

# The factor harmful to the quality of human life – shift-work

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## Abstract

The system of human activity, which is established by genetics and regulated by outer and inner factors, is associated with many characteristics which maintain the body in the best condition and ensure appropriate life quality.

**Objective.** To evaluate of life quality among male shift-workers.

**Methods:** Research based on a self-devised questionnaire, conducted among 700 shift-workers, followed by statistical analysis of the results.

**Results.** Nearly a half of respondents (43.00%) reported that shift-work influences the quality of their family life. Remarkably, such an opinion was often stated by people with children (46.01%)  $p < 0.05$ , the divorced (58.22%), married people (44.74%) and bachelors (25.33%), respectively. Fathers usually indicated lack of contact with their family as well as irregular consumption of meals (66.91%). Almost every third respondent noted that their shift type of work negatively influence their sexual life (31.14%).

**Conclusions.** It was shown that shift-work negatively influences the respondents' life quality in the form of deterioration of the quality of family life; the respondents, regardless of marital status, age and having children, most often complained about the lack of contact with the family and irregular eating with them; negative influence on sexual life, which was the case in one-third of respondents. In order to encourage healthy behaviour and increase the quality of life of people performing shift-work, training and programmes should be introduced. These would help shift-workers to adjust their work time to their family and social life.

## Key words

shift-work, quality of life, family conflict

## INTRODUCTION

Humans obtain a wide range of benefits from the environment, often termed services of nature, which make human life possible and enhance the quality of those lives [1, 2, 3].

Professional activity incompatible with natural human activity and with generally accepted rule of 'work during the day – sleep during the night', results in negative consequences which influence health, social activity, and safety at and out of work. In studies on effects of exposure to shift-work it is pertinent to consider the normal diurnal increases in systemic inflammatory markers from morning until evening [4, 5, 6, 7].

Shift-workers, especially those working during night shifts have to function in a regime which is not natural. Research carried out worldwide has shown that shift-work, because of its character, is a serious problem in the scope of the health and safety of the workers [8].

The quality of relationships between people is deteriorating. Tired people are more likely willing to isolate themselves, quarrel, and be more aggressive. The skills of dealing with

difficult situations are weakened, the feeling of helplessness increased, even in the face of small problems. Stress is more intensely felt [9].

Shift-work has been associated with a number of negative effects on families. Research has found that families of shift-workers experience lower rates of marital satisfaction, and higher rates of divorce. The study found that shift-work was associated with building family ties. Families were less likely to be able to spend time together, making it difficult to maintain family rituals and social activities that build unity. Shift work was associated with decreased likelihood of satisfaction with family life. Shift-work is related to higher incidences of depressive symptoms, and marital conflict [10].

The aim of the study was to evaluate of quality of life among male shift-workers.

## MATERIALS AND METHOD

Respondents employed in shift-work were chosen randomly and regardless of their work position. Workers – 700 people – who attended compulsory BHP courses in the period of January-April 2006 were examined. A self-devised questionnaire was applied for the study. In order to verify the scientific tool, a pilot investigation was carried out among

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50 people which enabled the final version of the questionnaire to be formulated.

The questionnaire included the following data: age, marital status, children, and evaluation of the influence of shift-work on nutrition in the respondents' quality of life. The obtained results were elaborated statistically. To identify distinctions and dependences between variables,  $\chi^2$  test was used. For a small number, Yates correction was applied, and a 5% inference error was considered. Values with probability  $<0.05$  were taken as statistically significant. Statistical analysis was conducted using STATISTICA v. 7.1 software (StatSoft, Poland).

## RESULTS

Nearly a half of the respondents (43.00%) reported that shift-work influences the quality of their family life. Remarkably, an such opinion was often stated by people with children (46.01%),  $p<0.05$  (Tab. 1), divorced (58.22%), married people (44.74%) and bachelors (25.33%), respectively.

**Table 1.** Influence of shift-work on the quality of respondents' family life due to having children

		With children	No children	Summary	Statistics
Influence of shift work on the quality of respondents' family life due to having children	Exists	271 46.01%	30 27.03%	301 43.00%	$\chi^2=13.73$ $p=0.00021$
	Lack of influence	318 53.99%	81 72.97%	399 57.00%	
	<b>Total</b>	<b>589</b> <b>84.14%</b>	<b>111</b> <b>15.86%</b>	<b>700</b> <b>100.0%</b>	

Almost of half of the respondents were aged over 51 (51.52%), and significantly admitted that shift-work influences the quality of life. The least numerous group were respondents between the ages of 21-30 years old, among which every fourth person (24.11%) indicated the effects of shift work on family life (Tab. 2).

**Table 2.** Influence of shift-work on the quality of respondents' family life, according to age

		Age in years					Statistic
		21-30	31-40	41-50	<sup>3</sup> 51	Total	
Self-evaluation of the shift-work influence on the quality of respondents' family life	Exists	27 24.11%	101 48.79%	156 44.83%	17 51.52%	301 43.00%	$\chi^2=20.59$ $p=0.00013$
	Lack of influence	85 75.89%	106 51.21%	192 55.17%	16 48.48%	399 57.00%	
	<b>Total</b>	<b>112</b> <b>16.00%</b>	<b>207</b> <b>29.57%</b>	<b>348</b> <b>49.71%</b>	<b>33</b> <b>4.71%</b>	<b>700</b> <b>100.0%</b>	

Fathers usually indicated lack of contact with their family as well as irregular consumption of meals (66.91%). Also indicated were fatigue, increased irritability, frequent illnesses (16.55%), and disturbances of life cycle, periodically interrupted sleep and lack of time (16.55%). Those who did not have children mostly noted lack of family contact and irregular meals with them (65%). Fatigue, increased irritability or frequent illnesses were not observed in this

**Table 3.** Negative impacts of shift-work influence on the quality of respondents' life due to having children

		With children	No children	Summary	Statistics
Negative impacts of shift-work influence on the quality of life of respondents	Lack of contact with family.	93	13	106	$\chi^2=6.47$ $p=0.03928$
	Irregular meals	66.91%	65.00%	66.67%	
	Fatigue.				
	Increased nervousness.	23	0	23	
	Frequent illnesses	16.55%	0.00%	14.47%	
	Sleep interrupted during the day.				
	Disruption of life cycle.	23	7	30	
	Lack of time.	16.55%	35.00%	18.86%	
	Difficulty in planning anything.				
	<b>Total</b>	<b>139</b>	<b>20</b>	<b>159</b>	
<b>Total percentage</b>	<b>87.42%</b>	<b>12.58%</b>	<b>100.0%</b>		

group. Analysis showed statistically important dependences with  $p$  values  $<0.05$  (Tab. 3).

The men questioned men, regardless of their marital status, reported lack of family contact and irregular meals consumed with them as the major effects of shift-work on their life.

Periodically interrupted sleep, disturbances of life cycle, lack of time and inability to concentrate were mostly indicated by bachelors (41.67%), compared to married men (17.02%) and those who were divorced (16.67%). Increased irritability, fatigue and frequent diseases were most frequently reported by divorced men (33.00%). Married men rarely complained about the above symptoms (14.89%), bachelors did not indicate them at all. Almost every third respondent noted that their shift type of work negatively influences their sexual life (31.14%).

Fathers gave affirmative answers more frequently than men without offspring  $p<0.05$ , and such an answer was provided mostly by the divorced (52.94%), followed by married couples (31.5%), and finally bachelors (22.67%) (Tab. 4).

**Table 4.** Influence of shift-work on respondents' sexual life due to having children

		With children	No children	Summary	Statistics
Influence of shift-work on respondents' sexual life	Exists	193 32.77%	25 22.52%	218 31.14%	$\chi^2=4.57$ $p=0.03251$
	Lack of influence	396 67.23%	86 77.48%	482 68.86%	
	<b>Total</b>	<b>589</b> <b>84.14%</b>	<b>111</b> <b>15.86%</b>	<b>700</b> <b>100.0%</b>	

The most numerous group who stated that shift-work negatively affects sexual life were those in the age group 31-40 (36.71%).

## DISCUSSION

The influence of shift-work on social and family life has been widely studied by many researchers. Shift type of work makes both professional and personal life difficult [11]. In the presented study, nearly a half of respondents admitted that shift-work affects the quality of their family life.

Shift-work interferes with family meals, family relations, obligations and family responsibilities, such as shopping chores or family driving. The pressure of time creates a permanent problem among people with family obligations, and might negatively influence married life, the role of parents and their educational meaning [12].

Numerous studies have proved that disturbances in the circadian rhythm lead to irritation, fatigue, and difficulties in interpersonal relations [13, 14].

The study of Kowal et al. show that analysis of the responses indicates that shift-work has a negative impact on health and well-being, 30% feel discomfort due to shift work. About 5% of respondents did not notice any influence of shift-work on their health and well-being. A significant number of respondents – 25% – did not know whether shift-work had any influence on their health and well-being; these were mostly workers with low job seniority and in the age group 31-40.

Shift-work, according to respondents, seriously disrupts and disorganizes family life, and has a strong influence on relationships within the family. Working on the second and third shift and at weekends takes away the opportunity to spend the time together. This is most noticeable in the group of workers aged 31-40, and all the women taking part in the survey also indicated marked the same answer. For 18% of respondents, shift-work had little impact on family and social life, and this applied mostly to the group of workers aged 51-60. Most of their children were adults, and their too spouses had become accustomed to this way of life.

During the presented research, the workers – mostly those working the third shift – indicated sleep disorders, increasing tiredness and big adaptive problems. The majority of respondents (70%) drew attention to their slow speed of action during the third shift, and difficulty in concentrating. Frequent change of working hours forces them to irregular meals consumption [15].

Shift work is also a reason for social isolation [16, 17]. Irregular working hours account for problems among workers, couples and families, with entertainment indicated as having a lower contribution to social and free-will activities [18], and a higher divorce rate [19, 20]. Such people are at risk of many social problems [13, 18, 21, 22].

Previous studies showed that shift-workers suffer from sexual life problems more frequently than daily workers [23]. In presented study, nearly every third respondent admitted the negative influence of shift-work on their sexual life.

Social isolation, divorce and the intake of different chemical substances influence the psychological state and consequently might decrease the health status of shift workers [24].

Of the 266 nursing technicians (NTs) and nursing auxiliaries (NAs) in the study by Rios, it was observed that many respondents had health problems (47.4%), and of these only 51.6% had received medical attention. The main health problems reported by the 126 NTs and NAs were chronic problem in the feet (12.6%), back pain (12%), depression (7.7%), rhinitis and allergies, (7.7%) arterial hypertension (6.6%), gastritis and oesophagitis (6.6%), chronic nervousness or emotional imbalance (5.4%), skin disease (5.4%), heart problems (4.9%), joint problems (3.8%) and others of lower percentage [25].

## CONCLUSIONS

1. It has been shown that shift-work has an influence on respondents' quality of life in the form of:
  - deterioration of family life quality in which the respondents, regardless of marital status, age and having

of children, most often complained about the lack of contact with the family and irregular eating with them;

- negative influence on sexual life, which was the case in one-third of respondents.
2. In order to encourage healthy behaviour and increase the quality of life of people employed in shift-work, training and programmes should be introduced. These would help shift-workers to adjust their work time to their family and social life.

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