

Shift work - problems and its impact on female nurses in Udaipur, Rajasthan India

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Abstract : There is good evidence that shift work has negative effects on workers health, safety and performance. It is quite appropriate that attention is paid to this very important feature of socio-technical systems, which may adversely affect mental and physical health, social life and safety of shift workers. Research into the impact of shift work on professionals has consistently identified a range of negative outcomes in physical, psychological, and social domains (Akerstedt, 1988; Costa, Lievore, Casaletti, Gaffuri, & Folkard, 1989; Kogi, 2005; Paley & Tepas, 1994). Hospitals, the biggest employer in the health care field, employ more night shift workers than any other industry. It can therefore be inferred that in medical domain high percentage of workforce may be affected by problems related to shift work. Thus the present study will provide knowledge base for the problems faced by the female nurses. The present study was undertaken with an objective of getting an insight into the problems faced by female nurses in shift work. . It was found that the female nurses in India worked on roaster pattern of change in shift every seven days. They did not have a say in the change of duties, it could only be done on mutual grounds. Partners of younger group did not much adjust to their shift pattern this created stress among the nurses. The results showed that the female nurses in both the age groups i.e. 30-45 years and 45-60 years faced many problems related to health and well being, fatigue, social and domestic situations. They could not give much time to their children in particular. Travelling in nights was risky for them. Common problem was the insufficient sleep during night shifts. The nurses had to cater to the needs of the family, children in particular along with the adjustments to be made due to shift work. They had to sometimes do the night duties and attend social functions as a part of their duty. Children and husband in some cases did not cooperate this lead to frustration. When asked as to whether they would could shift job if they get regular one more than 50 % said yes this means that there need to be come training and intervention for the shift workers and their family so that the problems faced and their impact on personal health of the female nurses could be reduced.

Keywords: Sleep; Fatigue; Social; Domestic

1. Introduction

Nursing is an art: and if it is to be made an art, It requires an exclusive devotion as hard a preparation, as any painter's or sculptor's work; for what is the having to do with dead canvas or dead marble, compared with having to do with the living body, the temple of God's spirit? It is one of the Fine Arts. I had almost said, the finest of Fine Arts.

by Florence Nightingale

Women are the backbone of any economy primarily shaping future of country. Ever since India opened its doors to liberalization in the early 1990s there has been a steady transformation in India's economy.

Women have become equal participants in many respects at all levels of society. The future would see more women venturing into areas traditionally dominated by men. This will lead to the income generation and a greater sense of fulfillment among women.

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In almost all the countries, governments is providing special provision for women's development and efforts are being made to being out maximum of their talent. In India, as during Veda and Upanishad periods, women are being accorded with respect and are facilitated in all spheres of life. The researches have shown that shift work causes many physical and psychological demands on an individual.

Shift work is common in many sectors. Essential and emergency services such as medical, transport, fire and rescue, law enforcement services and some public services have to be provided round-the-clock. In recent years, some service establishments such as convenience stores and fast food shops also provide 24-hour service and employees concerned, therefore, are required to work in shifts. Suitably arranged shift work is important to employees, employers and the self-employed.

Shift work and work-related stress are important topics in the healthcare sector due to their possible negative impact on the workers' health and safety. This includes cardiovascular diseases, gastrointestinal complaints, sleep troubles, mental health problems, fatigue, job dissatisfaction, accidents and injuries at work, reduced vigilance and job performance, absenteeism and turnover (Muecke, 2005; Poissonnet and Ve'ron, 2000; McVicar, 2003). Shift work is now a major feature of work life across a broad range of industries. It is well established that the degree and quality of social interaction are related to physical and mental health. In medical domain, physicians, nurses and other ancillary staff are expected to perform their jobs or to be on call around-the-clock. Studies have shown that a greater percentage of health service workers work in a shift system than in any other employment sector.

Hospitals, the biggest employer in the health care field, employ more night shift workers than any other industry. It can therefore be inferred that in medical domain high percentage of workforce may be affected by the problems related to shift work. Furthermore, the results of the study will be significant for nurses because it will improve their quality of life and coping with the shift duties.

2. Objectives

The present study was carried out with the following objectives:

1. To explore problems related to shift work faced by female nurses.
2. To study the impact of shift work on female nurses in terms of sleep, fatigue, health and well being and social and domestic situation.

3. Methodology

The main objective of the present investigation was to assess the **Problems of shift work faced by female nurses and its impact.**

3.1 Locale of the study

The present study was conducted in Maharana Bhopal Government Hospital at Udaipur. The hospital was selected with the view that there is common rotation schedule, common administration and a homogenous group. This point was taken under consideration as literature shows that shift work is directly affected by the type of rotation and the administration.

3.2 Sample and its selection

The sample consisted of 60 female nurses between the age group of 30 -60 years, working in flexible rotating shifts. These were further categorized into two groups, 30 nurses in age range of 30- 45 and 30 nurses in 45- 60 years of age. A list of the enrolled nurses was procured from the hospital and then the nurses within the age group of 30- 60 were listed down. After listing the names, the nurses for the present study were randomly selected from the corresponding list i.e. systematic method of sampling was used.

To each selected female nurse the investigator explained the purpose of the research study and its importance and requested for their cooperation. Among the randomly selected samples, 5 per cent dropout was there so 3 other names were then selected for the study.

3.3 Tool

A standardized tool was used for the present study. The Standard Shift Work Index (SSI) by

Emeritus Simon Folkard et. al. (1995) was used to elicit required data from each respondent. The questionnaire consisted of the following parameters to get an insight to the female nurses problems related to shift work.5. Situation in India and U.K. regarding in shifts are different so a pilot study was conducted to see if this SSI would be effective to see the problems of shift work and its impact on female nurses. A few questions were deleted as they were not relevant to our condition.

3.4 Data collection

The data collection was done by the investigator personally. It took the investigator around 2 hours to fill one questionnaire as minute details of shift were taken into consideration in the Standard Shiftwork Index.

3.5 Analysis of data

For analysis of data the Standard Shiftwork Index manual was used. Each section of questionnaire had its own tabulation style and scoring.

4. Results and Discussions

The present study was undertaken with an objective of getting an insight into the problems faced by female nurses in shift work and its impact on sleep, fatigue, health and well being, social and domestic situations. The following section highlights and the results which have been systematically presented with supportive material enabling a clear understanding of the outcomes of the study. The results have been presented under the following sections.

4.1 Section A : Background and general information of the respondents regarding shift work

General background information and the shift work pattern followed by the respondents. Different factors regarding shift rotation, sleep pattern, partners cooperation, time etc have been presented in this section. The mean age of the respondents was 36.6 years and 53.3 years in the young and old group, respectively. All the respondents had more than two years of shift work experience. This was mandatory for selection of example.

Further the marital status of the respondents was also studied as this factor plays an important role in the problems related to shift work. Ninety .per cent of the respondents were married and 5 per cent widowed. This gives us an overview that all the respondents had full responsibility of the family irrespective of the age groups to which they belonged.

The number of hours of work vary in different occupations. It's the timings which the nurses have to adjust at home and the work place. The data further revealed that the respondents worked in paid employment for 48 – 56 hours a week. An equal percentage of young female nurses (50%) worked for 56 and 48 hours a week. But for the respondents in the old age group, a slightly less per cent of respondents worked for 56 hours per week (46 %).

Table 1

Percent distribution of respondents according to usual work pattern

N = 60

S.No.	Items	Young group	Old group	Total
A	Rotating shifts with nights	18 (60%)	26 (86.6%)	44 (73.3%)
B	Rotating shifts without nights	12 (40%)	4 (13.3%)	16 (26.6)

A look into the work pattern gives clear evidence that the higher percentage (86.6) of old respondents worked in rotating shifts with nights, while from young group only **60 per cent** worked in rotating shifts with nights. This can be due to the fact that after the age of 45 the families are more or less settled while those within the age group of 35-45 have more family and social responsibilities. (**Table 1**). Overall 73.3 per cent of the respondents worked in rotating shifts with nights. Lesser percentage i.e. 26.6 worked in rotating shifts without night.

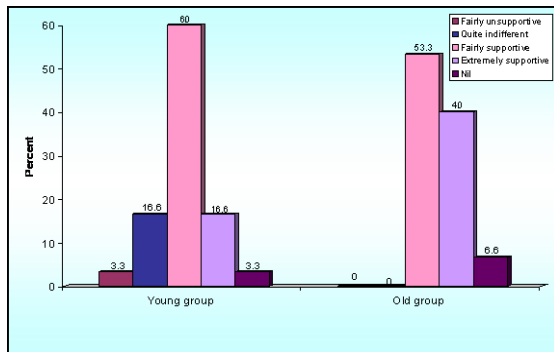


Fig. 1 Percent distribution of respondents by opinion of spouse towards shift job

When at work females are always concerned about how their husbands feel of how and where they work. Education has changed the mental set up and now egalitarian families are coming up. The same was reported by the samples that 56.6 per cent and 28.3 per cent partners of the respondents were fairly supportive and extremely supportive. When looking into young and old age group, separately it can be seen that only 16.6 per cent of the partners were extremely supportive in comparison to 40 per cent of their counterparts. Some of the interviewees said that they were lucky enough that they had relatives who could help them manage some of their family responsibilities. The young group also faced this problem of non cooperation from their husbands (16.6 %). (Fig.1)

An insight into the length of service of the respondents indicates that the young group of nurses had a shorter length of service i.e. 1- 10 years (93%) while 67 per cent of the respondents from the old group had more than 20 years of service.

Table 2

Percent distribution of respondents according types of shifts and average successive shifts they normally work

N = 60

S. No.	Category	Items	Young group	Old group	Total
A	Number of successive morning shifts	7 days	22 (73%)	24 (80%)	46 (76.6%)
		8 days	1 (3.3%)	Nil	1 (1.6%)
		10 days	7 (23%)	6 (20%)	13 (21.6%)
B	Number of successive afternoon shifts	7 days	22 (73%)	19 (63%)	41 (68.3%)
		8 days	1 (3.3%)	2 (6.6%)	3 (5%)

		10 days	7 (23%)	9 (30%)	16 (26.6%)
C.	Number of successive night shifts	7 days	22 (73%)	20 (66%)	42 (70%)
		8 days	1 (3.3%)	2 (6.6%)	3 (5%)
		10 days	7 (23%)	8 (26%)	15 (25%)

The rotation of shift was of 8 hours for all the respondents. Safety while travelling from work to home is another point of concern for those working in shifts. All the respondents travelled to and from hospital during late nights and early mornings. This was also difficult as the time was either too early i.e. 5.30 a.m. or late as 10.30. p.m. They found it risky sometimes to go alone specially those who walked to the hospital.

During morning shift overall 43.3 per cent of respondents felt unsafe while the percentage increased to 73.3 during night shifts i.e. almost always. The safest according to the respondents was only the afternoon shift, it can be thus said that age was no criteria for assessing feeling unsafe among the respondents, the young group and the old did feel unsafe when they commuted to and fro from the workplace.

The length of the rotation period (i.e. the number of days on any one shift before switching to the next shift): medical literature suggests that a fast rotating shift pattern (e.g. rotating the shifts every 2-3 days) could reduce disruption of the biological clock, while rotation of the shifts after a longer period (e.g. every 3-4 weeks) allows time for adaptation of the biological clock. Either shift patterns could be considered, taking into account the circumstances of the operations.

As depicted from the table above we can say that on an average 7 days shift was common in morning and afternoon i.e. 73 per cent for the young group while in the old group it was 80 per cent and 63 per cent morning and evening shift of 7 days respectively. Overall view into the table, it can be seen that less than 5 per cent of the respondents had a shift of 8 days. While 21.6 per cent, 26.6 per cent, 25 per cent of the respondents in morning, afternoon evening respectively worked for 10 days shift. Studies have examined the differences between various workweek schedules. When comparing a 5-day/8-hr work schedule to a 4 day/10 hr. work schedule, most studies

found that workers were more tired at the end of a 10-hr shift. Studies also found workers to be more fatigued following a 12-hr shift when compared to an 8-hr shift.

Total number of offs which a respondent can take is very different in Indian context. Studies of health care workers from western countries had an option for having off for 5-7 days though they had to work extra time and equalize the working hours but the scenario was different for the respondents from Government hospital in Udaipur, they could only get 3 days off at a stretch (Table 2). This was a point of mental stress for the respondents especially of the young age group. The off or the rest period recommended by doctors is of at least 24 hours after each set of night shift. The more consecutive nights worked, the more rest time should be allowed before the next rotation occurs.

A critical look into data in table 3 related to organization of the night shift clearly reveal that 51.6 per cent of the respondents were placed in a single block of night duty per year. 35 per cent of respondents were placed in a occasional blocks of night duty per year and respondents in a block of night shifts each month was 10 per cent Only 3.3 per cent of the respondents had to give one or two night shifts every week.

Table 3
Percent distribution of respondents regarding night shifts schedule
N=60

S. No	Items	Young group	Old group	Total
A	Permanent nightshift	0	0	0
B	A single block of night duty per year	12 (39.6%)	19 (63%)	31 (51.6%)
C	Occasional blocks of night duty per year	14 (46%)	7 (23%)	21 (35%)
D	A block of nights each month	3 (10%)	3 (10%)	6 (10%)
E	One or two nights each week	1 (3.3%)	1 (3.3%)	2 (3.3%)

In addition to annualized hours there is a growing interest in self rostering which is time

consuming to set up and often beset with teething problems, again gives staff maximum control over their working. The same pattern was seen among the lives of selected respondents. Thirty fives per cent respondents had a fair amount of control over the shift rotation and 38 per cent had quite a lot control over the specific shifts. When the female nurses have control over the shifts there is more job satisfaction. In a review of shift system in England and Wales, Jane Barton found that out of 182 hospitals some 122 different shift systems were classified and out of these no two shifts were identical with main variation in start and finish time. Fifty per cent of the results also give similar picture that respondents did have a say in the shift rotation. The respondents had control over the time while 50per cent said they had fair amount of control. The reason may be the annualized roster.

Table 4
Percent distribution of respondents to what extent have control do they have over the specific shifts that you work
N=60

S. No	Items	Young group	Old group	Total
A	Not at all	Nil	Nil	Nil
B	Not very much	7 (23%)	Nil	7 (11.6%)
C	A fair amount	7 (23%)	14(46%)	21(35%)
D	Quite a lot	7 (23%)	16 (53%)	23 (38.3%)
E	Complete	9 (30%)	Nil	9 (15%)

The results also showed 57 per cent of the respondents irrespective of the age group said they had to change roster at short notice frequently or almost always while approximately 41 per cent were given notice sometimes. The option of swooping shifts with colleagues was a very good option but 40 per cent of the respondents did not use this option and 33.3 per cent, 16.6 per cent, 10 per cent used this option some times, rarely and frequently respectively.

Changing of roster with colleagues mutually was the most easiest and convenient option because all being in the same profession were known about the emergency and problem of their colleagues. The

option of requesting for a specific shift was almost never opted by 96.6 per cent of the respondents while 3.3per cent used it rarely. As already mentioned the mutual change was better of option for them. Thus it can be said that the female nurses of both the groups did not have a say on planning their own rosters and adjusting according to their needs. There are many reasons why people opt for shift work. The 100 per cent respondents said that it is a part of the job and it is true that health care services and specially nursing is a 24 x 7 job and so they have such type of mental makeup for working in shifts.

In the other response, 50 per cent of the young respondents said that it was the only job available and so it was partly a reason for working in shifts while for 83per cent of the old group respondents said that this was very much a reason for their working in shift. 60 per cent of the young respondents also were of the opinion that shift work was not convenient for domestic responsibilities while old group found it a reason for working in shifts (66%) but the last main reason for working in shift was higher pay and government job which scored 100 per cent from both groups.

Having deep insight into the general background on shift pattern of the respondents they were asked about advantages and disadvantages of the shift work. Some of the common ones have been noted below :

Advantages of shift system	Disadvantages of shift system
In morning hours, I am with my family.	I have difficulty getting transport between the hours of 12p.m. – 6 a.m.,
I do my other homework.	Work till very late at night
Its generally easier to swap shifts with colleagues	Not be able to eat regular meals.
I can have time off midweek and go shopping when the shops are not over crowded	Not be able to participate in social outings with friends who normal working week.
I can request to take time off in any part of the week and make it up	Delay in dinner, less attention on education of children.

somewhere else.	
	Difficulty in working outside.
	Shift work can lead to chronic fatigue.
	Rotation makes it hard to form routines.
	Decreases job satisfaction and motivation.
	Not enough time to spend with children. Not enough time to spend with spouse.

The general job satisfaction score was 100 for young group while it was 91 for the old group but if we see each parameter it can be said that a score of 20 and 12 was calculated for disagree, and disagree slightly satisfied with the job and similar trend was also seen with old group.

A score of 40 ‘neutral’ thinking of quality the job for young group makes the uncertainty of quitting job for full day job more clear. While a score of 26 was calculated for agreeing to quit the job. For the old group respondents score of 80 out of 102 was below neutral. This may be due to the length of service and adoption to the working pattern.

We can thus conclude the results of this section by saying that many of our respondents talked about the problems they and their family encountered as a result of unpredictability of their shift assignments. Changes in work schedules were particularly problematic for those with less seniority. Among the dual earner families some of the parents tried to organize their work schedules so that one of the parents is at home. Thus the general information regarding shift work and discussions with the respondents have thrown light on many problems faced by them. A few major problems are taken under the section B.

4.2 Section B : Problems of Shift Work and its Impact on Female Nurses Related to -

4.2.1 Sleep related problems and its impact on female nurse

Sleep loss and impairments related to resultant fatigue are common among professionals working in healthcare settings. Long continuous duty hours, reduced opportunities for sleep with minimal recuperation time and shift work all contribute significantly to impairments in physical, cognitive, and emotional functioning. Detrimental effects include those on personal health and well-being, patient health and safety, performance of job-related tasks, and professionalism. Many challenges exist in implementing effective personal and system wide strategies to manage the impact of sleep loss.

Many researches show that shift work can lead to chronic fatigue and in somatic, and shift work can lead to disruption of sleep pattern as well as persistent anxiety or depression and decreased alertness. Thus the sleep related problems and its impact on female nurses were studied Again, higher scores are associated with greater sleep disturbance. The results depicted that none of the respondents got plenty of sleep in the whole day. They reported high sleep disturbance in between successive morning and afternoon shifts.

The respondents also opined that in morning time they could do with a lot more sleep, with a score of 120 in young group while in the time of day off they scored the lowest as in these days as reported they worked to finish their pending work as well as they spent time with their children and husband. In old group, female shift workers also take less of sleep in day off time. They said that they have other house hold activities and social responsibilities and had only day off to fulfill these responsibilities so they do a lot more work in days off. If we compare the young and old group it is clearly depicted that young group has rated the task has less normal sleep than the old group. Researches have shown that nurses who work rotating shifts had complaints concerning fatigue and this was highest in the night shift, followed by evening then morning shift. The symptoms reported by night shift nurses include sleepiness, sadness, and difficulty concentrating, with numerous complaints about cumulated fatigue and disturbed social life. (Ohida, et.al. 2001). As reported by the respondents of the study a few disturbances of sleep were insufficient poor quality sleep resulting from trouble falling asleep, waking during sleep, and waking up early. Although many of these difficulties are from disruptions in the body's normal diurnal sleep rhythms, sleep during daytime is also often disturbed excessive and unavoidable light and heat, and by noises from children, housework, telephone calls. Sleep can also be unsettled by over- fatigue, restlessness and tension.

Table 5

Mean score of Impact of shift work on sleep and fatigue

N = 60

S. No.	Category	Young group						Old group			Frequently	Almost always	Total
		Not at all	At all	Some times	Quite often	Very much so	Total	Not at all	At all	Some times			
A.	Generally feel have plenty of energy	50	32	12	0	0	94	100	32	6	0	0	138
B.	Usually feel drained	0	0	0	108	15	123	0	0	0	0	150	150
C.	Generally feel quite active	50	32	36	0	0	118	50	48	24	0	0	122
D.	Feel tired most of the time	0	0	0	0	150	150	0	0	0	0	150	150
E.	Generally feel full of vigour	50	32	36	0	6	124	0	16	51	18	0	85
F.	Usually feel rather lethargic	10	16	36	0	0	52	0	8	51	36	0	95

G.	Generally feel alert	50	32	36	0	0	118	0	16	51	18	0	85
H.	Often feel exhausted	0	0	0	112	0	112	0	0	0	0	150	150
I.	Usually feel lively	50	32	36	0	0	118	0	16	54	16	0	86
J.	Feel weary much of the time	10	16	36	0	0	62	45	65	12	0	0	122

Impact of shift work on sleep disorder leads to different general feelings. Major impact of shift work is fatigue both physiological and psychological. Chronic fatigue is defined as a general tiredness and lack of energy irrespective of whether an individual has enough sleep or has been working hard, which persists even on rest days and holidays. The most noticeable and potentially the most dangerous physiological effects of shift work include persistent fatigue and reduced alertness. The results reveal that young group respondents had full score of 150 in feeling of tired all the time, followed by drained feeling 123. The feeling of full vigour was sometimes felt by a few of the young respondents (Score of 36).

It is clearly evident in the Table 5 that age play a negative role on general feeling. The old groups scores were higher than the young group respondents. Highest scores for old group were calculated for drained feeling (150), tired almost all the time, and feeling of exhausted (138). Feeling of alert and vigour were scored the lowest score (85).

Table6

Overall score for problems and impact of shift work on sleep disturbance

N= 60

S. No.	Category	Young group	Old group
A	Problem related to the amount of sleep normally get	98	84
B	Problem related to how well do you normally sleep	73	69
C	Problem related to normal feeling after sleep.	56	64
D	Problem related to waking earlier intended sleep	97	89
E	Problem related to difficulty in falling a sleep	64	66

F	Impact on feeling of tiredness	71	134
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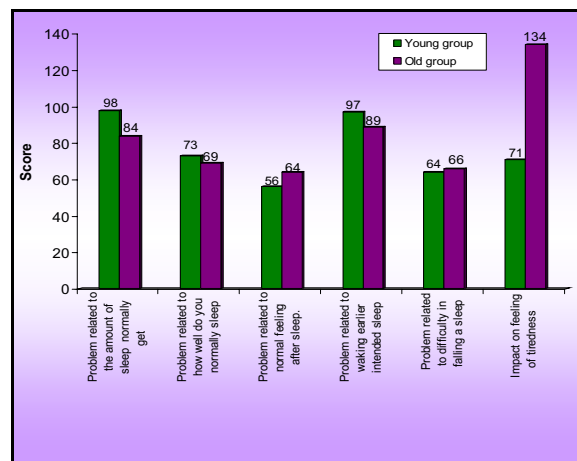


Fig. 2 : Overall score for problems and impact of shift work on sleep disturbance

The fatigue and sleep disturbance are closely related. The impact of disturbance in sleep effects the general feeling of shift workers. The nurses had less amount of sleep have been, discussed in the problem. In all the parameters general impact on sleep was higher than 50 per cent.

As is clearly evident from Table 13 and Figure 2 It can be said the amount of sleep and disturbed sleep has a great impact on the shift workers the highest impact on general feeling of tiredness was amongst old group respondents (134), followed by impact on intended sleep (89) lowest score was 66 for impact on difficulty in falling sleep. While the young group respondents were having its highest impact on normal amount of sleep(98), second highest score i.e. 97 was for impact on intended sleep. The lowest impact was on difficulty in falling sleep (64).

Thus we can generalize that shift work does affect the sleep pattern of an individual. It is argued that just as sleep pattern adjustment starts to occur, it is time to rotate to the next shift. Some schedule designers feel that a longer shift rotation should be

arranged, so that time the worker spends from two weeks to one month on the same shift would allow the circadian rhythm to adjust. A problem occurs when the worker reverts to a normal day/ day night schedule on days off, thus possibly cancelling any adaptation. Yet we can say the individual difference and preference play an important role in the problem of sleep and fatigue due to shift work and its impact on the respondents.

4.2.2 *Problems Related to Health and Well Being of Female Nurses*

Two aspects have been studied in Table 14 viz a to h are digestive impacts, i to q assessed the cardiovascular impacts. The likert type scale was used with the option ranging from 1-4 i.e. almost never to almost always. A higher score was associated with higher health and well being problems.

Gastrointestinal and digestive problems such as indigestion, heartburn, stomachache and loss of appetite are more common among rotating shift workers and night workers than among day workers. Given the irregularity in type and timing of meals, it is not surprising that the night workers are more likely to have a poorer diet. At night, the loss of appetite often leads to increased snacking on “junk” food rather than eating a full, well- balanced meal. Feeling of fatigue may encourage the consumption of beverages with caffeine (coffee, cola) to help the worker stay awake. The digestive problems was regarding a watch on appetite to avoid stomach scored highest i.e. 105 and 102 for young and old group quite often or always respectively. Young group respondents also had distributed appetite, (54) while old group complained of heartburn or stomach burn quite often.

Life- style can directly affect an individual's health. Therefore, it is very important that a shift worker follows exercise programs to maintain an adequate level of fitness. It is also very important not to smoke, to have good dietary habits and to participate in leisure activities.

A study of Swedish men with a history of heart attack showed they were significantly more likely to have been shift workers than those men without a history of heart attack. Another study showed that the modification of shifts rotation

schedules by changing the direction of rotation of shifts to a forward direction (for example, days > afternoon > nights) can significantly decrease the level of several coronary risk factors, e.g., triglycerides, glucose and urinary excretion of catecholamine (chemicals like adrenalin that occur naturally in the body).

Coming to the cardiovascular problems of the respondents it was found that young group had more impact of shift work on their higher blood pressure and chest pain (104), swollen feet (91) put on weight (80) while high blood pressure was the only parameter in which old group faced problem due to shift i.e. with a score of 60.

Thus we can say that the digestive and cardiovascular impact of shift were more prominent among the young group. This may be due to irregular eating patterns. The afternoon workers had their lunch in middle of the day instead of middle of shift work this cause the digestive disturbances. The results are well supported by Costa (1996) who found that gastrointestinal complaints are among the most frequently reported health impact of shift worker, these problems are estimated to be 2 to 5 time more common among night shift workers as compared to those not working in night shifts. Majority of the respondents of the study worked in shift with nights and so this could be one of the reasons for digestive problems faced by them.

The impact of shift work on health are very challenging, if not looked into at earlier stage could have long time effects on health and well being of the respondents. A nervous disorder characterized by a state of excessive uneasiness and apprehension, typically with compulsive behavior or panic attacks is anxiety. In this study we have studied the somatic and cognitive anxiety. Somatic anxiety is anxiety provoked by bodily symptoms of tension such as butterflies in the stomach. it is commonly contrasted with cognitive anxiety which is that provoked by mental concerns or worry.

Stress is probably one of the key elements in the relationships between shift work and disease. The definition of stress varies, but in general it can be anticipated as a particular relationship between the person as taxing and exceeding his or her resources and endangering his or her well being” Scand J work environ health (1999) Stress occurs in when a person

has difficulty dealing with life situation, problems and goals. Stress has physical, emotional and cognitive effects. Nursing involves activities and interpersonal relationships that are often stressful.

Thus the somatic and cognitive anxiety were also calculated for the respondents on five point likert scale “not at all, at all, some what, very much very much so” higher the score higher the anxiety. The somatic anxiety of the respondents. Overall scores gives a picture that the old group have higher somatic anxiety than the young. Higher score was for heart beating was faster (132) and lowest i.e. not at all for physically immobilized. These results may be due to the eating habits. For the young group perspiration was the highest scored parameters for somatic anxiety (111).

The study is supported by Goldenberg and waddle that age of the respondent, number of years of full time teaching and tenure status were most often significant factors (< 0.05) relating to the level of stress implications. One critical factor is the range of coping skills the persons already possesses and can use to adapt to the crisis. The ability to adapt is decreased in the very young, the very old, and those with altered physical or mental health; who do not have necessary physiological reserve to cope with physical changes.

The cognitive anxiety was also found to be high in old age group respondents in comparison to young age. The old group respondents had highest score for loosing out on things (130) and a score of 80 on this factor was very much affecting them. While highest score for young group was for worrying on ‘something that doesn’t really matter’ (117), only ‘some what’ score -9 for anxiety was for provoking picture out of their mind again old group showed higher cognitive anxiety. Studies have shown that age has impact on shifts and anxiety and was also seen among the respondents of the present study.

Table 7

Overall score for problems and impact of shift work on health and well being of the respondents

S. No.	Category	Young group	Old group
Problems			

A	Frequency of expercing health problems	1079	807
B	Suffering from disease (diagnose by doctor)	47	84
Impact			
C	Medications for prolonged periods	199	39
D	Somatic anxiety	629	588
E	Cognitive anxiety	637	596

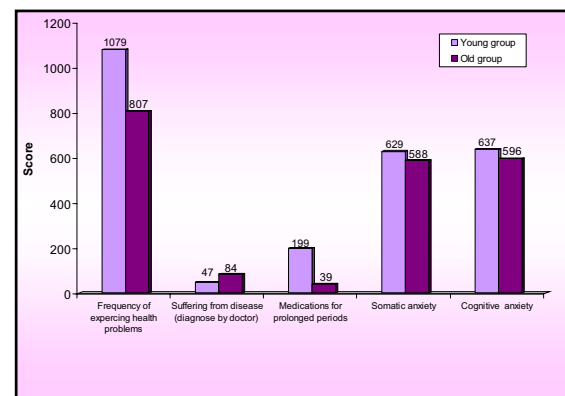


Fig. 3 : Overall score for problems and impact of shift work on health and well being of the respondents

It is generally agreed that some features of shift system can influence the extent of well being and health problems experienced by the workers. The overall health and well being problems was very high in young group as compared to the old group with a total score of 1079 and 807 respectively. Thus the impact of shift work was also higher in the young group than the old group respondents. The interpersonal conflicts and anxiety are also common problems of shift workers. Feeling of isolation, loneliness were also some of the effects of anxiety due to the shift work of female nurses in young age group. Thus we can say that age was affecting factor that the health and well being of the selected respondents of the study.

4.2.3 *impact of shift work on female nurses related to social and domestic situation*

Most human society is geared towards the daylight hours. That is when most of the work is done. The early evening is for social life and night time for sleeping. But in shift work nothing is fixed it changes with the rotation. Shift workers in general experience high level of anxiety and irritability. Moreover, a large epidemiologic study of the general U S population found that individuals working in shifts are more likely not to be able to attend social and family interaction due to sleep problems than those working in day time. Researches have shown that shift work negatively affects quality of life. The repercussions on the social and family life of shift workers are important.

Studies show that many shift workers suffer from additional stress caused by missing out on important parts of their social life. It is harder for shift workers to spend time with their children and to attend school function with them. Spouses may work the opposite shift, thus spending less time together.

Thus data on the amount of time the respondents could spend for domestic and social situations was calculated. A total score of general satisfaction was obtained by adding the item scores. The higher the score the more the satisfaction. The next table scores were summed to give a global measure of overall social and domestic disruption. The mean score for social and domestic situation were taken on a 5 point likert scale with minimum score 30 and maximum 150. In the study of problems and its impact on shift work regarding social and domestic parameters it was found that the young group had lower satisfaction on amount of time left to spend with family friends as compared to the old group, though the scores for the old group were not very high.

The rests depicted that the maximum scores for the amount of time they could spare for different social and domestic situations was between 30-40 for individual hobbies, group hobbies, close family friends, cultural events, adult education, children, bank and post office, doctors visit, house repairs, weekend outing, domestic work and religious activities. Thus we can say 75 per cent of the situations mentioned in the table could not be looked after by the respondents. Shopping of clothes (82,) time for themselves (99), shopping daily goods (55),

joining social organization (84) were the score of young group. On the other hand similar trend was seen for the old group. Scores for satisfaction of time they could give to the parents was 100 and close friends are relations was 60.

The range of score for young group was 30 – 99, while the old group satisfaction ranged between 30 -104. Thus we can say that the satisfaction related to social and domestic situations was low to moderate. There was not much difference in the scores of the young and old group. The respondents reported more interference to their family lives, especially the time available to spend with spouses and children. This fact is very important since the amount and quality of social interaction is related to physical and mental health. Individuals who cannot establish regular routines in their daily activities have difficulties planning for family responsibilities and coping with physical and mental fatigue as effectively as non-shift workers. Participation in clubs, sports and other organized activities is very difficult since they are usually geared to the normal day schedule. The lack of regular social contact can lead to feelings of loneliness and isolation.

Further the global measure of overall social and domestic disruption in Table 19 shows (lower the score lower the interference) the overall inference of shift work with the respondents leisure time, domestic things, children and going to doctor, bank, hair dresser was reported. Shift work interfered somewhat score 72 with the young groups leisure time while only score of 12 was calculated for old group. While the interference with the domestic things was very much with a score of 120 for young group respondents and 51 and 52 score of interference to somewhat and very much respondents for old group. Thus the overall inference for the domestic affairs was higher for young as compared to old group. The highest overall scores was for interference of shift work for going to doctor, library, bank, hair dresser i.e. 135 and 145 for young and old group respectively. There was low satisfaction for the same group of situations.

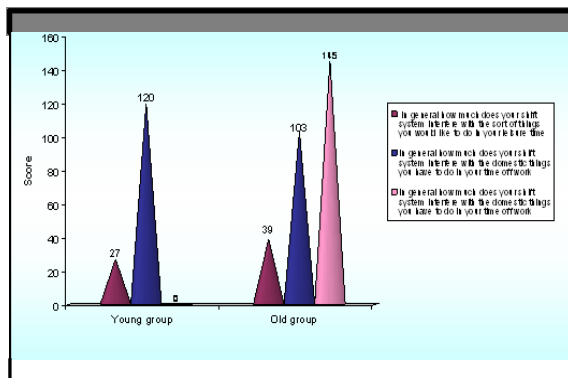


Fig. 5 : Overall scores for problems and impact of shift work in leisure and domestic activity

The respondents expressed that shift work interfered more with family related problems because of the lack of synchrony between their hours on job and their families daily routine. The most serious impact was for those who worked evenings and night shifts because they were less able to spend time with their children, especially small children who go to bed early.

Thus we can say that there are physiological changes which shift work induces, but shift work also involves significant social desynchronization, involving working at times and on days that makes it difficult to maintain a balanced and social life. Shift work therefore is an important, but largely overlooked determinant of social and domestic life of the respondents of the study.

5. Summary and Conclusion

We can thus conclude the results of this section by saying that many of our respondents talked about the problems they and their family encountered as a result of unpredictability of their shift assignments. Changes in work schedules were particularly problematic for those with less seniority. Among the dual earner families some of the parents tried to organize their work schedules so that one of the parents is at home. Thus the general information regarding shift work and discussions with the respondents have thrown light on many problems faced by them due to shift work.

Thus we can generalize that shift work does affect the sleep pattern of an individual. It is argued that just as sleep pattern adjustment starts to occur, it is time to rotate to the next shift. Some schedule designers feel that a longer shift rotation should be arranged so that time the worker spends from two weeks to one month on the same shift that would allow the circadian rhythm to adjust. A problem occurs when the worker reverts to a normal day/ day

night schedule on days off, thus possibly cancelling any adaptation. Yet we can say the individual difference and preference play an important role in the problem of sleep and fatigue due to shift work and its impact on the respondents.

We can say that there are physiological changes which shift work induces, but shift work also involves significant social de-synchronization, involving working at times and on days that makes it difficult to maintain a balanced and social life. Shift work therefore is an important, but largely overlooked determinant of social and domestic life of the respondents of the study.

Shift work schedules should be devised based on needs and work load, recommended as this study showed, fixed and regular rotation schedules caused fewer problems for shift workers. It is therefore recommended that in each hospital a fixed regular shift schedule is devised. Hospital administrations should realize that enhancing the personal and professional well-being of shift workers is an effective contribution to the quality of patient care.

Hence we can conclude that acute and chronic sleep loss, whether partial or complete, substantially impairs physical, cognitive, and emotional functioning in human beings. In addition, the influence of circadian physiology dictates that wakefulness and alertness are at optimal levels during daylight hours, and that sleepiness is maximized during the night. Failure to adhere to this need for both adequate amounts of and appropriately timed sleep results in an increase in sleepiness and fatigue levels and a decline in waking function. This is likely to be relevant to performance of daily tasks, particularly in the context of occupational settings.

There are well over a hundred studies in the literature on sleep loss and fatigue, specifically in healthcare professionals that have examined specific effects on a variety of different performance measures.

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