CHAPTER V

SUMMARY AND CONCLUSION

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5.1 INTRODUCTION :-

Allen, Hitt and Green (1982) have defined occupational stress as 'disruption in individual's psychological and/or physiological homeostasis that force them to deviate from normal functioning in interaction with their jobs and work environment. Consistent with recent conceptualization stress denotes the psychological state experienced by an employee when faced with demands, constraints and/or opportunities that have important but uncertain outcomes. (Behr and Bhagat, 1985; Schuler, 1980).

A number of factors such as individual characteristics, work setting variables, job characteristics and attitudes, physical work condition and technology, performance, feedback and reward system, interpersonal relation at work, organizational structure and climate etc. have been found associated with occupational stress.

On the basis of review of literature, it was found that contradictory findings have been reported with regard to the career status of couples as a factor associated with occupational stress.
(Hall and Hall, 1980; Rapaport and Rapaport, 1969; Rozenthal and Linder, 1982).

Shift working has not yet been investigated as a factor associated with occupational stress, however it has been firmly established that irregular work hours generate a number of psychological disturbances and family dysfunction (Akerstedt, 1990 and Chang et al, 1993).

Contradictory findings with regard to the nature of organization and occupational stress has also been reported by the researchers working in this area, for example Pestonjee and Singh (1978) reported that the level of occupational stress is high in private sector whereas Banerjee (1989) reported just opposite finding. Srivastava (1990) also reported that employees of the public sector organization showed clearly high level of occupational stress than their counterparts.

So the purpose of the present piece of work is to ascertain the main and interactional effect of career status of couples, day and shift working, and nature of organization upon occupational stress.
5.2 PROBLEMS AND HYPOTHESES :-

In the light of the above mentioned discussion the following problems have been set forth to seek their scientific solutions:

(1) Can career status of couples generate variance upon occupational stress?

(2) Can day and shift working hours generate variance upon occupational stress?

(3) Is nature of organization has any bearing upon the variance in occupational stress?

(4) Are career status of couples, day and shift working and nature of organization in a position to influence jointly or in interaction with each other the variance of occupational stress.

Thus, it is clear that there exists one dependent variable, i.e. occupational stress and three independent variables viz., career status of couples, day and shift working and nature of organization in the present study.
To seek the scientific solution of the problems, the following three differential, three two factor and one three factor interactional hypotheses were formulated and put to empirical verification:

I. DIFFERENTIAL HYPOTHESES :-

(1) The occupational stress of the supervisors with dual career status would be significantly lower than the supervisors with single career status.

(2) The occupational stress of the supervisors of shift working group would be significantly higher than the supervisors of day working group.

(3) The level of occupational stress of the supervisors working in private sector would be significantly higher than the supervisors working in public sector.

II. INTERACTIONAL HYPOTHESES :-

First Order Interaction :-

(1) The supervisors of single career and shift working group would score significantly higher on occupational stress index than the supervisors of dual career and day working group.
(2) The supervisors of single career group and who are working in private sector organization would score significantly higher on occupational stress index than the supervisors of dual career group who are working in public sector organization.

(3) The supervisors of shift working group in private sector organization would score significantly higher on occupational stress index than the supervisors of day working group in public sector organization.

Three Factor Interaction :-

(1) The supervisors of single career, shift working and private sector organization group would score significantly higher on occupational stress index than the supervisors of dual career, day working and public sector organization.
5.3 METHODOLOGY :-

In the present research work following methodological steps have been made to seek a scientific solution of the research problems through verification of its hypotheses.

Research Design :-

A 2 x 2 x 2 factorial design has been employed to investigate this problem. Here the dependent variable is occupational stress; the career status of couples, shift working and nature of organization acted as independent variable in this study.

There are two levels of career status of couples viz., (i) single career and (ii) dual career couples. The shift work is of two types, (i) Day working, and (2) Shift working and two types of organization, viz. (1) Private sector and (2) Public sector would be included in the present study.

Sample :-

In order to meet the requirement of 2 x 2 x 2 factorial design, stratified random sampling technique was used to select an unbiased representative sample from the universe in 2 x 2 x 2 factorial design
having at least 60 Ss in each cell. Thus, making a total of 480 subjects. The subjects are supervisors working in the steel factories and the male partner of either single career couples or dual career couples. The age of the subjects was ranging between 30 to 50 years. The subjects were drawn from one private sector and one public sector steel plant situated in the State of Chhattisgarh after obtaining permission from their management.
5.4 TOOLS

To measure the dependent variable i.e. occupational stress, the Occupational Stress Index (OSI) constructed and standardized by Shrivastava and Singh (1984) was used. The tools purports to measure the extent of stress which employee perceive arising from various constituents and conditions of their job. The tool may conveniently be administered to the employees of every levels operating in context to industries and other non-productional organization. The scale consists of 46 items each to be rated on the five point scale, out of 46 items 28 are ‘True keyed’ and rest 18 are ‘False keyed’. The items related to almost all relevant components of job life which cause stress in some way or the other, such as, role over load, role ambiguity, role conflict, group and political pressure, responsibility for persons under participation and powerlessness, poor peer relations, intrinsic impoverishment, low status, strenuous working conditions and unprofitability.

The reliability index ascertained by split half (odd-even) method and Cronbach's alpha coefficient for the scale were found
to be 0.935 and 0.90 respectively. The reliability indices at the 12 sub scales were also computed on the (split half) method.

The convergent validity coefficient of the scale have been reported to be firmly high.

**Procedure :-**

After selecting the final sample of 60 cases in each cell of 8 cells of 2 x 2 x 2 factorial design, a total number of 480 subjects were drawn randomly. Then, the finally identified 480 cases were subjected on Occupational Stress Index (OSI) by Shrivastava and Singh (1984) to measure their occupational stress. At a time 10 subjects in a group were asked to sit comfortably in a quiet and calm laboratory like situation. After establishing rapport following instructions were given to each of the group.

"In this questionnaire, the items are related to your work environment activities. Next to each statement five alternative answers are written, choose which best describes how frequently you behave or act that way. Please give the first response which comes to your mind and do not omit any question. Please feel free
to give your response, your response will be kept confidential.

After completing the test, the responses of all 480 cases on Occupational Stress Index (OSI) were put for scoring as prescribed by the author of the questionnaire. Thus, the total scores of each 480 cases were separately computed on OSI and put to statistical treatment.
5.5 ANALYSIS AND INTERPRETATION :-

Before applying statistical techniques, normality of the distribution of score pertaining to occupational stress has been checked out through the indices of skewness and kurtosis. After ensuring the homogeneity of scores pertaining to occupational stress index, the scores were subjected to a $2 \times 2 \times 2$ ANOVA treatment and Newman Keuls Post ANOVA treatment to ascertain the main and interactional effect of these three factors and intergroup comparisons.

The results of the statistical analysis of the data and their interpretations are summarized below :-

Distribution Oriented :-

(1) The dependent variable i.e. occupational stress and the independent variables viz., career status of couples, day and shift working and nature of organization have been found to be homogenous and normally distributed in the adult population.
(2) Elimination of the high lie scores from the original sample provided a better control over extraneous variable and therefore, the hypotheses of the present investigation could be tested for purer cases of the filtered sample.

**Difference Oriented :-**

(1) In hypotheses I, it was hypothesized that the dual career couples would be significantly lower on occupational stress than the single career couples. In order to verify this hypothesis, a comparison between the mean scores of the single career couples and dual career couples was made. It was found that the dual career couples have scored significantly lower than the single career couples on occupational stress index beyond .01 level of significance. Thus, hypothesis I is accepted.

(2) In hypothesis II, it was hypothesized that the stress of shift workers would be significantly higher on occupational stress than the day workers. In order to verify this hypothesis, a comparison between the mean scores of the shift workers
and day workers was made. It was found that the occupational stress of shift workers was significantly higher than the day workers beyond .01 level of significance. This is statistically verified by the obtained F-ratio. Thus, hypothesis II is accepted.

(3) In hypothesis III, it was hypothesized that the level of occupational stress of the private sector employees would be significantly higher on occupational stress than the public sector employees. In order to verify this hypothesis a comparison of occupational stress index scores between private sector supervisors and public sector supervisors was made. Occupational stress of private sector employees were found significantly higher than public sector employees beyond .001 level of significance. This fact is statistically verified by the obtained F-ratio, which is significant beyond .01 level of confidence. Thus, hypothesis III is accepted.
Interaction Oriented :-

1. In two factor interactional hypothesis I, it was hypothesized that the supervisors of single career and shift working group would score significantly higher on occupational stress index than the supervisors of dual career and day working group. The result clearly shows that the obtained F (A x B) ratio is statistically significant beyond .01 level. Thus the hypothesis has received empirical support in the present study and it is accepted. Therefore, it can be said that the supervisors with single career status and shift working scored significantly higher on occupational stress index than the supervisors with dual career status.

2. In two factor interactional hypothesis II, it was hypothesized that the supervisors of single career and private sector group would score significantly higher on occupational stress index than the supervisors of dual career and public sector group. The obtained F(A x C) ratio is statistically significant beyond .01 level of significance. Thus, this two factor interactional
hypothesis is accepted. The finding indicated the joint action effect of career status of couples and type of organization could generate significant variance upon occupational stress.

3. In two factor interactional hypothesis III, it was hypothesized that the supervisors of shift working and private sector group would score significantly higher on occupational stress index than the supervisors of shift working and public sector group. The obtained $F(B \times C)$ ratio is statistically not significant at any acceptable level. Hence the hypothesis does not receive empirical support from data and thus rejected. Therefore, it could be stated that the joint action effect of shift working and private sector working could not generate significant variance upon occupational stress.

4. In three factor interactional hypothesis I, it was hypothesized that the subjects of single career, shift working and private sector organization group would score significantly higher on occupational stress index than the subject of dual career, day working and public sector organization. The obtained $F$
(AxBxC) ratio is significant beyond .01 level. Thus, the hypothesis has received empirical support in the present study and it is accepted. Therefore, it can be said that the joint action effect of single/dual career, shift/day work and public/private sector could generate significant variance upon occupational stress.

Discussion :-

A close examination of the results draw the following inferences:

(i) The main effect of career status of couples has been found significant on occupational stress.

(ii) The shift working, i.e. day and shift work are able to generate variance upon occupational stress.

(iii) Types of organization viz., private sector organization and public sector organization are able to generate variance upon occupational stress.

All the differential hypotheses of the present study have been empirically verified and turned out to be significant at acceptable level of confidence.
(iv) The two way interactions, namely, career status and shift working (AXB), career status and types of organization (AXC) turned out to be significant beyond .01 level of confidence. Whereas the interaction effect between the factors shift working and types of organization (BXC) could not turn out to be significant at any accepted level.

(v) The three way interaction, namely, career status x shift working x types of organization (AXBXC) has been found significant beyond .01 level of confidence.

Thus, it may be stated that the independent variables incorporated in the present study, namely, career status, shift working and types of organization have been emerged as potentially enough variables to generate variance upon the dependent variable, i.e., occupational stress. The results may be explained on the following grounds -

Career status has been found as a major variable capable of generating significant variance on occupational stress. A perusal of Table No. 4.3 (1) reveals it clearly that the supervisors who are
the male partner of the single career couples scored significantly higher on occupational stress index than the supervisors with dual career couple status.

The significant lower level of occupational stress experienced by the supervisors with dual career couple status group may be explained on the basis of the following grounds-

The female partners of the two-career couples were mostly primary or middle school teachers or class III ministerial staff of the government offices. Their working hours were not more than six to seven hours. They come under ‘Accomodators’ type of couples. In the sample of two-career couples of the present study male partners were more involved in their work whereas female partners were high in home involvement and low in work involvement. Thus, the degree of role involvement of each partner complements the other. The female partner assumes primary responsibility (apart from employment related responsibilities) for home and family whereas the male partners assumes primary responsibility for career orientation and achievement in the family.
Because of being high in work-involvement, the male partners developed skills to cope with the occupational stress. Because both the partners are earning members the sound financial conditions also made the male partners able to grasp the coping strategies easily as he was not preoccupied with the financial constraints. As a member of the dual career couple his self-esteem was already high.

The two career couples are defined by their life-style. The two career couples pursues a life-style built around sharing work and family roles. They achieve status through the combined work roles of both partners. In fact, a career involves more than holding a series of jobs, it is a subjective set of feelings one develops over time him or herself as a productive working person. One's career is a part of his/her identity. Most people strive to increase or maintain a sense of self-esteem. One way to do this is through their jobs. Since both the partners of two career couples are earning members, their economic conditions are also considerably high. The self-esteem of whole family is higher than the single-career family. Hall and Hall (1980) defined two-career couple as two
people who share a life-style that includes (1) Cohabitation, (2) Separate work roles for both partners, and (3) a love relationship that supports and facilitates both. The two career couple combines life's most important adult functions loving and working. Because of this particular life-style and because of enhanced sense of identities such couples experience significantly low occupational stress than the single career couples.

Since, in the two career couple status group the female partners were educated and employed, both male and female partners discuss each other's occupational problems and evolved strategies to cope with the occupational stress.

Due to the rotating shift work in which an individual is normally required to work more than one shift, changing from one shift to another and unscheduled working hours, the individual may develop one or more of the medical symptoms - (i) sleep alterations, (ii) persisting fatigue, (iii) changes in behaviour, (iv) digestive troubles, (v) the regular use of sleeping pills (Andlaner et al, 1979; Reinberg et al, 1988; Reinberg et al, 1992).
It is unequivocal fact that most of the animals, including man, under natural conditions exhibit circadian rhythms with a period of approximately 24 hours and a timing device keeps these rhythms synchronized with the light-dark cycle and other oscillatory components of environment (Aschoff, 1966; Aschoff, 1981). This phenomenon is called external synchronization. Such rhythms are expressed in various physiological, biological, immunological, psychological and behavioural variables (Reinberg et al, 1981). Rapid travel across several time zones (jet lag) and rotational shift work are the best known situations when synchronization breaks down and interval rhythms no longer oscillate with frequencies similar to the environmental cycles. In this state, internal bodily rhythms are termed externally desynchronized. However, there are instances when many bodily rhythms despite being externally desynchronized, remain internally synchronized. Here, internal rhythms have similar frequencies, although not circadian. There are certain compelling situations that cause complete temporal disorder characterized by both external as well as internal desynchronization.
There is sufficient evidence to prove that rotational shift work affects human health and performance by disrupting circadian rhythms and by causing numerous alterations in human behaviour and physiology (Zebit et al, 1989; Deacon and Arendt, 1994). Internal desynchronization of rhythms have been reported by a number of researchers (Reinberg et al, 1984; Reinberg et al, 1989; Folkard and Wever, 1983; Motohashi et al, 1990; Pati et al, 1991; Rutenfranz et al, 1982; Gupta and Pati, 1997). The phenomenon of this desynchronization has been found in various physiological rhythms, viz., auxiliary temperature or oral temperature or skin temperature, heart rate, subjective fatigue, attention and drowsiness, peak expiratory flow and grip strength of both hands in shift workers (Reinberg et al, 1984; Reinberg et al, 1989; Chandravanshi et al, 2000; Motohashi et al, 1987; Pati et al, 1991; Gupta et al, 1994; Gupta et al, 1997). Time estimation circadian rhythm was also found to be disrupted in shift workers (Pati A.K. and Gupta, S.J. (1994).

Desynchronization of circadian rhythms attributed to shift work may lead to several clinical complications. It may produce
disastrous chronopharmacological effects such as impaired metabolism and impaired responsiveness to medications. It has also been reported that it may make shift workers more prone to suffering, notably myocardial infarction, exacerbation of insulin dependent diabetes, epilepsy and neuropsychiatric disorders (Philips et al, 1991). The disrupted synchronization of circadian rhythms may also create sleeping disorder (Czeisler et al, 1982; Folklord et al, 1992; Akerstedt et al, 1995; Akerstedt, 1982; Michel-Briand et al, 1981; Porcu and Bellatreccia, 1998).

It has been demonstrated that various psychosomatic and psychoneurotic complaints are more common among shift workers (Koller and Kurdi, 1978; Oginska et al, 1993; Costa et al, 1999). Shift workers also complain more frequently about depression, helplessness and stress. According to Healy and Williams (1988) and Healy et al (1993) due to circadian dysrhythmia neurovegetative functions may disrupt and due to this disruption helplessness type of cognition develops. Because of such helplessness type of cognition the shift workers are not able to cope with occupational stress.

Our result can also be explained by the model proposed by
Rutenfranz et al (1982). The model suggests that the major disease mechanism is brought about by disturbed circadian rhythmicity which leads to stress. In case of rotatory shift workers the desynchronization circadian rhythms produced helplessness type of cognition and due to such cognition the rotatory shift supervisors could not cope with the occupational stress.

The occupational stress level of supervisors working in private sector organizations was found higher than the supervisors working in public sector organizations. Due to globalization of markets the industrial organization of private sectors are rapidly cutting their budget on establishment and utilizing latest technology. Due to these reasons the employees of private sectors are facing the danger of job insecurity. Therefore, the supervisors working in private organization are experiencing considerably high level of occupational stress than the public sector organization. In public sector organizations (i) job is relatively secure, (ii) expenditure on establishment is relatively high than the private sector organization and (iii) stress is being given on the development of job related and interpersonal relationship skills. These were the reasons why level
of the occupational stress of public sector organizations were found to be significantly lower than their counterparts in private sector. Our finding is supported by the findings of Pestonjee and Singh (1987).

The two factor interactions namely, career status x shift working and career x types of organization are turned out to be significant at acceptable level. However the interaction effect between the factors shift working and types of organization could not show interaction between each other. A close examination of mean scores of each interaction made it clear that what is added by one factor at the one level of other factor is different from what is added at the second level. Therefore, it is clear that the two factors have a combined effect which is different from the effects when the two are applied separately. Since the interaction differences of the factors AxB, BxC were found to be significantly different, it indicates that the two factors have significant interactional effect upon occupational stress. It shows that change in the value of one factor alters the effects of the other. The significant level of interaction effects denotes that the two factors are not independent
of each other in influencing the dependent variable that is occupational status.

The interaction effect between shift working x types of organization was not found to be significant at any level. The reason may be attributed to the non interacting nature of the two variables. The result is quite natural as the desynchronization of circadian rhythms was operated irrespective of types of organization.

The three factor interactions namely, career status x shift working x types of organization again found significant. This result confirms the findings of the main effect. Hence, after knowing the significant interactional effect of all three factors, a Newman-Keuls test was worked out to compare the treatment means differ from each other.
5.6 CONCLUSION:

On the basis of the present study, following conclusions can be drawn:

(1) The main effect of career status of couples has been found significant on occupational stress. Present study reveal that the dual career couples experience lower occupational stress index than single career couples. The shift working and day working are able to generate variance upon occupational stress.

(2) Rotational shift work affects human health and performance by causing numerous alterations in human behaviour and psychology. Shift workers complain more frequently about depression, helplessness and stress. In case of rotatory shift workers they could not cope with occupational stress. The two factor interactions viz., career status x shift work turned out to be significant.

(3) The occupational stress level of the supervisors working in private sector organization is higher than the supervisors working in public sector organization. Private sectors are
rapidly cutting their budget on establishment and utilizing latest technology and the employee of private sector are facing the danger of job insecurity. Therefore the supervisors who are working in private sector organizations showed greater occupational stress than their counterparts serving in public sector organizations.

(4) The interaction effect between shift working x type of organization was not found to be significant at any acceptable level. The reason may be attributed to non interacting nature of two factors.

(5) The three factor interactions namely, career status x shift working x types of organization again found significant.

The two factor interactions namely, shift working and career status, type of organization and career status are turned out to be significant. Shift working and types of organization is not significant.

The three factors career status, shift working and types of organization have interactional effect on occupational stress as alternation value of any one of these three factors affect level of occupational stress.
5.7 LIMITATION AND SUGGESTION:

Limitations:

1. In order to find out the contribution of every independent factors in generating variance upon dependent variable, stepwise and multiple regression should have been worked out. In further research this analysis is advised.

2. The sample employed in the present study was drawn from the Bhilai Steel Plant and Jindal factory Raigarh at Chhattisgarh region. Therefore, the results can be generalised only to the supervisors of these factories.

3. In the present investigation fixed effect model has been used in the manipulation of independent variables. Therefore, the result of this study can be generalised only for specific levels of the independent variables.

4. The present investigation is an ex-post facto enquiry in which we can not control the situations precisely as in the experimental enquiry.
5. Due to the practical difficulties and manifold selection criteria, investigator could identify only 60 cases in each cell or strata of 2x2x2 factorial design. In fact more cases in each cell might have enhanced the power of generalization of the findings.
Suggestions :-

1. Since the sample of the present study has been drawn from B.S.P. and Jindal factory of Chhattisgarh State, therefore, the inferences drawn in the present study are applicable only to the supervisors of this particular region. A broad based sample from different geographical area and different type of organization, viz., B.S.P. and Jindal factory could have increased the power of generalization in the present study.

2. The present study was conducted on supervisors containing 60 cases in each sample. The sample population in each cell and total population may be extended to further validate the results.

3. In the present investigation, occupational stress has been studied in the light of only three variables namely, career status of couples, shift working and type of organization. Further studies should be conducted to verify the effect of other important variables such as time management, music, meditation etc. on occupational stress.
4. Intervention programme for the management of occupational stress should be done by the industrial organizations from time to time.

5. Intervention strategies and their evaluation with regard to the occupational stress has not yet been thoroughly studied. It should be studied with powerful evaluative criteria.