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METHODOLOGY

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CHAPTER-3
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3.0 Introduction
Any research starts with curiosities and many questions about a given phenomenon or set of phenomena. Systematic attempts are made to explore, analyze, and understand the issues under question through suitable conceptual and methodological tools.

The section brings out explicitly how the research work has been carried out and which population is considered for the study. What sampling methods were undertaken for the study, how the independent variables are measured, and how the data is collected for the research work. The process of inquiry and analytical tools greatly extent relative to the specific domain of the concern and conceptual methodology, heuristic and programmatic goals of the research.

3.1 Research Problem
"A Cross-Cultural Study of Religion Attitudes, Life-Satisfaction And Mental-Health Between Gujarat And Rajasthan Jain People."

3.2 Objectives of the Study
The following objectives were formulated on the basis of the study.

1. To explore significance difference of religion attitudes based on Area, Sex and Type of Jain variables from Gujarat and Rajasthan Jain people.
2. To explore significance difference of religion attitudes based on interaction for Area, Sex and Type of Jain variable from Gujarat and Rajasthan Jain people.
3. To explore significance difference of life-satisfaction based on for Area, Sex and Type of Jain variable from Gujarat and Rajasthan Jain people.
4. To explore significance difference of life-satisfaction based on interaction for Area, Sex and Type of Jain variable from Gujarat and Rajasthan Jain people.
5. To explore significance difference of Mental-Health based on Area, Sex and Type of Jain variables.
6. To explore significance difference of Mental-Health based on interaction for Area, Sex and Type of Jain Variables from Gujarat and Rajasthan Jain people.
7. To explore the correlation for religion attitude and life-satisfaction, religion attitude and Mental-Health then life-satisfaction and Mental-Health.
3.3 Hypotheses of the Study

The following Hypotheses were constructed on the basis of the study.

1. There is no significance difference of Religion Attitudes based on Area Variables.
2. There is no significance difference of religion attitudes based on sex variables.
3. There is no significance difference of religion attitudes based on type of Jain Variables.
4. There is no significance difference of religion attitudes based on interaction of Area and Sex variables.
5. There is no significance difference of religion attitudes based on interaction of Area and Type of Jain Variables.
6. There is no significance difference of religion attitudes based on interaction of Sex and Type of Jain Variables.
7. There is no significance difference of religion attitudes based on interaction of Area, Sex and Type of Jain Variables.
8. There is no significance difference of life-satisfaction based on Area Variables.
9. There is no significance difference of life-satisfaction based on Sex Variables.
10. There is no significance difference of life-satisfaction based on Type of Jain Variables.
11. There is no significance difference of life-satisfaction based on Interaction of Area an Sex Variables.
12. There is no significance difference of life-satisfaction based on Interaction of Area and Type of Jain Variables.
13. There is no significance difference of life-satisfaction based on Interaction of Sex and Type of Jain Variables.
14. There is no significance difference of life-satisfaction based on Interaction of Area, Sex and Type of Jain Variables.
15. There is no significance difference of Mental-Health based on Area Variables.
16. There is no significance difference of Mental-Health based on Sex Variables.
17. There is no significance difference of Mental-Health based on Type of Jain Variables.
18. There is no significance difference of Mental-Health based on Interaction of Area and Sex Variables.
19. There is no significance difference of Mental-Health based on Interaction of Area and Type of Jain Variables.
20. There is no significance difference of Mental-Health based on Interaction of Sex and Type of Jain Variables.
21. There is no significance difference of Mental-Health based on Interaction of Area, Sex and Type of Jain Variables.
22. There is no significance difference of Religion attitudes based on type of family variables.
23. There is no significance difference of Life satisfaction based on type of family variables.
24. There is no significance difference of Mental Health based on type of family variables.
25. There is no correlation between religion attitudes and Life-Satisfaction.
26. There is no correlation between religion attitudes and Mental-Health.
27. There is no correlation between life Satisfaction and Mental-Health.

3.4 Research Variables

The following research variables were selected on the basis of the study which is as follows.

3.4.1 Independent Variables

In present research total 3 independent variables are as under:

1. Area - (Gujarat A1) (Rajasthan A2)
2. Sex - (Male - B1) (Female B2)
3. Type of Jain (Sthanakvasi C1, Deravasi C2, Digambar C3)

3.4.2 Dependent Variables

A total score of Religion Attitude, Life-Satisfaction and Mental-Health are relying on Scale.

1. Religion Attitude Scale,
2. Life-Satisfaction Scale,
3. Mental-Health Scale,
3.5 Research Design

In present study to check the main and internal effect of variables to collect, the data as \(2 \times 2 \times 3\) Factorial designed. To make the research design as under:

![Diagram showing the research design](image-url)
3.6 Research Sample

The respondents of present study shall be 480 subjects. Total 510 Data Fill up from different areas of Gujarat and Rajasthan, out of which randomly selected 480 data from different areas (e.g. Surendranagar, Wankaner, Godharu, Jaipur, Sirohi, Bhilwada. The total sample consisting of 480 subjects out which 240 Gujarat Jain People and 240 Rajasthan Jain People in which 120 are male and 120 are female. In which 40 subjects will be select to Sthanakvasi as well as 40 subject will be select to Deravasi and 40 subject will be select to Digamber.

3.7 Research Tools

For this purpose the following test tools were considered with their reliability validity and objectivity mentioned in their respective manuals. In present study three (03) inventories used in this research.

3.7.1 Personal Data Sheet

In this research personal data sheet is preparing to collect some personal information such as : Area, Sex, Type of Family, etc.

3.7.2 Dr. L. I. Bhusan Religiosity Attitudes Scale

In present study will be used Religiosity Attitudes scale developed by Dr. L. I. Bhusan. The scale consists of 36 items in which item no. 6, 8, 10, 13, 16, 19, 21, 27, 29 34, 35 are negative items and other items are all positive items.

Reliability for this scale is 0.82 and validity is seen very high. This scale consists of 36 items with 5 alternative responses varying from 'strongly agree' to 'strongly disagree' each to be rated on the five point scale. The maximum and minimum score obtained in this scale are 180 and 36 respectively.

3.7.3 Life-Satisfaction Scale

In present study Life-Satisfaction Scale developed by Shrivastava.

This scale measures 6 factors like health, personality, economy, married, social and work. The scale consisted of 60 items each was to be rated two point scale. The reliability of this scale is 0.84 and validity of this scale is seen very high.

3.7.4 Mental-Health Scale

The Mental-Health Scale was developed by Dr. D. I. Bhatt & Gita R. Gidda (1992).

The scale consisted of 40 items each was to be rated three point scale. The reliability of this scale is 0.94 and validity is 0.63 established by the Author.
3.7.5 The concepts of Reliability & Validity

Reliability is the extent to which an experiment, test, or any measuring procedure yields the same result on repeated trials. Without the agreement of independent observers able to replicate research procedures, or the ability to use research tools and procedures that yield consistent measurements, researchers would be unable to satisfactorily draw conclusions, formulate theories, or make claims about the generalizability of their research. In addition to its important role in research, reliability is critical for many parts of our lives, including manufacturing, medicine and sports.

Reliability is such an important concept that it has been defined in terms of its applicatin to a wide range of activities. For researchers, four key types of reliability are:

• **Equivalency Reliability**

Equivalency reliability is the extent to which two items measure identical concepts at an identical level of difficulty. Equivalency reliability is determined by relating two sets of test scores to one another to highlight the degree of relationship or association. In quantitative studies and particularly in experimental studies, a correlation coefficient, statistically referred to as r, is used to show the strength of the correlation between a dependent variable (the subject under study), and one or more independent variables, which are manipulated to determine effects on the dependent variable. An important consideration is that equivalency reliability is concerned with correlational, not causal, relationships.

For example, a researcher studying university English students happened to notice that when some students were studying for finals, their holiday shopping began. Intrigued by this, the researcher attempted to observer how often, or to what degree, this these two behaviors co-occurred throughout the academic year. The researcher used the results of the observations to assess the correlation between studying throughout the academic year and shopping for gifts. The researcher concluded there was poor equivalency reliability between the two actions. In other words, studying was not a reliable predictor of shopping for gifts.

• **Stability Reliability**

Stability reliability (sometimes called test, re-test reliability) is the agreement of measuring instruments over time. To determine stability, a measure or test is
repeated on the same subjects at a future date. Results are compared and correlated with the initial test to give a measure of stability.

An example of stability reliability would be the method of maintaining weights used by the U.S. Bureau of Standards. Platinum objects of fixed weight (one kilogram, one pound, etc...) are kept locked away. Once a year they are taken out and weighed, allowing scales to be reset so they are “weighing” accurately. Keeping track of how much the scales are off from year to year establishes a stability reliability for these instruments. In this instance, the platinum weights themselves are assumed to have a perfectly fixed stability reliability.

• Internal Consistency

Internal consistency is the extent to which tests or procedures assess the same characteristic, skill or quality. It is a measure of the precision between the observers or of the measuring instruments used in a study. This type of reliability often helps researchers interpret data and predict the value of scores and the limits of the relationship among variables.

For example, a researcher designs a questionnaire to find out about college students’ dissatisfaction with a particular textbook. Analyzing the internal consistency of the survey items dealing with dissatisfaction will reveal the extent to which items on the questionnaire focus on the notion of dissatisfaction.

• Interrater Reliability

Interrater reliability is the extent to which two or more individuals (coders or raters) agree. Interrater reliability addresses the consistency of the implementation of a rating system.

A test of interrater reliability would be the following scenario: Two or more researchers are observing a high school classroom. The class is discussing a movie that they have just viewed as a group. The researchers have a sliding rating scale (1 being most positive, 5 being most negative) with which they are rating the student’s oral responses. Interrater reliability assesses the consistency of how the rating system is implemented. For example, if one researcher gives a “1” to a student response, while another researcher gives a “5”, obviously the interrater reliability would be inconsistent. Interrater reliability is dependent upon the ability of two or more individuals to be consistent. Training, education and monitoring skills can enhance interrater reliability.

• Reliability Example

An example of the importance of reliability is the use of measuring devices in Olympic track and field events. For the vast majority of people, ordinary measuring
rulers and their degree of accuracy are reliable enough. However, for an Olympic event, such as the discus throw, the slightest variation in a measuring device whether it is a tape, clock, or other device could mean the difference between the gold and silver medals. Additionally, it could mean the difference between a new world record and outright failure to qualify for an event. Olympic measuring devices, then, must be reliable from one throw or race to another and from one competition to another. They must also be reliable when used in different parts of the world, as temperature, air pressure, humidity, interpretation, or other variables might affect their readings.

• Validity

Validity refers to the degree to which a study accurately reflects or assesses the specific concept that the researcher is attempting to measure. While reliability is concerned with the accuracy of the actual measuring instrument or procedure, validity is concerned with the study’s success at measuring what the researchers set out to measure.

Researchers should be concerned with both external and internal validity. External validity refers to the extent to which the results of a study are generalizable or transferable. (Most discussions of external validity focus solely on generalizability; see Campbell and Stanley, 1966. We include a reference here to transferability because many qualitative research studies are not designed to be generalized.)

Internal validity refers to (1) the rigor with which the study was conducted (e.g., the study’s design, the care taken to conduct measurements, and decisions concerning what was and wasn’t measured) and (2) the extent to which the designers of a study have taken into account alternative explanations for any causal relationships they explore (Huiit, 1998). In studies that do not explore causal relationships, only the first to these definitions should be considered when assessing internal validity.

Scholars discuss several types of internal validity. For brief discussions of several types of internal validity, click on the items below:

• Face Validity

Face validity is concerned with how a measure or procedure appears. Does it seem like a reasonable way to gain the information the researchers are attempting to obtain? Does it seem well designed? Does it seem as though it will work reliably? Unlike content validity, face validity does not depend on established theories for support (Fink, 1995).
• Criteiron Related Validity

Criterion related validity, also referred to as instrumental validity, is used to demonstrate the accuracy of a measure or procedure by comparing it with another measure or procedure which has been demonstrated to be valid.

For example, imagine hands-on driving test has been shown to be an accurate test of driving skills. By comparing the scores on the written driving test with the scores from the hands-on driving test, the written test can be validated by using a criterion related strategy in which the hand-on driving test is compared to the written test.

• Construct Validity

Construct validity seeks agreement between a theoretical concept and a specific measuring device or procedure. For example, a researcher inventing a new IQ test might spend a great deal of time attempting to “define” intelligence in order to reach an acceptable level of construct validity.

Construct validity can be broken down into two sub-categories: Convergent validity and discriminate validity. Convergent validity is the actual general agreement among ratings, gathered independently of one another, where measures should be theoretically related. Discriminate validity is the lack of a relationship among measures which theoretically should not be related.

To understand whether a piece of research has construct validity, three steps should be followed. First, the theoretical relationships must be specified. Second, the empirical relationships between the measures of the concepts must be examined. Third, the empirical evidence must be interpreted in terms of how it clarifies the construct validity of the particular measure being tested (Carmines & Zeller, p. 23).

• Content Validity

Content Validity is based on the extent to which measurement reflects the specific intended domain of content (Carmines & Zeller, 1991, p. 20). Content validity is illustrated using the following examples: Researchers aim to study mathematical learning and create a survey to test for mathematical skill. If these researchers only tested for multiplication and then drew conclusion from that survey, their study would not show content validity because it excludes other mathematical functions. Although the establishment of content validity for placement-type exams seems relatively straightforward, the process becomes more complex as it moves into the more abstract domain of socio-cultural studies. For example, a researcher needing to measure an attitude like self-esteem must decide what constitutes a relevant domain of content for that attitude. For socio-cultural studies, content validity forces the researchers to define the very domains they are attempting to study.
Validity Example

Many recreational activities of high school students involve driving cars. A researcher, wanting to measure whether recreational activities have a negative effect on grade point average in high school students, might conduct a survey asking how many students drive to school and then attempt to find a correlation between these two factors. Because many students might use their cars for purposes other than or in addition to recreation (e.g. driving to work after school, driving to school rather than walking or taking a bus), this research study might prove invalid. Even if a strong correlation was found between driving and grade point average, driving to school in and of itself would seem to be an invalid measure of recreational activity.

3.8 The Data Collection

This section brings out the various organizations in which the study was undertaken and under which guidance the study was authorized. Saurashtra University, Rajkot authenticated the research work and under the guidance of Dr. Jamkuben Sojitra. The Data Collection for Gujarat Jain People (Deravasi Jain People, Sthanakvasi Jain People and Digamber Jain People and Special thanks to Shitalben Shah, Pukhrajbhai, uttambahi Sancheti, Himansubhai and Rajasthan Jain People as well as Deravasi, Sthanakvasi and Digamber Jain People and undertaken with the help of Vivek Sancheti and Indiraben Sancheti.

The respondents of present study shall be 480 subject, total 520 data fill up from Gujarat and Rajasthan areas in which randomly select 480 data from different areas Gujarat and Rajasthan (e.g. Surendranagar, Wankaner, Godhara, Jaipur, Sirohi, Pali etc.)

Population of Jain People from Gujarat and Rajasthan region and also population of various districts like Surendranagar, Wankaner, Godhara, Jaipur, Sirohi, Pali etc. Working in this region have been considered for the study.

The group was randomly selected by Administering the testing inventories the library of Saurashtra University, The library of Wankaner (R. N. Doshi Arts and Commerce College, Wankaner) have largely benefited in collection of the historical evidences of Jainism and Psychological aspects.

The Gujarat Jain People and Rajasthan Jain People was very helpful to collect the data, so the process of the data collections as follows.

The aim of present study was Religion Attitude Scale, Life-Satisfaction and Mental-Health, among Gujarat and Rajasthan Jain People. For this purpose the following test tools were considered with their reliability validity and objectivity mentioned in their respective manuals. The present study three (3) Inventories used in this research here
used to collect the data for Religion Attitude Scale the scale for Religion Attitude Scale was developed by L. I. Bhusan used to collect the data for Life-Satisfaction, the Scale For Life-Satisfaction was developed by Shrivastava, used in this research and used to collect the data for Mental-Health the scale for Mental-Health was developed by Dr. D. J. Bhatt & Gita R. Gidda (1992) used in this research so here the respondents of present study shall be 480 subjects, randomly selected from Gujarat and Rajasthan and different districts. The total sample consisting of 480 subject out which 240 Gujarat Jain People and 240 Rajasthan Jain People. In subjects of 240 out of which 120 are Male and 120 are Female, in subject of 120 out of which 40, are Sthanakvasi, 40 are Deravasi and 40 are Digamber Jain People were taken for this study.

3.9 Statistical Frame Work for the Study

The respondents of present study shall be 480 subjects, randomly selected from different area of Gujarat and Rajasthan. So collect the data as $2 \times 2 \times 3$ Factorial designed. After then collect the data of choose some statistical technique for interpretation of the results. Here that used the 'F' test ANOVA was applied to check significance difference of main and internal effect of cross-cultural effect on Religion Attitude, Life-Satisfaction and Mental-Health for Gujarat and Rajasthan Jain People here also use the L.S.D. (least significance difference) was used to check significance difference of main and internal interaction of Gujarat and Rajasthan Jain People t-test was applied to check significance mean difference between type of family variable, and then 'r' was used to check the correlation of Religion Attitude, Life-Satisfaction and Mental-Health.

3.9.1 F-Test

An F-test is any statistical test in which the statistic has an F-distribution under the null Hypothesis. It is most often used when comparing statistical models that have been fitted to a data set, in order to identify the model that best fits the population from which the data were sampled. Exact F-tests mainly arise when the models have been fitted to the data using least squares in honors of Ronald A. Fisher. Fisher initially developed the statistic as the variance ratio in the 1920s. The hypothesis that the means of several normally distributed population all having the same standard deviation is equal. This is perhaps the best known F-test, and play important role in the analysis of variance (ANOVA).

The hypothesis that a proposed regression model fits the data well see Lack-off fit sum of squares. The Hypothesis that a data set in a regression analysis follows the simpler of two proposed liner models that are nested within each other.
The F-test in one-way analysis of variance is used to assess whether the expected values of a quantitative variable within several pre-defined groups differ from each other. For example, suppose that a medical trial compares four treatments the ANOVA F-test can be used to assess whether any of the treatments is on average superior, or inferior, to the others versus the null hypothesis that all four treatments yield the same mean response. This is an example of an "Omnibus" test. Meaning that single test is performed to detect any of several possible differences. Alternatively we could carry out pair wise tests the treatments (For instance, in the medical trial example with four treatments we could carry out six tests among pairs of treatments).

The advantages of the ANOVA F-test is that we do not to pre-specify which treatments are to be compared, and we do not need to adjust for making multiple comparisons. The disadvantage of the ANOVA F-test is that if we reject the null hypothesis we do not know which treatments can be said to be significantly different from the others, if the F-test formed at level a we cannot state that the treatment pair with the greatest mean difference is significantly different at level a.

The Formula for the one way ANOVA F-test statistic is

\[
F = \frac{\text{Explained variance}}{\text{Unexplained Variance}}
\]

\[
F = \frac{\text{Between Group Variability}}{\text{Within Group Variability}}.
\]

3.9.2 Least Significance Difference (L.S.D.)

Fisher's L.S.D. is a method for comparing treatment group means after the ANOVA null Hypothesis of equal means has been rejected using the ANOVA F-test, If the F-test fails to reject the null Hypothesis procedure should not be used. Note that L.S.D. has more power compared to other post-hoc comparison methods.

3.9.3 t-Test

The simple answer of t-test is the statistical test used to find the difference of mean between two groups. A statistical test involving means of normal populations within unknown standard deviations. Small samples are used based on a variable 't' equal to the difference between the mean of the sample and mean of the population divided by a result obtained by dividing the standard deviation of the sample by the square root of the number of individuals in the sample.

3.9.4 Correlation (r)

The correlation is one of the most common and most useful statistics. The most familiar measure of dependence between two quantities is the person product - Moment correlation coefficient, or 'person's correlation." It is obtained by dividing the covariance of the two variables by the product of their standard deviations.
Pearson developed the coefficient from a similar but slightly different idea by *Francis Galtan. A correlation is a single number that describes the degree of relationship between two variables. Correlation coefficient a numerical value that indicates the degree and direction of relationship between two variables. The coefficients range in value from + 1.00 (perfect positive relationship) to 0.00 (no relationship) to -1.00 (perfect negative or inverse relationship)