food preparation etc.

3. Possessing of radio and television as well as listening and viewing programs of the respondents, arrived at total score of an individual for mass media exposure. Response as “yes” or “no” score was given 0-1 programs were in Radio and TV pertaining to political, economic, women issues, agriculture, education, health, personality and cooking, legal entertainment and religious matters.

4. In case of reading newspaper and magazine, the respondents were asked to indicate whether they read them daily, occasionally and don’t read at all.

5. The listening radio and viewing TV responses were given as regularly, occasionally and never.

6. In terms of time spent on newspaper, magazine reading, radio listening and television viewing, responses were collected on the time spent in minutes as follows:
### Time Spent by Respondents for Print and Electronic Media

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Type of Media</th>
<th>Time Spent in Min.</th>
<th>Sl. No.</th>
<th>Type of Media</th>
<th>Time Spent in Min.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Newspaper</td>
<td>0 – 20</td>
<td>1</td>
<td>Radio</td>
<td>0 – 30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>21 – 40</td>
<td></td>
<td></td>
<td>31 – 60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Above 40</td>
<td></td>
<td></td>
<td>Above 60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Never</td>
<td></td>
<td></td>
<td>Never</td>
</tr>
<tr>
<td>2</td>
<td>Magazine</td>
<td>0-40</td>
<td>2</td>
<td>TV</td>
<td>0-40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41-80</td>
<td></td>
<td></td>
<td>41-80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Above 80</td>
<td></td>
<td></td>
<td>Above 80</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Never</td>
<td></td>
<td></td>
<td>Never</td>
</tr>
</tbody>
</table>

7. Respondents were asked to give reasons for not subscribing to newspaper and magazines and not owning television and radio as an open-ended questions. The reasons were elicited.

8. Media source: Six options were given.

Further, sources of media was a multiple-choice question. The options were as public library, women organizations, working office, neighbours' house and educational institution.
9. **Sources of Enrichment Programmes**

To examine the source of formal and informal communication, 8 components were given with multiple responses. Components used were health, law, employment, political participation, environment, gobar-gas, education and culture. Items for sources given were mass media communication like newspaper, magazine, television, radio. Response for each formal communication was elicited with score 'one' indicating the maximum assignable score for each component and they ranged between 0-4. Informal communication sources were family members, extension worker, relatives, opinion leader, social organization and women organization. Response on each informal communication was elicited with score 'one' indicating the maximum, assignable score for each component ranged between 0-6 using the score average, response were worked out for each programme for formal and informal source of information.

10. **Participation**

It is the degree of involvement of the respondents from mere membership to occupying position in self help group and other organizations and active participation in the activities of SHG and political institutions like Grama panchayat, Taluk panchayat, Zilla panchayat etc. This was quantified using the method followed by Byra Reddy (1971) with suitable change in the items and weights. Further,
Scores were assigned as 'one' for 'Yes' and 'zero' for 'No' response of each statement.

11. Benefits of Self-Help Group

It indicates the extent of confidence or assurance one possess about the organization. An involvement with organization benefits woman on various aspects by perceiving knowledge. It helps to carryout actions or to deal with the daily affairs.

To measure the process of enrichment of power, 13 statements were considered. The responses were recorded on the three point scale of 'not benefited', 'moderately benefited', and 'very much benefited', and with weightages of 1, 2 & 3 respectively. This scale was administered to the respondents and they were asked to respond to each of the 13-statements. The statements used for the study are mentioned in Appendix-I. Using the above score preferential ranking were obtained which helps for the identification of preferential area.

12. Impact of Self Help Group (SHG)

It refers to the knowledge which motivated others to join self help group. Respondents were asked to express or specify the number of other members they made to join SHG.
13. **Assessment of Awareness on Anganawadis and Hospitals**

Extent of quality of services rendered by Anganawadis and Hospitals were assessed on different aspects as categorized by the researcher.

Awareness of women was operationally defined as the level of awareness of women in respect of services provided by the Anganawadis in the areas of education, health, hygiene, prevention of diseases, family planning, child nutrition and information about government programmes.

In case of hospitals, awareness of women respondents were looked into the following areas - child health care, yoga and exercise, providing sex education, spacing children, women’s diseases and marriageable age, AIDS awareness and nutritional food.

A three point scale was used to assess the services as “excellent”, “moderate” and “not good.” The scoring point assigned for the options were 3, 2 and 1 respectively. Using the assigned scores preferential ranking was obtained indicating the priority of services rendered by the Anganawadis and Hospitals.

14. **Political Participation**

Political Participation is the involvement of the respondents as a member of Gram panchayat, Zilla panchayat, Taluk panchayat, and Political party. Further scores were assigned as ‘one’ for ‘Yes’ response and ‘zero’ for ‘No’ response of each statement.
15. Decision Making Power

Decision making power of women was operationally defined as their power to take decision affecting their political career which influences the well being or position of the members in their family and society. Women were asked to specify the type of role they play while participating in elections comprising of 5 statements. Based on the nature of role women play while taking decisions, multiple responses were obtained.

16. Women Reservation: Awareness

Eleven statements were formulated to assess knowledge of respondents on women reservation in local bodies or local governments. Three point scale was used with options as “little”, “to some extent” and “to greater extent” with a scoring pattern as ‘one’, ‘two’ and ‘three’ respectively.

The statements included were providing better chance to participate in election, to take decisions regarding community development, increases status of women, helps to understand women’s problems, lowers corrupt practices in public life, enriches women power, provides scope for helping women, fight against crimes, gender injustices, establishes social contact and increases revenue source.
17. Suggestions for Increased Political Participation

To assess the awareness of the women regarding increased political participation, they were asked to suggest reasons for women active by participating in politics. Seven statements were provided as responses with multiple choices.

Opinions were gathered from the respondents pertaining to assess the awareness of women on education with six statements with multiple responses.

18. Attitude towards other Women

It was operationally defined as the kind of feeling the respondents have towards other women in society. The responses were obtained with a five point scale graded on six statements. The attitude on a five point scale were ‘strongly agree’, ‘agree’, ‘undecided’, ‘disagree’ and ‘strongly disagree’. The scale was similar to that of scale developed by Christopher (1959) for interpersonal trust.

19. Interpersonal Communication

It is defined as the communication skills of woman that helps them to express their ideas with others and in turn react to ideas of others. Interpersonal communication is effective in influencing one another and enrich understanding of situations in order to manage their life effectively.
Interpersonal communication among women, when operationally defined means communication with friends, relatives, members of organizations, community leaders in order to enable / enrich psychological power and to make them as effective decision makers.

To assess the enrichment of women power in terms of interpersonal communication with friends, relatives, members of organisation, leaders of community, respondents were asked to respond regarding the group of friends and frequency of meeting them and issues they prefer to discuss issues with them.

20. Enrichment Contents of the Media

Four statements were administered to the respondents to know the extent of media’s contribution for enrichment of women power. Further multiple responses were elicited.

Four statements were formulated in order to assess the role of media in uplifting women’s ability. The options given were no response, less, moderate, and excellent which were graded on a four point scale as 0, 1, 2 and 3 respectively. Further the assessment of the respondents on the role of media in enriching women power was converted to preferential ranking in identifying the media preference.
21. Perceived Awareness

Respondents were administered fifteen statements to find their perceived awareness. The statements comprised of understanding how a women faced women related social evils like atrocity, dowry, rape, abortion, child-marriage, law of divorce, women diseases, family planning awareness, women education, decision-making, to get financial facilities, government aids, participation in government, politics and non-governmental schemes; the scoring pattern comprised of ‘one’ for awareness and ‘zero’ for ‘non awareness’

22. Perceived Awareness of Media Source

The respondents were asked to specify the source of either mainstream media of communication (newspaper, radio and TV) or non media communication (friends, relatives and women organization) for each of the statement.

23. Decision-Making

To know media contents which help in decision-making of respondents, they were asked to give options as either a ‘little’, ‘more’ and ‘never’. Further, the options of media content they used for decision making was correlated with that of socio-economic characteristics.
24. Self Esteem

Self-esteem was measured using a standardized instrument followed by Thomas and Sanandaraj (1983) and adopted by Seema (1997) with minor modifications. The items were expected to tap the self-evaluation of the subjects on health, education, land purchase, finance, matrimonial selection of husband, selection of daughter in law and selection of son-in-law, agriculture, politics, family planning, voting and cultural aspects. The responses were obtained on a four point continuum with options as 'never', 'little', 'moderate', 'high' with scores 0, 1, 2 and 3 respectively. Further the assessment of the respondents with above classified scoring was used in obtaining preferential ranking percentage, which gives the priority area on self-esteem of the respondents.

3.5 DATA COLLECTION PROCEDURES:

Data was collected from 500 women randomly selected from six villages by using the standardized interview schedule developed for the study. The interview schedule was pre-tested in a non-sample area. This exercise was necessitated for the incorporation of certain minor modifications in the schedule.

The final schedule consisted of four parts. Part-A dealt with items on socioeconomic characteristics of women, while Part-B included
mainstream media exposure like newspaper, magazines, radio and television, Part-C dealt with participation and utilization, and Part-D carried items on interpersonal communication. The final format of interview schedule is presented in Appendix-1.

Finally the randomly selected women of six villages were interviewed personally for collecting the information on media communication, self-help groups, women reservation in local bodies and interpersonal communication aspects.

3.6 STATISTICAL ANALYSIS:

1. Frequencies and Percentages: Used to know the distribution of women under different socioeconomic characteristics.

2. Mean: It is ratio between the sum of the observation to the total number of observation.

\[ \text{Mean} = \frac{\sum x}{n} \]

x: Observation value
n: No. of Observation.

3. Preferential Ranking: Concept introduced (weighted mean) to assess the area of priority as perceived by the respondents. The weighted mean is obtained for the option of response for each statement. The result will establish the order of preference identified among the different statement under consideration.
4. Chi-square Test: Used to find out the association between different variables which are related to each other.

\[ x^2 = \sum \left( \frac{(O-E)^2}{E} \right) \sim x^2(n-1)(k-1)df \]

Where, 
- O: Observed frequency
- E: Expected frequency
- n: No. of rows
- k: No. of columns.

If \( x^2 \) calculated value is greater than \( x^2 \) table value, then result is significant. If \( x^2 \) calculated value is less than \( x^2 \) table value, then the result is non-significant.

5. Correlation coefficient

It is one of the statistical tool which is used to measure the relationship between two variables i.e. dependent and independent variable. Positive correlation indicate the increase is one variable resulting with increase in other variable. Negative correlation indicate the increase in one variable resulting with increase in other variable. Negative correlation indicate the increase is one variable resulting the change in the opposite direction. The formula for calculation the correlation coefficient in given by

\[ r = \frac{\sum XY - (\sum X)(\sum Y)}{\sqrt{[\sum X^2 - (\sum X)^2] \cdot [\sum Y^2 - (\sum Y)^2]}} \]
Further correlation coefficient is subjected for testing the significant statistically 't' test is used.

\[ t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}} \sim t (n-2) df \]

Where \( r \) : Correlation coefficient, \( df \) : degrees of freedom.
\( n \) : number of paired sample observations. If 't' calculated value is greater than t-table value then the result is significant i.e. the existence of obtained correlation coefficient is significant. The results stands vice versa in case of 't' calculated in less than t-table value.