Chapter-III

METHODOLOGY
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As mentioned in the preceding chapter, the present study was undertaken to investigate the effect of health locus of control, hardiness, age and sex on health maintenance behavior. The main objectives of the study were: (1) to investigate relationship between health maintenance behavior and health locus of control, i.e., to what extent externally oriented subjects and internally oriented subjects differ with respect to health maintenance behavior; (2) to investigate relationship between health maintenance behavior and hardiness, i.e., to what extent hardy and non-hardy subjects differ with respect to health maintenance behavior; (3) to investigate relationship between health maintenance behavior and age, i.e., to what extent young and old subjects differ with respect to health maintenance behavior; (4) to investigate relationship between health maintenance behavior and sex, i.e., to what extent male and female subjects differ with respect to health maintenance behavior; and (5) to study the interactional effects between two or more than two variables on health maintenance behavior.

To be more specific, the study was designed to answer the following questions:

1) Do externally oriented and internally oriented subjects differ with respect to health maintenance behavior?

2) Do hardy and non-hardy subjects differ with respect to health maintenance behavior?

3) Do young and old subjects differ with respect to health maintenance behavior?

4) Do male and female subjects differ with respect to health maintenance behavior?

5) Is there an interactional effect of health locus of control and hardiness on health maintenance behavior?
6) Is there an interactional effect of health locus of control and age on health maintenance behavior?
7) Is there an interactional effect of health locus of control and sex on health maintenance behavior?
8) Is there an interactional effect of hardiness and age on health maintenance behavior?
9) Is there an interactional effect of hardiness and sex on health maintenance behavior?
10) Is there an interactional effect of age and sex on health maintenance behavior?
11) Is there an interactional effect of health locus of control, hardiness and age on health maintenance behavior?
12) Is there an interactional effect of health locus of control, hardiness and sex on health maintenance behavior?
13) Is there an interactional effect of health locus of control, age and sex on health maintenance behavior?
14) Is there an interactional effect of hardiness, age and sex on health maintenance behavior?
15) Is there an interactional effect among health locus of control, hardiness, age and sex on health maintenance behavior?

**Design of Experiment:**

A 2 x 2 x 2 x 2 factorial design in which two personality variables (health locus of control and hardiness) and two demographic variables (age and sex) each varying in two ways, was used in the present study. The two values of one personality variable, i.e., health locus of control, were (a) internally oriented and (b) externally oriented: the two values of another personality variable, i.e., hardiness, were (a) hardy and (b) non-hardy. The two values of first demographic variable, i.e., age, were (a) young and (b) old.
subjects and the two values of another demographic variable, i.e., sex, were (a) male and (b) female subjects. Thus there were sixteen groups, namely, Internally controlled hardy young male subjects (IHYMS), Internally controlled hardy young female subjects (IHYFS), Internally controlled hardy old male subjects (IHOMS), Internally controlled hardy old female subjects (IHOFS), Internally controlled non-hardy young male subjects (INYMS), Internally controlled non-hardy young female subjects (INYFS), Internally controlled non-hardy old male subjects (INOMS), Internally controlled non-hardy old female subjects (INOFS), Externally controlled hardy young male subjects (EHYMS), Externally controlled hardy young female subjects (EHYFS), Externally controlled hardy old male subjects (EHOMS), Externally controlled hardy old female subjects (EHOFS), Externally controlled non-hardy young male subjects (ENYMS), Externally controlled non-hardy young female subjects (ENYFS), Externally controlled non-hardy old male subjects (ENOMS), and Externally controlled non-hardy old female subjects (ENOFS).

Sample:

In order to form the above mentioned sixteen groups of subjects Health Locus of Control Scale was administered on 800 subjects, half of them were male and the other half female. These were drawn from the graduate and post-graduate students (young subjects) and from retired doctors, engineers and service men of Aligarh Muslim University, Aligarh (old subjects). The scores of each subject were calculated and on the basis of median value, two groups, namely, internally oriented and externally oriented, were formed.

Each group was then sub-divided on the basis of age (i.e., young and old) to form four groups, namely, internally oriented young, internally oriented old, externally oriented young and externally oriented old subjects.

Each group then was subdivided on the basis of sex (i.e. male and female) into two groups to form eight groups of subjects, namely internally
oriented young males, internally oriented young females, internally oriented old males, internally oriented old females, externally oriented young males, externally oriented young females, externally oriented old male and externally oriented old female subjects.

Hardiness Scale developed by Kobasa and Maddi (1982) was administered on these eight groups of subjects. On the basis of their scores on hardiness scale, each group was further divided into two groups to form sixteen groups of subjects as mentioned above.

**Tools:**

The following tools were used in the present study.

1. **Health Locus of Control Scale:**

   Health is one of the many areas in which there has been a significant amount of interest in relating locus of control beliefs to a variety of relevant behaviors, (Strickland, 1978; Wallston and Wallston, 1978). Wallston and Wallston (1978) saw locus of control orientation as an individual differences variable that might be related to information exchanges between patients and health care professionals. They conceptualized the intent of many health education efforts as internality training programmes, by means of the health-related measures of locus of control beliefs. They referred to Rotter's writings (Rotter, 1960, 1966) in which the situation was an important consideration in devising measures of expectancy for their rationale in developing a health specific measure.

   The original health-related locus of control scale (HLC Scale), (Wallston, Wallaston, Kaplan, & Maides, 1976) consisted of 11 items in a 6-points Likert format. These 11 items were product of an item analysis based on the response of 98 college students to a pool of 34 items written as face-valid measures of generalized expectancies regarding locus of control related to health. The HLC scale was scored so that high scored indicated agreement with
externally worded beliefs. Individuals with scores above the median were labelled “health — externals”; they were presumed to have generalized expectancies that the factors that determine their health, are ones over which they have little control (i.e., external factors such as luck, chance, fate and powerful others). At the other end of the dimension, scorings below the median, were the “health—internals” who believe that the locus of control for health is internal and that one stays or becomes healthy or sick as a result of his/her behavior. Internally worded items are 1, 2, 8, 10 and 11. Externally worded items are 3, 4, 5, 6, 7, and 9. The 11-items devised scale has a potential range of 11 to 66.

The HLS scale was published in the Journal of Consulting and Clinical Psychology, 1976, (cf. Ward and Lindeman, 1978). Concurrent validity of the HLC scale was evidence by a .33 correlation (P<.01) with Rotter’s I-E scale for the original developmental sample. The mean score for the original developmental sample was 35.57, with a standard deviation of 6.22. The alpha reliability of the scale (0.72) and the HLC score did not reflect social desirability bias, as seen by a 0.01 correlation with the Marlowe–Crowne Social Desirability Scale. Bloon (1979) factor analyzed the HLC Scale responses of 115 women who had undergone a mastectomy within the past two years. She found two factors: fate (six items involving good fortune and dependency) and self-blame (four items involving carefulness and self-blame). One item, “I am directly responsible for my health” did not load on either factor.

There are six response categories in front of each statement of the scale: strongly disagree, moderately disagree, slightly disagree; slightly agree, moderately agree, and strongly agree. The scale is scored in the external direction, with each item being scored from 1 (strongly disagree) to 6 (strongly agree) for the externally worded items and in the reverse order for the internally worded items.
(2) **Hardiness Scale**:

The short version of Hardiness Scale (HS) developed by Kobasa and Maddi (1982) was used to measure the tendency of hardiness among subjects. The scale comprises 25 items and it measures three components (i.e., commitment, control and challenge). The responses of the subjects on the hardiness scale were collected on a four-point scale ranging from “not at all” to “completely true”. The response categories were assigned codes 1, 2, 3, 4 respectively.

The short form of control scale, included in the questionnaire, contains both 4-points and 2-points response items. The simple summations of these items would result in the over-weighing of the 4-point items. Therefore, to avoid the confusion the responses to items of the control scale were coded to have the same range as items from the other scales. That is, the subjects either received (1) or (4) for their responses to this scale. Thereafter, the raw scores on the sub-scales were converted into Z scores. Since the items on the scale are negatively keyed for hardiness, subjects falling in upper thirds (+3) were identified as low hardy and subjects falling in lower third (−3) were labelled as high hardy.

(3) **Health Care Scale**:

Health care behavior was a dependent variable, which was measured by Health Care Scale, developed by Adhami and Kureshi (1992). The scale consists of a list of 30 items. 15 were representative of health consciousness and 15 of health carelessness. Each item has five response categories, ranging from ‘Strongly Agree’ to ‘Strongly Disagree’ with intermediate columns as ‘Moderately Agree’, ‘Can’t Say’ and ‘Moderately Disagree’. The listed items were placed in random order to avoid any guessing on the part of the subjects.

The scoring of items was done as follows: The items which were representative of health consciousness would get a score of ‘5’ if answered “Strongly Agree” and ‘1’ if marked “Strongly Disagree”; other intermediate
responses would get scores accordingly. The items reflecting attitudes of carelessness towards health would be scored in reverse order, i.e., "Strongly Disagree" would get a score of '5' and "Strongly Agree" a score of '1'. The maximum score that an individual can get on this questionnaire is 150 and the minimum 30.

Health care scale was administered on all the sixteen groups of subjects. There were 40 subjects in each group.

As soon as the subjects finished their task, the test was collected from them and scoring was done.

The data, thus, obtained were tabulated group-wise and were statistically analysed to draw necessary inferences. More specifically, four-way analysis of variance was applied.