



*Araştırma Makalesi • Research Article*

**Psychosocial Risk Factors Affecting the Nurses Working at An Educational Research Hospital in the Province of Istanbul**

***İstanbul İlinde Bir Eğitim Araştırma Hastanesinde Çalışan Hemşireleri Etkileyen Psikososyal Risk Faktörleri***

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**Abstract:** The main purpose of the present study is to prioritize the risk factors affecting the nurses working at a public educational research hospital located at the European Side of the province of Istanbul. By this means, it was intended to provide concrete information to health executives on the subjects of motivating the employees, affiliating them to the institution, and ensuring them in being more peaceful and happier at the workplace. In this study, psychosocial risk factors, affecting the nurses working at an educational research hospital affiliated to Ministry of Health, were prioritized by the Analytic Hierarchy Process (AHP) which is one of the Multi-Criteria Decision Making (MCDM) Techniques. In the research, data collection tool was designed as Saaty's 1-9 scale conforming to the format of AHP. The collected data was analyzed by the researchers according to Analytic Hierarchy Process (AHP) with the help of Microsoft Office Excel 2013 analysis. The study was conducted in 2019 and 25 nurses in total participated. According to the results of the study, the most significant psychosocial risk factor affecting the nurses was found as Interpersonal Relations.

**Keywords:** Analytic Hierarchy Process, Psychosocial Risk Factors, Health Management

**Öz:** Bu çalışmanın temel amacı İstanbul İlinde Avrupa Yakasında bulunan bir kamu eğitim araştırma hastanesinde hemşireleri etkileyen risk faktörlerini önem derecelerine göre sıralamaktır. Bu sayede sağlık yöneticilerine çalışanlarını motive etme, kuruma bağlama, iş yerinde daha huzurlu ve mutlu olmasını sağlama gibi konularda somut bilgiler sağlanması hedeflenmiştir. Bu çalışmada Sağlık Bakanlığı'na bağlı bir eğitim araştırma hastanesinde çalışan hemşireleri etkileyen psikososyal risk faktörleri Çok Kriterli Karar Verme Tekniklerinden (ÇKKV) birisi olan Analitik Hiyerarşi Prosesi (AHP) ile sıralanmıştır. Araştırmada veri toplama aracı AHP formatına uygun Saaty 1-9 ölçeğinde tasarlanmıştır. Toplanan veriler Microsoft Office Excel 2013 çözümlemesi yardımı ile araştırmacılar tarafından Analitik Hiyerarşi Sürecine uygun bir şekilde analiz edilmiştir. Çalışma 2019

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yılında yapılmış ve toplam 25 hemşire katılmıştır. Çalışma sonuçlarına göre hemşireleri etkileyen en önemli psikososyal risk faktörü Kişiler Arası İlişkiler olarak bulunmuştur.

**Anahtar Kelimeler:** Analitik Hiyerarşi Süreci, Psikososyal Risk Faktörleri, Sağlık Yönetimi

## Introduction

Health is an extremely important concept that is indispensable for human life. And today, hospitals have an important role in the provision of health services. For that reason, hospitals, which play a great role in the provision of health services, have an important role in human life. Hospitals have significant purposes such as preserving the health of the society, improving the health level, providing the most effective and efficient treatment services, and providing social and medical rehabilitation when required. And attainment of this goal by the hospitals greatly depends on effective and efficient working of the health personnel employed by the hospitals.

When compared with the other sectors, health sector is compelling in terms of working conditions. In health sector, factors such as intense work load, giving care to severe and moribund patients, being obliged to provide emotional support to the patients and to their relatives, cause stress and tension on health employees. Moreover, insufficiencies in the health service, and imbalances in the distribution of services and personnel cause loss of motivation and tension of employees. Tension and exhaustion relevant to work cause psychological effects such as depression, anxiety and despair, and physiological effects such as headache, muscle tension and insomnia in the individuals. In addition, tension relevant to work also has some negative corporate consequences such as decreasing the efficiency and production in work, decreasing job satisfaction, being late to work, being absent by inventing an excuse, or completely walking out, and inability to retain the experienced personnel. Moreover, executives' ability to actualize the required implementations and arrangements for recognizing and eliminating the exhaustion experienced by the employees depends on the knowledge level regarding the subject and the importance of the subject. Exhaustion is a problem that is frequently being observed especially in-service sector. It has been known that health employees are among the riskiest groups in terms of exhaustion (Günüşen and Üstün 2010: 486).

Exhaustion is being interpreted as physical and emotional breakdown arising from working conditions. Today, as it is being observed in many fields, it is especially being observed in professions such as medicine and nursing where intense and perpetual relationship with the people exists. In addition, hospitals are places where human relations intensely occur. Either the communication with the patients and with their relatives, or the communication among the health employees are extremely important. Happy and peaceful working of the employees at the workplace is one of the factors increasing efficiency. The occurrence of circumstances such as increase in occupational accidents, taking time off frequently, absenteeism exhibits a negative status in terms of the institution as well as the employees. Recently, in the researches made especially in the fields of working-employment and management psychology, discussions are being made on the fact that is deemed to arise due to psychological violence and pressure at the workplace, and that is called mobbing (Tınaz, 2011).

When the working conditions and environment in health sector are considered, it is possible to be exposed to mobbing more in this field compared to other fields due to causes such as being a labor-intensive sector, having high number of female employees, long working hours, high amount of work stress, formation of the individuals served from patients and from their relatives. Many studies had been performed on the subject of mobbing among nurses. These are mainly relevant to being exposed to mobbing, and whether it is being reflected on work life or not (Turaç and Şahin 2014: 87-112).

Health sector is being deemed as a stressful service sector involving intense work load by the effect of many negative factors arising from work environment. The problems in work environment are physically, psychologically and socially affecting the health employees in negative direction. Health employees' presence in a work environment, which will cause them to wish leaving the institution they

work at, causes the decrease of efficiency by affecting the service quality (Kebapçı and Akyolcu, 2011, 59-61; Tan et al. 2012).

The possibility of the health employees to face occupational risks varies as per their profession, the work they perform, and the department they work at. And as the nurses spend more time with the patients, and as they are individuals directly fulfilling their care, the possibility for them to face health risks is higher compared to other health personnel (Karwowski et al., 2005: 13-27; Parlar, 2008: 547-554).

Nurses are health personnel to whom the patient and her/his family apply the first for 24 hours, and who play key role by ensuring communication within the health team due to their aforementioned duty. Nursing is qualified as a stressful profession having intense work load with the effect of many negative factors arising from work environment. International Labour Organization (ILO) defines the main stressors relevant to work environment of nurses as conflicts with the executives, role conflict and uncertainty, excessive work load, emotional stress arising due to working with the patients, working with patients who require intensive care, and who are about to pass away, conflicts with the patients, and working in shifts (ILO, 2001) (Mollaoğlu et al., 2010: 17-23).

Health employees including the nurses face risk factors relevant to stress such as long-term working, excessive work load, time pressure, difficult and complex duties, insufficient recreation breaks, monotony, and physically poor working conditions. In addition, they also face with long-term standing, sleeplessness during shifts, nutritional irregularity during treatment practices as varying as per the intensity of service (Alçelik et al., 2005; Parlar, 2008). For this reason, it is important to evaluate the working environments and working conditions of the health employees (Tan et al., 2012). In the studies performed in literature, despite organizational and administrative factors affecting the motivation, organizational commitment, job satisfaction of health employees had been examined, psychosocial risk factors have recently started to be addressed.

Health enterprises are labor intensive service enterprises. Attaining their purposes is possible by the health employees in their body. For this reason, the main purpose of the present study is to prioritize the risk factors affecting the nurses working at a public educational research hospital located at the European Side of the province of Istanbul. By this means, it was intended to provide concrete information to health executives on the subjects of motivating the employees, affiliating them to the institution, and ensuring them in being more peaceful and happier at the workplace.

## **Method**

In this study, psychosocial risk factors, affecting the nurses working at an educational research hospital affiliated to Ministry of Health, were prioritized by the assistance of Analytic Hierarchy Process (AHP) which is one of the Multi-Criteria Decision Making (MCDM) Techniques. The Analytical Hierarchy Process (AHP) was first developed by T. L. Saaty at the Wharton School of Business in the 1970s for solving complex multi-criteria decision-making problems. It is essentially a measurement theory based on priorities derived from pairwise comparison of criteria. (Yılmaz, 1999). AHP is a hierarchical technique that has the ability to measure quantitatively and allows to evaluate multidimensional choices in terms of main criteria, sub-criteria and alternatives that are the subject of the decision-making problem (Babalola, 2015). Thus, by determining the importance levels of the criteria and sub-criteria, it is ensured that the multidimensional problem is reduced to one dimension (Yıldırım & Önder, 2015). Decision makers compare criteria and sub-criteria by using the 1-9 scale developed by Saaty. Thereby, by evaluating all criteria, the priority order of the decision alternatives is obtained (Anderson et al., 2009). In AHP, the purpose is determined firstly, and, then, criteria are set pursuant to the purpose. Afterwards, potential alternatives are determined with the consideration of the criteria.

As a result, a hierarchical structure is formed for the decision. After the hierarchical structure is formed, the pairwise comparison decision matrices are formed for the purpose of comparing the

alternatives on the basis of each criterion and to compare the criteria among themselves (Saaty, 1980; Dağdeviren & Tamer, 2001). The second step of AHP is the generation of normalized matrices. The normalized matrix is obtained by dividing each column value separately by the related column sum. The average of each rank value is taken from the normalized matrix. These obtained values are the percentage importance weights for each criterion (Saaty, 1980).

The Inconsistency Rate (CR) should be calculated to measure whether the decision maker behaves consistently when making comparisons between criteria. In this calculation, random index numbers are used depending on the number of  $n$  criteria. If the value obtained as a result of the calculations is below 0.10, it is concluded that the comparison matrix created is consistent (Dağdeviren & Tamer, 2001). The last step of the AHP is to multiply the importance weights of the criteria with the importance weights of the alternatives and obtain the priority value of each alternative. The sum of these values is equal to 1. The one with the highest value is the best/effective option.

In the study, literature was used in order to determine the risk factors affecting the nurses, and the factors determined as the result of literature review were converted to AHP format, and it was asked for the participant nurses of the study to compare each problem through paired comparisons (İnce, 2008; Kırılmaz et al., 2016) In the research, data collection tool was designed as Saaty's 1-9 scale conforming to the format of AHP. The collected data was analyzed by the researchers according to Analytic Hierarchy Process (AHP) with the help of Microsoft Office Excel 2013 analysis. 25 nurses in total had participated in the study.

Analytic Hierarchy Process (AHP) had been developed by Thomas L. Saaty in the beginning of 1970s for the solution of complex multi-criteria decision-making problems at Wharton School of Business. It is a technique requiring decision-maker in the determination of relative significance levels relevant to each criterion. By the evaluation of each criterion, the order of priority of decision alternatives is obtained (Esen, 2008:499).

AHP is a solution technique enabling the decision-makers to model the complex problems in a hierarchical structure. The objectives, criteria, sub-criteria, and alternatives are components forming the referred hierarchical structure. In the study, 7 main criteria and 25 sub-criteria were included along with demographic statements.

Following the determination of AHP, paired comparison decision matrices should be formed for criteria and sub-criteria. In order to determine the paired comparisons of the employees at each level of the hierarchy, nine-point evaluation scale, suggested by Thomas L. Saaty, was used (Önder and Güler, 2013). The results of the questionnaire conducted on 25 participant nurses were combined through the geometric average approach.

The main criteria determined in AHP are provided below:

1. Content of Work
2. Work Load, and Pace and Program of Work
3. Environment and Equipment
4. Corporate Culture
5. Interpersonal Relations
6. Career Development
7. Interaction Relevant to Life at Work and Beyond Work

### **Findings**

Initially, following the setting up of AHP model, the responses of 25 nurses were reduced to a single matrix through the geometric average approach, and paired comparisons were evaluated. In cases where the series is not an arithmetic series in which the increase amount is fixed, but a geometric series with a constant increase rate, there is a problem for the arithmetic mean and the arithmetic mean loses its ability

to represent the series to a large extent. For this reason, the geometric mean approach was used. MS Excel program was used in the evaluation of paired decision matrices, and in the calculation of geometric averages.

The first step in the evaluation of decision matrices is the evaluation of paired comparison decision matrices relevant to main criteria. Local weights calculated regarding each factor, and consistency rate calculations are as in the following table.

**Table 1.** Local Weights of Main Criteria, and Consistency Rate

<i>Criteria</i>	<i>Local Weight</i>	<i>Consistency Rate (&lt;0,10)</i>
Interpersonal Relations	0.19	0,04
Work Load, and Pace and Program of Work	0.17	
Interaction relevant to Life at Work and Beyond Work	0.15	
Environment and Equipment	0.14	
Corporate Culture	0.12	
Career Development	0.10	
Content of Work	0.09	

In Table 1, local weights regarding main criteria and consistency rate are given. Local weights are indicating in descending order for the interpretation to be made more easily. While the criteria of “Interpersonal Relations” (0.19), and “Work Load, and Pace and Program of Work” (0.17) were found to be significant by the nurses completing the questionnaire, the criterion of “Content of Work” (0.09) was found to be relatively insignificant. And the consistency rate is below 0.10. ( $0.04 < 0.1$  Consistent).

**Table 2.** Local Weights of Sub-Criteria

Main Criterion	Local Weight	Sub-Criterion	Local Weight
Content of Work	0.09	Inability to Assign the Work as per the Capacity of Employee	0.49
		High Degree of Diversity and Uncertainty in Work	0.37
		Performing a Small Piece of Work that had been Divided to many Pieces	0.14
Work Load, and Pace and Program of Work	0.17	Abundance of Shifts – Night or Overtime Programs	0.31

		Working Excessively, or Being Idle	0.30
		Time Pressure	0.22
		Working Alone for Many Hours	0.14
Environment and Equipment	0.14	Lack of Sufficient Equipments	0.40
		Negative Physical Environment such as Insufficient Lightening, and Noise	0.60
Corporate Culture	0.12	Insufficient Communication	0.33
		Lack of Support in the Solution of Problems	0.22
		Lack of Support for Personal Development	0.21
		Lack of Knowledge of Institution's Objectives by the Employees	0.14
		Low Participation of Employees in Decisions	0.08
Interpersonal Relations	0.19	Social or Physical Isolation	0.30
		Relations with the Employees or Executives	0.36
		Interpersonal Conflicts	0.20
		Low Degree of Social Support	0.14
Career Development	0.10	Lack or Uncertainty of Promotions	0.30
		Low Wages	0.32
		Jon Insecurity	0.20
		Low Degree of Social Value of Work	0.18
Interaction relevant to Life at Work and Beyond Work	0.15	Contradicting Requirements of Professional Life and Domestic Life	0.40
		Low Degree of Support at Home	0.25

	Double Career Problems	0.35
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Regarding the main criterion of “Content of Work”, while the sub-criterion of “Inability to Assign the Work as per the Capacity of Employee” (0.49) was found as significant by the nurses completing the questionnaire, the sub-criterion of “High Degree of Diversity and Uncertainty in Work” was less significant compared to the aforementioned one. And again, in the main criterion of “Content of Work”, the sub-criterion that received the lowest relative local weight by 0.14 was “Performing a Small Piece of Work that had been Divided to many Pieces”.

Regarding the main criteria of “Work Load, and Pace and Program of Work”, while the sub-criteria of “Abundance of Shifts – Night or Overtime Programs” (0.31), and “Working Excessively, or Being Idle” (0.30) were found as significant by the nurses completing the questionnaire, the other sub-criteria were found to be relatively less significant.

And in the main criterion of “Environment and Equipment”, there were only two sub-criteria. Among these sub-criteria, problems of physical space as “Negative Physical Environment such as Insufficient Lightening, and Noise” was found to be more significant compared to the sub-criterion of “Lack of Sufficient Equipments”.

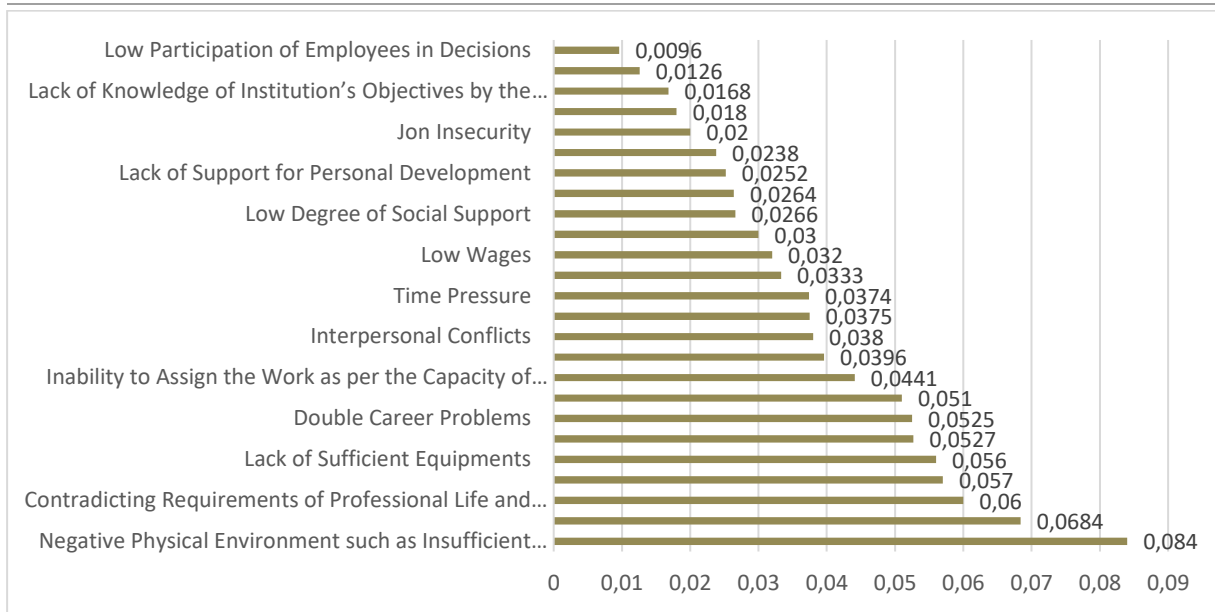
And in the main criterion of “Corporate Culture”, the most significant psychosocial risk factor affecting the participant nurses was “Insufficient Communication”. The local weight of this sub-criterion was determined as 0.33. Moreover, “Lack of Support in the Solution of Problems”, and “Lack of Support for Personal Development” were also found to be significant psychosocial risk factors affecting the nurses. In the main criterion of “Corporate Culture”, the sub-criterion of “Low Participation of Employees in Decisions” was the one with the lowest local weight.

And in the main criterion of “Interpersonal Relations”, the most significant psychosocial risk factor affecting the participant nurses was “Relations with the Employees or Executives”. The local weight of this sub-criterion was determined as 0.36. Moreover, “Social or Physical Isolation”, and “Interpersonal Conflicts” were also found as the significant psychosocial risk factors affecting the nurses. In the main criterion of “Interpersonal Relations”, the sub-criterion of “Low Degree of Social Support” received the lowest weight.

Regarding the main criterion of “Career Development”, while the sub-criteria of “Lack or Uncertainty of Promotions” (0.30), and “Low Wages” (0.32) were found as significant by the participant nurses, the sub-criterion of “Low Degree of Social Value of Work” was determined as the one having the lowest relative local weight.

Lastly, in the main criterion of “Interaction relevant to Life at Work and Beyond Work”, the most significant psychosocial risk factors affecting the participant nurses were determined as “Contradicting Requirements of Professional Life and Domestic Life”, and “Double Career Problems”. Moreover, in this main criterion, the sub-criterion with the lowest local weight was “Low Degree of Support at Home”. Also, the all consistency rate is below 0.10.

In the last part of the study findings, using the weights obtained in the previous stages, the total weights were calculated in order to compare the sub-criteria among themselves collectively. For this process, first of all, the weight of each main criterion was multiplied by the weight of the sub-criteria and ranked from the largest to the smallest. The results obtained are as in Figure 1.



**Figure 1.** The Total Weights for The Sub-Criteria

Considering the order of weights of the sub-criteria according to the results obtained; It was concluded that the criterion with the highest weight, in other words, the highest degree of importance, was Negative Physical Environment such as Insufficient Lightening, and Noise, and the criterion with the lowest degree of importance was Low Participation of Employees in Decisions.

### Conclusion

The main focus point of health services is human. And the flawless and quality provision of health services directly affects the human life. And in order to provide quality service, it is important for the health employees, who are main provider of health services, to be satisfied by their works, and it is important to minimize the psychosocial risk factors affecting them. And among the health employees, the nurses constitute a great part of the human resources of hospitals. In order to ensure a secure patient care, it is required for the nurses to actualize their operations, that require meticulousness and attention, in a professional manner, and for that, it is required to minimize the psychosocial risk factors as much as possible. Nursing, that is a profession requiring self-devotion, resistance and physical endurance, requires being physically and mentally healthy for being more beneficial for the patients. The nurses work as standing for a long period with intense labor and irregular sleeping hours. Nursing is a profession that requires patience, devotion and physical endurance. It is being observed that it is impossible to solve the problems of “nurse problem”, “leave of employment by the nurses”, “insufficiency of quality of care”, that are frequently being referred in our country, unless the problems of nurses, who work under unsuitable conditions for long periods, but despite that who get feedback of failure due to the service they provide, who face health and life quality problems, and who experience dilemma among their priorities, are resolved. For this reason, it is being considered that the results of the study will be especially beneficial at the point of determining the priorities among the steps to be taken at workplaces for eliminating the psychosocial risk factors relevant to nurses.

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