



Problems Experienced by Health Personnel on Duty and Solution Suggestions

Nöbetli Çalışan Sağlık Personelinin Yaşadığı Sorunlar ve Çözüm Önerileri

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ABSTRACT

Aim: The aim of this study is to investigate the difficulties encountered by healthcare personnel working with a shift system in training and research hospitals and to suggest solution-oriented approaches.

Material and Method: Designed as a qualitative case study, the study was conducted with 28 healthcare personnel working in research hospitals in Istanbul. Data were collected using a semi-structured interview form and analyzed with MAXQDA 2020.

Results: The effects of the shift system and the proposed solutions were categorized under 10 main codes. Sleep Problems and Positive Feedback were the most emphasized subcodes for daily routines (28%). While Impact on Family Relationships (38%) was emphasized regarding family and social life, Resentment and Criticism (44%) were prominent in the perspectives of family and friends. Participants emphasized Positive Feedback in career development and job satisfaction. Health effects were dominated by Physical Health Problems such as insomnia and headache (56%). Lack of Time and Other subcodes were equally prominent problems regarding educational opportunities (32%). The difficulties experienced during shifts were mostly attributed to Relationships with Patients and Their Relatives (33%), while Self-Motivation (50%) was the most frequently mentioned coping strategy. Solution suggestions were highlighted as Shift Arrangements and Staff Increase (52%). These findings underline the extensive impact of on-call systems on healthcare professionals.

Conclusion: On-call systems affect healthcare professionals' daily lives, family dynamics, careers and health. Improvements are essential, especially in managing physical health issues, improving patient relationships and optimizing shift arrangements.

Key words: on-call system; healthcare management; healthcare business management; strategic management

ÖZET

Amaç: Bu çalışmanın amacı, eğitim ve araştırma hastanelerinde nöbet sistemi ile çalışan sağlık personelinin karşılaştığı zorlukları araştırmak ve çözüm odaklı yaklaşımlar önermektir.

Materyal ve Metod: Nitel bir vaka çalışması olarak tasarlanan araştırma, İstanbul'daki araştırma hastanelerinde çalışan 28 sağlık personeli ile yürütülmüştür. Veriler yarı yapılandırılmış görüşme formu kullanılarak toplanmış ve MAXQDA 2020 ile analiz edilmiştir.

Bulgular: Nöbet sisteminin etkileri ve önerilen çözümler 10 ana kod altında kategorize edilmiştir. Günlük rutinler için Uyku Sorunları ve Olumlu Geri Bildirimler en çok vurgulanan alt kodlardır (%28). Aile ve sosyal yaşamla ilgili olarak Aile İlişkileri Üzerindeki Etki (%38) vurgulanırken, aile ve arkadaşların bakış açılarında Kınama ve Eleştiri (%44) öne çıkmıştır. Kariyer gelişimi ve mesleki memnuniyette katılımcılar Olumlu Geri Bildirimleri vurgulamıştır. Sağlık etkilerine uykusuzluk ve baş ağrısı gibi Fiziksel Sağlık Sorunları (%56) hâkimdir. Eğitim fırsatları konusunda Zaman Eksikliği ve Diğer alt kodlar eşit derecede belirgin problemlerdir (%32). Vardiya sırasında yaşanan zorluklar çoğunlukla Hastalar ve Hasta Yakınlarıyla ilişkiler (%33) olarak atfedilirken, en sık bahsedilen başa çıkma stratejisi Öz Motivasyon (%50) olmuştur. Çözüm önerileri Vardiya Düzenlemeleri ve Personel Artışı (%52) olarak vurgulanmıştır. Bu bulgular, nöbetçi sistemlerinin sağlık profesyonelleri üzerindeki kapsamlı etkilerinin altını çizmektedir.

Sonuç: Nöbetçi sistemler sağlık profesyonellerinin günlük yaşamlarını, aile dinamiklerini, kariyerlerini ve sağlıklarını etkiler. Özellikle fiziksel sağlık sorunlarını yönetme, hasta ilişkilerini geliştirme ve vardiya düzenlemelerini optimize etme konusunda iyileştirmeler şarttır.

Anahtar kelimeler: nöbetçi sistem; sağlık yönetimi; sağlık işletmeciliği; stratejik yönetim

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Introduction

The health sector is the system formed by all institutions and organizations that produce health-related goods and services in order to obtain, protect and ensure sustainability of health so that people can continue their quality lives¹. According to the regulation published in the Official Gazette No. 29007; “*Medical doctors, dentists, pharmacists, nurses, midwives and opticians and other professionals defined in the additional article 13 of the Law No. 1219*”, “*Other professionals who are not healthcare professionals but have a specific duty within the framework of healthcare service delivery and work in this field*”². Hospitals are organizations that have to provide service 24 hours a day, 7 days a week. The continuity of this service is possible through shift and on-call working³. The shift work system is a system that requires employees to perform their duties at different times of the day. This system affects the biological order of individuals, especially sleep disorders, eating habits, family and social relationships, and causes negative effects on their general health³⁻⁵. Healthcare workers who are subject to shift work encounter various physical, mental and emotional difficulties⁶⁻⁸. When these effects are included in the shift work system, the job satisfaction, motivation and professional performance of healthcare personnel are negatively affected^{9,10}.

Healthcare workers face many difficulties during their shifts, including stress,¹¹ workload,¹¹ and sleep problems^{12,13}. In addition to these, deficiencies in shift arrangements, lack of personnel consequently increased workload, and deficiencies in physical working conditions increase the sense of burnout of healthcare personnel and reduce their job satisfaction and motivation. Increased levels of burnout also increase the risk of errors in healthcare services and reduce patient satisfaction^{14,15}.

Understanding the impact of on-call work on health workers and developing solution strategies for problems is vital both to improve the welfare of health workers and to ensure the sustainability of health services. Since healthcare workers address the whole society, the problems they experience are not only individual. Since the problems experienced are not only individual, these problems also have a complex structure that requires systematic solutions. In the process of solving these problems, solution-oriented issues such as reducing the difficulties experienced in the patient-patient relatives relationship, increasing rest opportunities and improving rest conditions, and balancing the workload should be emphasized.

In the literature, there are many studies on health personnel working in shift and on-call shifts. In particular, there are studies investigating the effects of shift or on-call working order on family and social relations,^{8,16} sleep and nutrition,^{17,18} work stress,¹⁹ work performance,²⁰ job satisfaction^{9,10} etc. in healthcare professionals. This study is important in terms of addressing the health personnel who are included in the on-call working system in research hospitals in Istanbul province and enabling a more in-depth examination of the problems with a semi-structured interview system. In this respect, it is thought that the results obtained from the study will contribute to the literature.

This study aims to identify the problems faced by healthcare personnel working on shifts and to develop solution-oriented approaches to these problems. The study will address the difficulties experienced by healthcare workers during and after shift work, their effects on work-life balance, job satisfaction and general satisfaction levels, and possible consequences on physical and psychological health. In line with the findings, it is aimed to offer applicable solutions to improve the working conditions of healthcare personnel.

Materials and Methods

In this study, the in-depth interview technique, which is one of the qualitative research designs, was used. In-depth interview emerged as a product of the effort to understand social life and the behaviors of individuals. In-depth interview is a data collection technique based on verbal communication between the researcher and the subject on the subject under investigation. In the in-depth interview technique, data are collected with structured, semi-structured and unstructured interview forms²¹. In this study, data were collected using a semi-structured interview form. In addition, since there are no specific rules and calculations regarding sample size in qualitative research, if the answers given within the scope of the research question were repeated, it was accepted that data saturation was reached and the data collection process was terminated²². In the research, the answer to the question “What are the main problems faced by health personnel working with the on-call system, and what solutions can be developed to reduce these problems?” is sought.

This study was found ethically appropriate by the Health Sciences University Hamidiye Scientific Research Ethics Committee with the decision numbered 2024/12 and numbered 12/11 at the meeting dated 17.10.2024.

Purpose and Importance of the Study

This study aims to identify the problems experienced by healthcare personnel working with the on-call system and to offer solution-oriented approaches in line with these problems. The research aims to present solutions by addressing issues such as the experiences of healthcare personnel during and after the shift, the balance between work and life, job satisfaction and satisfaction, and the effects on physical and psychological health.

It is known that health personnel working with the on-call system experience problems such as irregular working hours, workload and work intensity, and physical and psychological fatigue after the shift. These problems not only affect the work performance of healthcare personnel but also create serious pressure on their physical and psychological health and negatively affect their work-life balance. In this context, it is important to address these problems experienced by health personnel working on duty to increase job performance, job satisfaction, and satisfaction and sustain the quality of health services.

This research will contribute to the literature on the effects of the on-call working system on the work-life balance of health personnel in the health sector. In addition, since the problems experienced by health personnel are listened to first-hand, it will provide a new perspective to the literature by eliminating the current lack of information. On the other hand, it will contribute to taking important steps towards improving the quality of working conditions of health personnel by providing guiding suggestions to policymakers in the field of health management and human resources in solving all these problems.

Population and Sample

The universe of the study consists of healthcare personnel working on duty in research hospitals. The sample of the study consists of healthcare personnel working on duty in research hospitals located within the borders of Istanbul. While creating the sample, maximum diversity sampling method, which is one of the Purposeful Sampling methods, was preferred. The aim of the maximum diversity sampling method is to define and discover main themes that contain many differences related to the event or phenomenon being examined²³. In the purposive sampling method, if the sample size is to obtain the maximum amount of information during data collection, that is, when the information saturation point is reached, the data collection process is stopped²². In this study, if the answers given were repeated, the data

collection process was stopped and the sample size was limited to 28 healthcare personnel.

In order to ensure the external validity of the study, attention was paid to the diversity of characteristics such as age, title, education level, years and number of shift work of the occupational groups. It is also thought that the study will contribute to the literature since it covers healthcare personnel working in research hospitals located in Istanbul.

Limitations of the Study

This study is limited to volunteer healthcare workers who work in shifts for at least six months in training and research hospitals in Istanbul. Data were collected through a semi-structured interview form developed by the researcher. Istanbul was chosen as the study population due to its easy access, and the maximum working period of healthcare professionals was determined as 6 months, as it was a significant threshold in terms of gaining experience. Factors such as the universe and sample size of this study affect the generalizability of the study results.

Data Collection

In this study, a semi-structured interview form was used as the data collection method, prepared by the researcher, the first five questions of which were about demographic characteristics (gender, age, education level, marital status, professional position) and the remaining five questions were about shift work arrangements. The content validity of the interview form was ensured by obtaining expert opinion, and the understandability and conceptual appropriateness of the questions were tested through pilot interviews with 5 people. The semi-structured interview form was prepared based on some studies in the literature^{11,24-29}. Data were collected between 01.10.2024 – 01.11.2024 by face-to-face (17 people) and telephone (11 people) interviews with healthcare personnel included in the study.

Data Analysis

The analysis first started with frequency and percentage calculations to determine the demographic characteristics of the participants included in the study. Then, content analysis of the data collected through interviews was carried out and analysis was carried out by coding the data, organizing the codes, and interpreting the findings³⁰. MAXQDA 2020 program was used in the analysis. This program is used to classify, code, and

Table 1. Demographic information of the participants

Age	N	%	Education status	N	%
20–24 years	5	18	High school	4	14
25–29 years	11	39	Associate degree	4	14
30–34 years	4	14	License	14	50
35 years and over	8	29	Master's degree	6	22
Marital status	N	%	Profession	N	%
Married	13	46	Nurse	8	29
Single	14	50	Doctor	9	32
Widow	1	4	Other health worker	11	39
Gender	N	%	Number of weekly shifts	N	%
Male	13	46	1 Or 2 times	14	50
Woman	15	54	3 Times or more	14	50
Working time	N	%	On-call working time	N	%
1 year and less	9	32	1 year less	10	36
2–6 Years	5	18	2–6 Years	6	21
7–11 Years	7	25	7–11 years	7	25
12 years and over	7	25	12 years and over	5	18
Length of service in the health sector	N	%	Average daily working time	N	%
1 Year and less	6	21	8 Hours	7	25
2–6 years	8	29	More than 8 hours	21	75
7–11 years	8	29			
12 years and over	6	21			

analyze text-based data. The data collected within the scope of the research were transcribed and analyzed, then uploaded to the program, and relevant coding was performed. In line with expert opinion and peer confirmation, 10 main codes and 37 sub-codes were created, and a total of 352 codes were performed.

Reliability and Validity

In qualitative research methods, techniques such as participant confirmation, triangulation, and peer verification are preferred to confirm the accuracy of the research questions and the collected data to increase validity and reliability³¹. The research questions were answered and examined by four healthcare professionals from different professional groups and pre-tested. As a result of the feedback, the questionnaire was finalized and applied. The reliability of the research was also determined by evaluating the coding of the answers to the questionnaire by the researcher and colleagues and comparing the “Consensus” and “Disagreement” codes. The calculation was made using the formulation made by Miles and Huberman (1994)³² and it was concluded that the reliability of the research was 84.090%. Reliability above 0.70% indicates that the research is reliable.

$$\text{Reliability} = \frac{\text{Number of agreed codes (37)}}{\text{Number of agreed codes (37) + Number of different codes (7)}} * 100 = 84.090$$

Results

In this study, firstly, the findings on the demographic characteristics of the health personnel who participated in the study are presented. The demographic information of the health personnel participating in the study is given in Table 1.

When the information in Table 1 is evaluated, 54% of the health personnel who participated in the study were female and 46% were male. Participants were predominantly in the 25–29 age group and the majority were single (50%). When the education levels of the participants are evaluated, it is seen that half of the employees (50%) are undergraduate graduates. When the occupational distribution was analyzed, 39% were other healthcare professionals, 32% were physicians, and 29% were nurses. This distribution shows the diversity of professions in the sample.

When the general working time of healthcare personnel in the sector is evaluated, it is determined that 32% of them have been working for 1 year or less, while

25% have been working for 7–11 years and 12 years or more. These rates indicate a balanced distribution of new and experienced employees in the sector. When the working time in the health sector is evaluated, it is seen that more than half of the participants, 58%, have been working in this sector between 2–11 years. 75% of the participants stated that they worked more than eight hours a day and 43% of the participants have been involved in the on-call system for more than 7 years. In terms of the number of shifts per week, 50% of the participants work 1 or 2 shifts per week, while the other 50% work 3 or more shifts per week. This equal distribution indicates that the frequency of shifts is similar among the participants.

The results of the 10 main codes and 37 sub-codes generated in line with the answers given to the research questions are presented in the form of diagrams. In this context, the distribution of the main codes and sub-codes of “Effects on Daily Routine” is shown in Fig. 1.

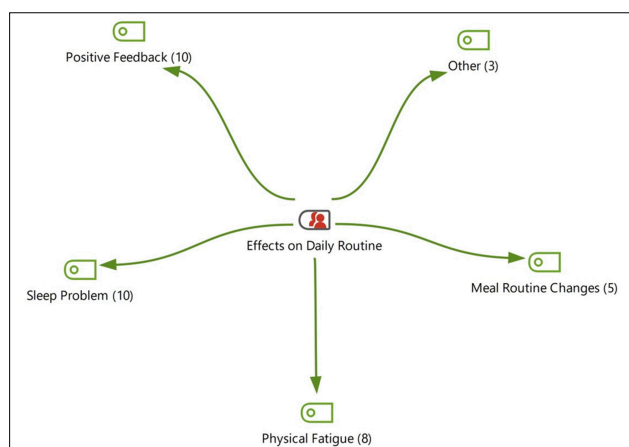


Figure 1. Classification of participants' answers about the effects of the on-call working system on daily routine according to the number of coded sections –hierarchical code-subcode model (Source: Created by the author according to the program outcomes).

Fig. 1 shows the classification of the answers regarding the effects of shift work on daily routine according to the number of coded sections. According to this finding, it is seen that the participants mainly emphasized the sub-code Sleep Problem (28%). When the answers given are evaluated; “Our sleep patterns are disrupted. If our shift was bad, I feel tired and exhausted the day after the shift.”, “I think I live a very tired and irregular life, my sleep pattern is disturbed and I cannot spend quality time.”, “Because the shift is tiring, the days after the shift are unproductive, usually spent sleeping.” A similar proportion of participants also stated that the on-call working system had positive (28%) effects on

daily routine. These examples are as follows: “It is good in terms of creating free days. The days after the shift can also be spent productively with the right time plan.”, “It does not affect me much because I organize my daily routines around my shifts.”, “It is good to have free days. I have the opportunity to do the things I could not do during working hours.” When the distribution of the other sub-codes regarding the effects of working on duty on the daily routine is examined, it is seen that 22% of the coded sections are Physical Fatigue, 14% are Changes in Meal Pattern, and 8% are Other.

The distribution of the main code and sub-codes of “Impacts on Family and Social Life” is shown in Fig. 2.

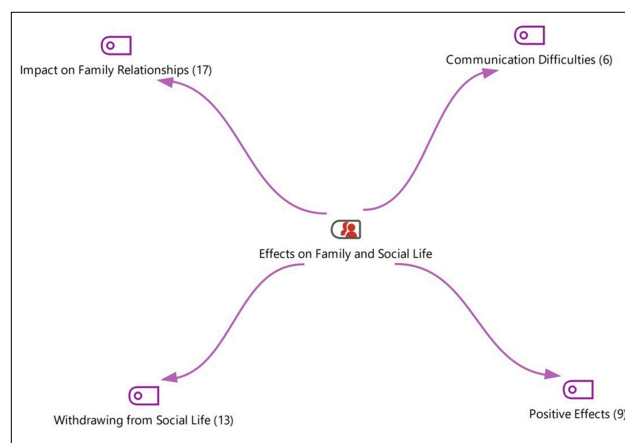


Figure 2. Classification of the participants' answers regarding the effects of the on-call working system on family and social life according to the number of coded sections –hierarchical code-subcode model (Source: Created by the author according to the program outcomes).

Fig. 2 shows the classification of the answers regarding the Effects of the shift work organization on Family and Social Life according to the number of coded sections. According to the findings, it is seen that the participants emphasized the sub-code “Impact on Family Relationships (38%)” the most. The participants commented that it harms family relationships as follows: “I cannot spare enough time because I am tired on the day after my shift. Even if I do, I cannot keep up with their energy.”, “Not spending enough time with my loved ones is the biggest problem for me.”, “I can spend more time with them when the shifts are not busy.”. The next most emphasized sub-code after family relationships is “Distancing from Social Life (29%)”. Some examples of the comments made are as follows: “Unfortunately, there is no time left for social life. It is difficult to adapt to the family and social environment.”, “Unfortunately, on-call work creates an obstacle for my social life.”, “I cannot spare enough time for my friends because of my very

busy work, and the time I do spare is limited.” When the distribution of other sub-codes regarding the effects of on-call work on family and social life was analyzed, it was seen that 20% of the coded sections emphasized that it had a positive effect (Positive Effects). When the answers related to this sub-code are examined; *“It has a positive effect on me because I have more free days, so I arrange all my meetings according to the extra days left from my shifts.”*, *“I have free days because I am constantly working on duty. This has a positive effect. However, I can be a little nervous the days after the shift.”* The remaining emphasis was placed on the “Communication Difficulties” sub-code with a rate of 13%. When the answers in this code are analyzed, it is seen that *“The fact that I work stressfully causes me to be tense in my relationships.”*, *“I have free days because I work on duty all the time. This has a positive effect. However, I can be a little tense on the days after the shift.”*

The distribution of the main code and sub-codes of “Views of Family and Friends” is shown in Fig. 3.

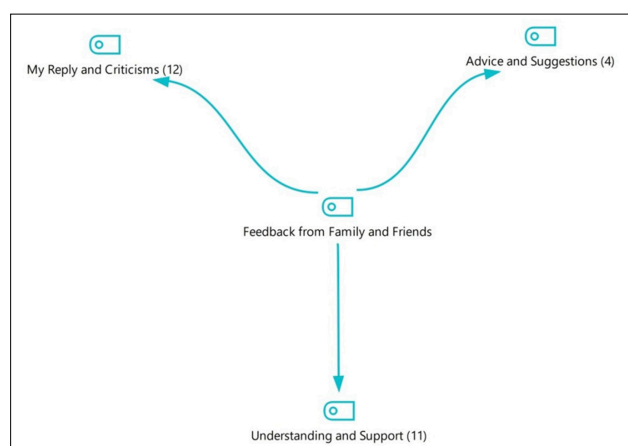


Figure 3. Classification of participants' answers regarding the views of family and friends on the on-call working system according to the number of coded sections –hierarchical code-subcode model (Source: Created by the author according to the program outcomes).

Fig. 3 shows the classification of the answers regarding the Family and Friends' Views of the on-call working order according to the number of coded sections. According to the findings, it is seen that the participants emphasized the “Reproaches and Criticisms (44%)” sub-code the most. The participant's family and friends expressed that they reproach and criticize the on-call working order; *“They complain that we do not spend enough time together.”*, *“They think negatively and complain that we cannot spare enough time.”*, *“They may reproach for the time they cannot spare for them.”*. Participants emphasized the “Understanding and

Support” sub-code by 41%. It is seen that the participant's family and friends support and understand their on-call work; *“My family and friends are aware that I work very hard, they try to support me and sometimes feel sad that I cannot spend time with them.”*, *“They are understanding for now.”*, *“They feel sad and try to support me.”*. The last sub-code emphasized with a rate of 15% was “Recommendations and Suggestions”. The participants stated that their family and friends gave advice and suggestions as follows: *“They say that I work very hard and that I should switch to a department where there are no shifts.”*, *“They advise me that my salary is good, that every profession is full of difficulties, and that I should be patient.”*

The distribution of the main code and sub-codes of “Impacts on Career Development” is shown in Fig. 4.

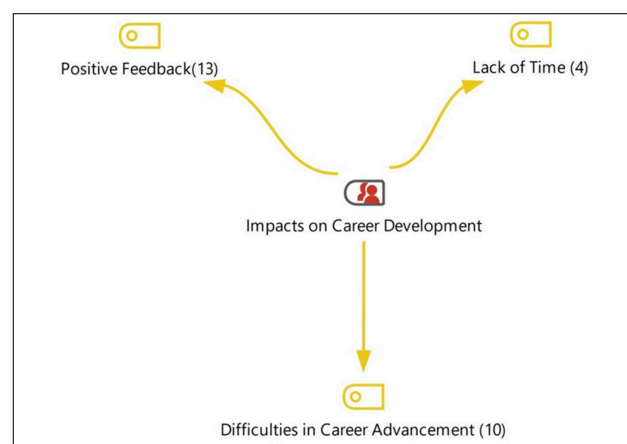


Figure 4. Classification of participants' answers regarding the effects of the on-call working system on career development according to the number of coded sections –hierarchical code-subcode model (Source: Created by the author according to the program outcomes).

Fig. 4 shows the classification of the answers regarding the Effects of on-call working on Career Development according to the number of coded sections. According to the findings obtained, the participants emphasized that the on-call working system provided positive feedback on career development the most (48%). The positive feedback is as follows; *“It is good in terms of gaining experience.”*, *“I stay in the hospital for a longer period. Thus, I participate in the follow-up of the patients better. I can have more control over the patients.”*, *“Even if I get tired every hour that the shift is productive, I do not mind because I will see the benefits in the future. The opportunity to learn by reading and seeing on the spot during the time we are in the hospital will take us further.”*. Participants emphasized the sub-code “Difficulties in Career Advancement” with a rate of 37%. They stated

that working on duty brings difficulties in advancing in their careers; *"It causes difficulties for me while trying to improve myself."*, *"Since we cannot allocate a regular time, we do not have time to plan and improve ourselves."*, *"People sometimes have to attend training after the shift. These trainings are not productive at all."*, *"I can say it is bad because it affects my Tus study order."* The last sub-code emphasized with a rate of 15% was "Lack of Time". The participants stated that they had insufficient time for career development as follows: *"Since we cannot allocate regular time, we do not have time to plan and improve ourselves."*, *"Unfortunately, you cannot think of a career because I cannot allocate time for a career."*.

The distribution of the main code and sub-codes of "Effects on Occupational Satisfaction and Motivation" is shown in Fig. 5.

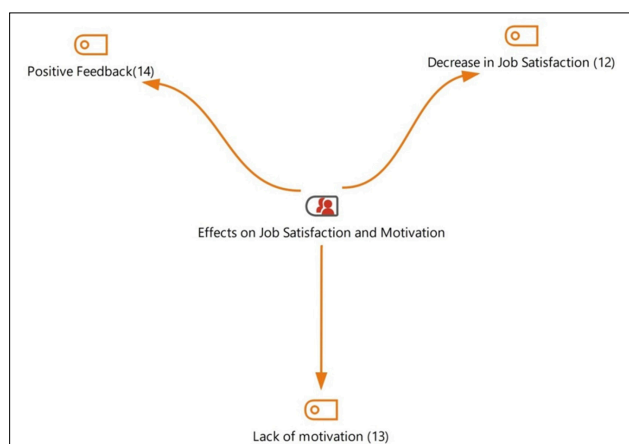


Figure 5. Classification of participants' answers regarding the effects of the on-call working system on professional satisfaction and motivation according to the number of coded sections –hierarchical code-subcode model (Source: Created by the author according to the program outcomes).

Fig. 5 shows the classification of the answers regarding the effects of on-call work on professional satisfaction and motivation according to the number of coded sections. According to the findings obtained, the participants emphasized that the on-call working system provided positive feedback (36%) on professional satisfaction and motivation. According to this finding, the participants; *"It contributes to professional satisfaction."* *"It provides a good motivation because I love my job."*, *"I chose to work on duty voluntarily because the consciousness of the remaining days after the shifts increases my motivation more."* The second most emphasized sub-code was "Low Motivation (33%)". When the answers given by the participants are examined; *"Unfortunately, it affects me negatively, being*

tired professionally demotivates me.", *"My thoughts about my profession are also negatively affected because it decreases my motivation a lot."*, *"My motivation decreases immediately because it is exhausting."* The least emphasis with a rate of 31% was on the sub-code "Decrease in Job Satisfaction". The participants stated, *"The fact that there is almost no rest time during shifts caused me to look for an alternative profession from the job I started with enthusiasm."*, *"It affects negatively. After physical fatigue, there is no professional satisfaction."* The participants stated that their job satisfaction decreased.

The distribution of main codes and sub-codes for "Health Impacts" is shown in Fig. 6.

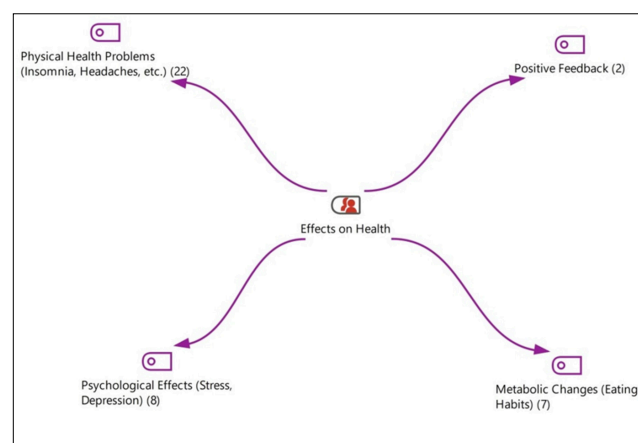


Figure 6. Classification of participants' answers about the effects of the on-call working system on health according to the number of coded sections –hierarchical code-subcode model (Source: Created by the author according to the program outcomes).

Fig. 6 shows the classification of the answers regarding the effects of on-call working on health according to the number of coded sections. According to this finding, it is seen that the participants mainly emphasized the sub-code "Physical Health Problems (Insomnia, Headache, etc.) (56%)". When the answers given are evaluated; *"I experience headaches due to disturbance in sleep patterns."*, *"I experience constant illness, fatigue, weakness, sleep problems, joint pains."*, *Insomnia, excessive stressors, and cardiac rhythm disorders"*. The participants emphasized the "Psychological Effects (Stress, Depression)" sub-code the second most with a rate of 21%. The participants expressed the effects of working on-call on their psychological health as follows: *"It causes fatigue and psychological depressiveness"*, *"I feel the feeling of burnout intensely"*, *"I feel mentally bad because our social life is poor"*. Participants emphasized the sub-code "Metabolic Changes (Food Habits)" with a rate of 18% and the sub-code "Positive Feedbacks" with a rate of 5%. While

the participants made statements regarding metabolic changes such as *"My most important problem is the disruption in my sleep and eating patterns and this affects me negatively."*, *"It can be challenging in terms of diet and sleep patterns"*, *"I cannot do sports after and on the day of the shift. I have sleep problems. I do not eat healthy during the shift"*, they also made positive feedback such as *"I do not have any problems in terms of health"*.

The distribution of the main code and sub-codes of "Training and Development Opportunities" is shown in Fig. 7.

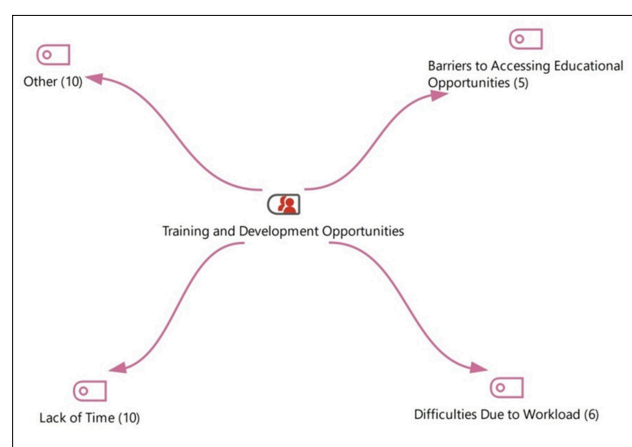


Figure 7. Classification of participants' answers regarding the training and development opportunities of the on-call working system according to the number of coded sections – hierarchical code-subcode model (Source: Created by the author according to the program outcomes).

Fig. 7 shows the classification of the answers regarding the training and development opportunities of the on-call working pattern according to the number of coded sections. According to the findings, the participants emphasized the sub-codes "Lack of Time (32%)" and "Other (32%)" the most. Regarding the lack of time; *"Unfortunately, I cannot follow developmental opportunities due to lack of time"*, *"Since I work in shifts, I have difficulty in making arrangements"*, and *"Since we do not have a regular working environment and hours, we cannot participate in activities that will improve ourselves, so we are negatively affected"*. The answers given for the "Other" sub-code are as follows; *"I do not have difficulties"*, *"It is easy to make shift arrangements accordingly"*, and *"I do not have any problems in this regard"*. The third highest emphasis with a rate of 19% was placed on the "Difficulties Due to Workload" sub-code. When the answers given by the participants regarding this code are examined; *"I could not go to the certificate program I wanted to go to because there were no nurses working in my unit. The hospital does not allow programs outside the city"*, *"Working intensively affects my motivation to try to improve myself*

in free time because it is spent resting". The least emphasis was placed on the sub-code "Barriers to Access to Educational Opportunities" with a rate of 16%. When the answers given regarding this code are evaluated; *"Since I work on duty, I usually cannot go to the courses regularly and I have problems in accessing education"*, *"We cannot participate in self-improvement activities because we do not have regular working hours, so we are negatively affected"*, *"We have difficulty in accessing educational congresses due to intensive duty hours"*.

The distribution of the main code and sub-codes of "Difficulties Encountered During Watch" is shown in Fig. 8.

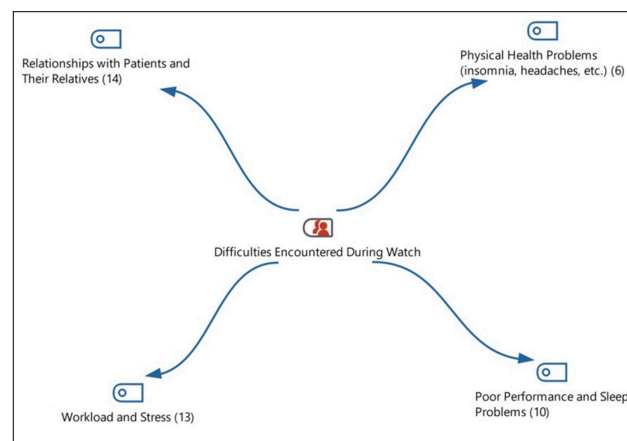


Figure 8. Classification of the participants' answers about the difficulties they face during the seizure according to the number of coded sections – hierarchical code-subcode model (Source: Created by the author according to the program outcomes).

Fig. 8 shows the classification of the answers regarding the difficulties encountered during the seizure according to the number of coded sections. According to the findings, the participants emphasized the main code "Relations with Patients and Patient Relatives (33%)" the most. According to this coded section, the participants stated that they encountered problems such as *"Patients and their relatives not being more sensitive to us and not showing enough respect"*, *"Irregular complaints and behaviors of patients' relatives"*, *"Unnecessary discussions with patients' relatives"* and that this situation strained them both mentally and physically. It is seen that the next highest emphasis with a rate of 30% was on the sub-code "Work Intensity and Stress". Participants stated that they encountered difficulties such as *"Excessive workload, work done outside the job description, dealing with the problems of material and technical deficiencies"*, *"I have problems keeping up with the events I will do"*, And *"Excessive workload due to lack of personnel"*. It was also observed that 23% of the participants emphasized the

sub-code of low performance and sleep problems and 14% emphasized the sub-code of physical health problems (insomnia, headache, etc.).

The distribution of the main codes and sub-codes of “Strategies for Coping with Difficulties” is shown in Fig. 9.

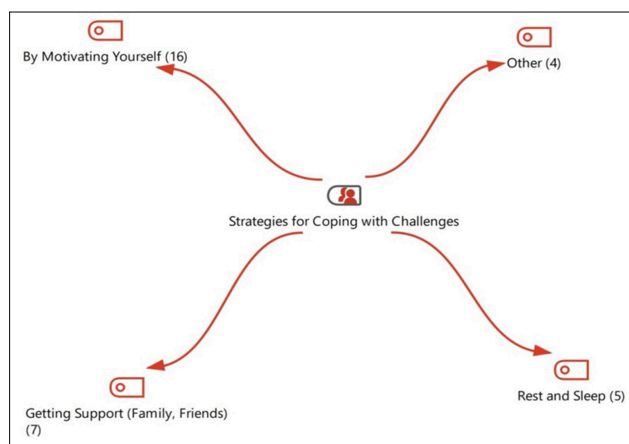


Figure 9. Classification of participants' responses regarding their coping strategies with the difficulties they encounter during seizures according to the number of coded sections –hierarchical code-subcode model (Source: Created by the author according to the program outcomes).

Fig. 9 shows the classification of the answers regarding the strategies for coping with the difficulties encountered during the seizure according to the number of coded sections. According to the findings, the participants emphasized the main code “Self-motivation (50%)” the most. The participants stated that they motivated themselves with strategies such as “Worrying about the problems at the lowest possible level”, “Trying to stay calm by not losing myself in the environment”, and “Being patient and realizing that the other person is a patient”, “thinking that I have a free day after the shift and motivating myself”. The second emphasis with a rate of 22% was on the sub-code “Getting Support (Family, Friends)”. Participants stated that they usually cope with the difficulties they face with the support of their family and friends; “By sharing the work with friends”, “Sometimes I ask my friend to take care of me for 1 hour and I rest and come back more vigorous”, “With family support”. While the participants emphasized the “Rest and Sleep” sub-code with a rate of 16% in terms of coping with difficulties, the least emphasis was placed on the “Other (12%)” sub-code. When the answers given under the other sub-code are examined; “I cannot cope with the difficulties I experience during the seizure”, “Code White”, “I usually overcome this job by getting enough sleep after the seizure, taking up a new hobby or spending time with my friends”.

The distribution of the main code and sub-codes of the last main code “Solution Suggestions and Strategies” is shown in Fig. 10.

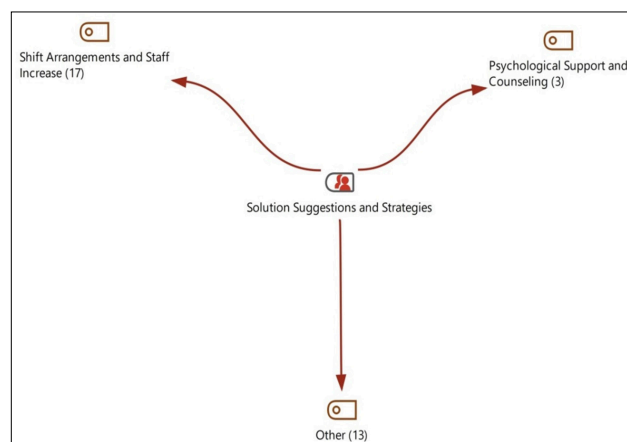


Figure 10. Classification of participants' answers on solution suggestions and strategies according to the number of coded sections –hierarchical code-subcode model (Source: Created by the author according to the program outcomes).

Fig. 10 shows the classification of the participants' answers regarding solution suggestions and strategies according to the number of coded sections. Under this main code, the participants emphasized the main code “Shift Arrangements and Staff Increase (52%)” the most. When the answers given by the participants are examined; “Reducing the number of shifts and having a full-time working order”, “We can have more flexible working hours, we can arrange the time when we can organize our lives and increase our quality of life”, “Burnout of nurses can be reduced by correcting the insufficiency and poor quality of staff, and the negative effects will decrease”. The other most emphasized code was the “Other” sub-code with 39%. When the answers given regarding this code are examined; “Human-oriented working conditions and hours that provide motivation should be implemented”, “Sports and artistic activities should be organized to discharge”, “Shift/shift system working, creation of suitable resting areas”, “Separate places should be allocated for male and female employees. to sleep”. The least emphasized sub-code is “Psychological Support and Counseling (9%)”. Participants made suggestions such as; “Effective communication methods should be taught to health personnel, stress management should be taught, better conditions should be provided for basic needs, psychological support, and counseling services should be provided”.

Discussion and Conclusion

The results obtained from this study, which aimed to identify the problems of health personnel working with the on-call system and to provide solution-oriented approaches in line with these problems, were included and the results were supported by other studies in the literature.

When the results regarding the general profiles of the health personnel participating in the research are evaluated, it is seen that the participants are predominantly female and between the age groups of 25–29. Considering the marital status of the participants, it was concluded that the predominant group was single. It is seen that the participants are predominantly undergraduate graduates and other health workers. It was concluded that 50% of the participants have been working in the health sector for more than 7 years and 43% of them have been working on call for more than 7 years. While 75% of the participants worked more than 8 hours per day on average, the participants equally stated that they worked 1–2 times or 3 or more weekly shifts.

When the results regarding the effects of the shift work system on the daily routine of healthcare personnel were examined, it was seen that the participants mainly emphasized the sleep problem (27%, 7) and positive effects (27%, 7) categories. The findings of this study are similar to the studies conducted in the literature. In the study conducted by Ozvurmaz and Oncu (2018)²⁷ on nurses, a statistically significant difference was found between the sleep disorder of nurses working with shift and on-call system. They stated that 56.2% of the nurses working with the shift system and 9% of the nurses working with the on-call system experienced sleep disorders. In this study, it is seen that the participants stated that the on-call working system positively affected their daily routines, that they had the opportunity to do the official work they had to do during working hours, and that they had more free time. There is no study in the literature addressing the positive aspects of on-call work. Therefore, this finding is important in terms of its contribution to the literature. This study is considered to be a pioneer in that it reveals the positive aspects of the shift work system for the first time in the literature.

Under the main code of effects on family and social life, the most emphasized code was family relationships. Participants stated that working on-call negatively

affects family relationships and social life. One of the most important effects of the on-call working system is that changing and intense working hours lead to negative relationships due to insufficient and inefficient time for family and social relationships. Similarly, in a study conducted by Yesilcicek Calik et al. (2015)⁸ on nurses, 93.8% of nurses working on call (continuous night) and 91.9% of nurses working in shifts (alternating day and night) stated that working hours negatively affected their social/family life. In a study conducted by Ekici and Demirbas (2020)³³ on nurses, similar results were obtained and it was seen that the social isolation sub-dimension was slightly affected negatively as the impairment in role-activity balance increased. Yesilcicek Calik et al. (2015)⁸ concluded that working especially on holidays and weekends negatively affected the social lives of nurses. These results support the results of our study. In this study, there are also statements indicating that working on duty has positive effects on family and social life. The participants stated that thanks to the shifts, their days were free and they spent more time with their families and arranged their social gatherings accordingly. There is no study in the literature on the positive effects of on-call work on family relationships. Therefore, this finding is important in terms of its contribution to the literature. In addition, the participants also stated that their family and friends reproached and criticized them for working on duty.

When the answers given regarding the effects of the on-call working system on career development and professional satisfaction and motivation are evaluated, it is seen that the participants mainly stated that working on-call creates free time and that they use this free time to improve themselves, and that this situation increases their motivation. However, the participants also stated that working on-call caused time constraints for career development and difficulties in career advancement, as well as low motivation and decreased job satisfaction. In particular, participants stated that working on-call reduced their motivation and job satisfaction. The decrease in participants' motivation and job satisfaction also has a direct or indirect effect on their career development. In a study conducted by Orhaner and Mutlu (2018)³⁴ on healthcare personnel working in private hospitals in Ankara, it was observed that job satisfaction positively and significantly affected the motivation levels of employees. In a study conducted by Soyuk et al. (2016)⁹ on nurses working in private hospitals in

Istanbul, it was concluded that continuous daytime workers had more job satisfaction than those working alternating day and night shifts. In a study conducted by Koyuturk (2015)¹⁰ on healthcare workers, a significant difference was found in terms of job satisfaction levels of daytime workers and on-call workers. These findings support the findings of this study.

Looking at the answers they gave regarding the effects of the on-call working system on the health of health personnel, the participants stated that they mostly encountered physical health problems (insomnia, headache, etc.). Insomnia, sleep irregularities, and consequently various effects on body systems as a result of shift pattern and on-call work³⁵. McDowall et al. (2017)³⁶ stated that shift work has negative effects on sleep quality. Books et al. (2020)³⁷ conducted a study on nurses working in hospitals in the USA and reported that working night shifts increased the risk of sleep deprivation, family stressors, and mood changes and that there was a general perception that sleep deprivation leads to negative health outcomes, including obesity. Khan et al. (2020)³⁸ concluded that shift work and various sleep disorders such as insomnia, obstructive sleep apnea, and insufficient sleep can lead to circadian rhythm disturbances, which may increase the risk of cardiovascular disease. Participants in this study also emphasized the psychological effects of shift work. The study by Genis et al. (2020)³⁹ supports this finding. Genis et al. (2020)³⁹ found that depression, anxiety disorder, sleep disturbance, burnout, and stress perception were higher in shift workers. In addition, participants in this study stated that shift work led to metabolic changes (eating habits). Similar findings were obtained in the study conducted by Farais et al. (2020)⁴⁰ on Chilean healthcare workers and in the study conducted by Pulat Demir et al. (2017)⁴¹. In the study conducted by Kesgin et al. (2011)⁴² with nurses, it was determined that more than half of the participants mostly preferred junk food for nutrition. In the study conducted by Demirci (2017),⁴³ it was found that the emotional eating behaviors scores of healthcare workers were higher in shift workers. These findings in the literature support the findings of our study.

Considering the difficulties encountered by the participants during the shift, they stated that they mainly experienced difficulties in patient and patient relations. In the study conducted by Yilmaz and Gunay (2022)⁴⁴ on healthcare professionals, the participants stated

that the most important factor affecting communication was prejudice, not listening to the other person, and having a self-centered structure were listed as other factors affecting communication. The main factors that are important in effective communication are effective listening, effective speaking and saying an empathic approach, and effective body language⁴⁵. In this research, work intensity and stress, low performance and sleep problems, and physical health problems are other difficulties experienced. Research in the literature supports these findings. In the study conducted by Ferri et al. (2016)⁶, cardiovascular symptoms were found to be statistically significant in night shift workers compared to day shift workers. In the study conducted by Gunaydin (2014),⁴⁶ a positive relationship was found between mental health status and sleep quality. In the study conducted by Shen et al. (2016)⁴⁷ on nurses working in a shift system in Taiwan, it was determined that the anxiety level was higher in the group of nurses working day-night shifts. These results support the results of this study.

Participants stated that they cope with the difficulties they face during the shift mainly by motivating themselves, and the solutions they offered for the problems experienced by health personnel working on duty were mainly shift arrangements and increasing staffing.

As a result, the study concluded that shift work has significant effects on the daily routines, family and social lives, career development, professional satisfaction and health of healthcare personnel. Participants emphasized problems such as sleep disorders, physical fatigue and irregular nutrition; they stated that these situations negatively affect work-life balance and social relationships. It was also stated that shift work makes career advancement difficult and reduces professional motivation. In terms of health, physical disorders and psychological problems have been widely reported. Strategies such as self-motivation, family and friend support and adequate rest are used to cope with these difficulties. Participants suggested solutions such as shift arrangements, staff increase and psychological support services to alleviate these problems.

In line with the findings obtained, it is possible to list the solution suggestions for the problems experienced by health personnel working with the on-call system as follows:

- Due to the intense work tempo and shift/on-call work system, healthcare professionals have limited access to personal and professional development opportunities. In the face of changing technology and social or cultural developments, participation in such trainings is important in order to contribute to the personal and professional development of healthcare professionals. For this reason, flexible working hours can be preferred to solve the problem of lack of time for healthcare professionals to evaluate personal development and training opportunities. A study conducted by Radovan (2024)⁴⁸ found that especially in larger companies and those with flexible working hours are more likely to participate in training activities.
- Flexible solutions (such as online training, arrangement of course hours) are recommended to ensure that healthcare professionals can benefit from training opportunities. A study conducted by Chaker et al. (2024)⁴⁹ found that continuous training in an online learning environment provides greater learning accessibility for healthcare professionals and is also a solution to temporal and physical constraints.
- The hours and number of shifts can be regulated to reduce the risk of burnout that may occur in health workers due to intensive working hours and a high number of shifts and to facilitate access to rest and development opportunities. In addition, nurses and other health personnel should be encouraged to update their knowledge and skills by supporting the sustainability of their training.
- There should be more open communication with health workers and arrangements should be made in line with the demands and needs of health workers.
- Since the increase in workload due to lack of personnel will increase the rate of burnout, lack of attention, incomplete or incorrect performance of tasks, and burnout, the duties and responsibilities should be alleviated by distributing them fairly by increasing the number of personnel.
- Stress management training can be provided during on-call hours in addition to working hours to help health workers cope with stress and work more calmly and efficiently.
- Physical working conditions can be improved to reduce both physical and psychological health problems of health workers. For example, separate rest areas for male and female workers, regular and productive break times, ergonomic workspaces, etc. can be effective.
- In order to minimize sleep problems during shifts, training on sleep hygiene, including improving sleep quality, creating a suitable sleep environment, and gaining healthy sleep habits can be provided. In addition, opportunities for healthcare workers to rest after the shift can be increased.
- Due to intensive working hours and increased workload, places such as gyms and meditation rooms can be created for both the physical and mental health of health workers.
- It is recommended that healthcare institutions provide strategies for healthcare professionals to motivate themselves to cope with stress during difficult working hours such as shifts^{50,51}. Practices such as breathing exercises, time management training, and group support sessions should be developed for these strategies. It is also recommended that psychological support programs structured by experts in the field be implemented once or twice a month, either individually or in groups, and that healthcare professionals be informed about how to cope with stress, burnout, and other psychological difficulties.

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