

Araştırma Makalesi/ Research Article

Delirium Awareness and Management of Intensive Care Nurses in Terms of Their Personality Traits

Yoğun Bakımlarda Çalışan Hemşirelerin Kişilik Özellikleri Açısından Deliryum Farkındalıkları ve Yönetimi

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ABSTRACT

Objective: The study was carried out to determine delirium awareness and management among the nurses working in intensive care in terms of their personality traits.

Method: It was a descriptive study. The study was carried out in a university hospital located in the western region of Turkey between February May 1 and May 31, 2019. The sample was composed of 84 nurses who were working in the adult intensive care unit. Data collection form, The Nurses' Delirium Knowledge Questionnaire, and the Big Five Personality Trait Test were used to collect data. Data were evaluated with t-test, ANOVA, Mann-Whitney U, Kruskal-Wallis H, Bonferroni Corrected Pairwise Comparison Test, and Spearman Correlation coefficient using SPSS 24.0 package program.

Results: The total mean personality score of the nurses was 158.38±14.32. The total delirium knowledge score of the participants was found to be 44.77±9.83. Knowledge score of the nurses regarding the definition of delirium was found to be negatively correlated with the personality trait of extraversion whereas their delirium sign/symptom scores were positively correlated with conscientiousness, agreeableness and total big five personality trait score. In addition, positive correlations were found between delirium management score and their conscientiousness, neuroticism, and big five personality trait scores and between their total delirium knowledge score and personality trait of conscientiousness (p<0.05).

Conclusions: A relationship was found between personality traits of the nurses included in the study and their delirium awareness and management. In terms of quality of care may be important in terms of taking personal traits into account when establishing training programs on delirium awareness and management among the nurses working in the intensive care units.

Keywords: Delirium, nursing, nursing care, personality.

ÖZ

Amaç: Araştırma, yoğun bakımlarda çalışan hemşirelerin kişilik özellikleri açısından deliryum farkındalıkları ve yönetimlerini belirlemek amacıyla yapılmıştır.

Yöntem: Tanımlayıcı bir çalışmadır. Araştırma Türkiye'nin batı bölgesindeki bir üniversite hastanesinde 1 Şubat-31 Mayıs 2019'da yapılmıştır. Yetişkin yoğun bakımlardaki 84 hemşire örneklemini oluşturmuştur. Veriler veri toplama formu, Hemşirelerin Deliryum Hakkındaki Bilgi Düzeyleri Formu ve Beş Faktör Kişilik Özellikleri Anketi ile toplanmıştır. SPSS 24.0 paket programı kullanılarak t testi, ANOVA, Mann-Whitney U, Kruskal-Wallis H, Bonferroni düzeltilmeli ikili karşılaştırma testi ve Spearman Korelasyon katsayısı ile veriler değerlendirilmiştir.

Bulgular: Hemşirelerin kişilik toplam puan ortalamaları 158.38±14.32'dir. Katılımcıların deliryum hakkındaki toplam bilgi puanları 44.77±9.83'tür. Hemşirelerin deliryum tanımı bilgi puanları ile dışa dönüklük kişilik özelliği arasında negatif; deliryum belirti/bulgu puanları ile sorumluluk, geçimlilik ve beş faktör kişilik toplam puanları arasında pozitif yönde anlamlı ilişki bulunmuştur. Ayrıca deliryum yönetimi puanları ile sorumluluk, duygusal tutarsızlık ve beş faktör kişilik toplam puanları arasında pozitif; deliryum toplam bilgi puanları ile sorumluluk kişilik özellikleri arasında pozitif yönde anlamlı ilişki tespit edilmiştir (p<0.05).

Sonuç: Çalışma kapsamına alınan hemşirelerin kişilik özellikleri ile deliryum farkındalıkları ve yönetimleri arasında ilişki olduğu bulunmuştur. Bakım kalitesi açısından yoğun bakımlarda çalışan hemşirelerin deliryum farkındalığı ve yönetimi ile ilgili eğitim programlarının oluşturulmasında kişilik özelliklerinin de göz önüne alınması önemli olabilir.

Anahtar kelimeler: Deliryum, hemşirelik, hemşirelik bakımı, kişilik.

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Introduction

Intensive care units are the places where vital diseases are treated and many life-saving technological devices are used for emergency actions. Due to these features, many individuals are exposed to many invasive procedures and treatment methods in intensive care units. These procedures performed in the intensive care setting may bring out problems such as delirium by affecting physiological and psychological health of the patients in a negative way (Herling et al., 2018).

Delirium is a syndrome which can occur due to various reasons and in which cognitive skills, consciousness and attention are disturbed as a result of widespread sudden brain involvement. (Öztürk and Uluşahin, 2016). Although the duration of delirium varies, it may last for a couple of hours or more. Consciousness level of the patients during delirium varies during the day. Delirium that affects health outcomes in all aspects, extends the duration of hospitalization, may cause organ failures if not treated and increases mortality rates (Öztürk and Uluşahin, 2016; Wassenaar et al., 2019).

It has been indicated that incidence of delirium is high among the individuals who get palliative care, who resides in elderly nursing homes, who have a neurological disease or hospitalized in the intensive care, who have orthopedic problems and geriatric patients who have cardiac problems (Bai et al., 2020; Bellelli, 2016; Iamaroon et al., 2020; Kang et al., 2017). Moreover, it is often seen among the ones who have renal and electrolyte failure, comorbid disease, vision defect, depression and malnutrition, who are mechanically ventilated and who experience alcohol and/or substance withdrawal (Maldonado, 2017).

Intensive care nurses are the leading actors in the diagnosis of delirium, early detection of the groups under risk and implementation of preventive interventions (Demir Korkmaz et al., 2015). It is important for the intensive care nurses to consider psychosocial needs of the patients treated in the unit and to provide nursing care through a holistic perspective while meeting their care and treatment needs. It has been indicated that care given through this perspective may alleviate negative intensive care experiences and shorten recovery period of the patients (Şahin and Buzlu, 2016).

Delirium cannot be recognized during the early period since it is a complex disease, it is not well-recognized by the nurses and it cannot be monitored regularly with follow-up forms (Selim and Ely, 2017). Delivery of a quality nursing care to the

intensive care patients may make it possible for them to be less affected by negative situations derived from intensive care conditions and to experience a faster physiological-psychological recovery process (Xing et al., 2017).

In the intensive care units, nursing interventions are implemented based on the etiological factors for the treatment of delirium together with drug therapy (Bellelli et al., 2018; Çam and Küluğ, 2018). Personality traits of the nurses may be effective on their management of delirium, quality nursing interventions and their ability to provide treatment. In this context, personality is the whole of emotions, thoughts, behaviors and attitudes that distinguish individuals from each other and make them special (Köknel, 1999). Personality traits are among the most important elements that enhance the quality of patient care and work efficiency in nursing profession (Özdemir, 2014).

It has been postulated that personal traits of the nurses might be effective on patient care quality, disease management, approach towards the patient and a healthy communication (Özdemir, 2014). There may be a need for future studies in order to organize training programs and to generate a guide if required by considering delirium awareness and personal traits among the nurses working in intensive care units.

Many studies on delirium have been associated with the recognition of delirium and risk factors among geriatric, intensive care or postoperative patients (Iamaroon et al., 2020) or with the investigation of the diagnosis, knowledge and preventive practices of the nurses regarding delirium (Çetin, 2018; Kang et al., 2017; Selim and Ely, 2017). However, there is no study in the literature evaluating delirium awareness and management of the nurses in terms of their personality traits. This is the special aspect of this study and thought to contribute to the literature.

This study aimed to determine delirium awareness and management of the nurses working in intensive care in terms of their personality traits; and answers of the following questions were sought.

1. Do personality traits of the intensive care nurses affect their awareness and management of delirium?

2. Do sociodemographic characteristics of the intensive care nurses affect their awareness and management of delirium?

Method

This was a descriptive study. The universe of the study was composed of 100 nurses who were working in the adult intensive care units of a university hospital located in the western part of Turkey. The sampling method with a known universe was applied to calculate sample size of the study; and sample was calculated by the following formula (Esin, 2014). Accordingly, sample size was found to be 79 nurses within a confidence interval of 95%. 84 nurses were attained by considering that withdrawals might occur; but there were no withdrawals and 84 nurses, who completed data collection instruments, constituted the sample of the study. $n = Nt2pq/d2(N-1)+t2pq$

Inclusion criteria of the study: The nurses who were working in adult intensive care units for at least 6 months and volunteered to participate in the study were recruited.

Data collection form which was prepared by the researcher, The Nurses' Delirium Knowledge Questionnaire and the Big Five Personality Trait Test were used to collect data. Data were collected between February May 1 and May 31, 2019.

Data Collection Tools

Data collection form was prepared by the researcher in line with the relevant literature (Birge et al., 2017; Collet et al., 2018; Demir Korkmaz et al., 2015; Karabulut and Aktaş, 2016; Yamada et al., 2018; Zhang et al., 2017), and it was composed of two separate parts including descriptive characteristics of the nurses (12 questions) and questions regarding working environment (6 questions).

The Nurses' Delirium Knowledge Level Form

This questionnaire was prepared by Demir Korkmaz et al. (2015) based on the literature to reveal knowledge of the nurses regarding delirium; and its content validity was conducted. The questionnaire consisted of 69 questions. There were statements for the definition of delirium (9 questions), its causes (8 questions), risk groups (13 questions), signs and symptoms (21 questions) and nursing management (18 questions). 19 of these statements were reverse prepared, meaning that "selection of the wrong option was actually to choose the right answer". There were three answer options for each statement in the form including "true", "false" and "I do not know". The state of giving correct answers to the statements regarding delirium was assessed as 1 point and the answers as "I have no answer/I do not know" and "false" were assessed as 0 point. Nurses could have a minimum

score of zero and a maximum score of 69 from the scale. Considering mean number of the true answers as the cut-off point, 23 points and less was accepted as low level, 24-47 points were moderate level and 48 points and more were accepted as a high level of knowledge. The Cronbach's alpha values of the questionnaire were indicated to be 0.93. In this study, Cronbach's alpha value was found to be 0.84.

The Big Five Inventory

The Big Five Inventory (BFI) was developed by John et al. (1991). It was adapted to Turkish by Alkan in 2006 and its validity and reliability study was also conducted. The questionnaire is composed of 44 items and 5 subdimensions. These dimensions are openness (10 items), conscientiousness (9 items), neuroticism (8 items), extraversion (8 items) and agreeableness (9 items). The scale is a 5-point Likert type (1- Totally disagree, 5- Totally agree). The evaluation of the questionnaire is based on the mean scores taken from the subdimensions, and the subdimension which has the highest mean score reflects the personality nature of the individual. Cronbach alpha values of the questionnaire were indicated to be 0.87 in total and between 0.67-0.89 in subdimensions (Alkan, 2006). In this study, Cronbach alpha value was found to be 0.81 in total and between 0.60-0.80 for subdimensions. 18 items of the inventory include negative statements whereas 26 items have positive statements. While positive items are scored by "1" totally disagree, "2" less agree, "3" somewhat agree, "4" highly agree and "5" totally agree, negative items are reverse-scored.

Ethical Issues

The study was carried out in compliance with the principles of the Declaration of Helsinki. A written ethics approval was taken from non-Interventional Clinical Research Ethics Committee of a university hospital for the implementation of the study (Decision No: 60116787-020/1934, Date: January 8, 2019). Necessary permissions were also obtained from the institution where the study would be carried out and from the authors of the questionnaire for use. The participating nurses were informed about the study and they gave a written and signed informed consent.

Data Assessment

Data were analyzed by using Statistical Package for the Social Sciences (SPSS) 24.0 package program. Continuous variables were given as mean and standard deviation whereas categorical variables were expressed as numbers and percentages. Non-parametric Mann-Whitney U test

(Z-table value) and Kruskal-Wallis H test (χ^2 -table value) were used to compare the scale scores; and Spearman correlation coefficient was used to detect any possible correlation between two numerical measures. Pairwise comparison test with Bonferroni correction was applied to test which group caused the significant difference. $p < 0.05$ was accepted as statistically significant.

Results

Descriptive Characteristics of the Nurses

89.3% of the nurses were females and their mean age was 28.06 ± 5.80 years old. More than half of them had an undergraduate degree, and 52.3% stated that they have been working as a nurse for 5 years and less. It was also determined that 57.2% of the nurses were working in an anesthesia intensive care unit and 67.9% of them were not using a risk assessment guide for delirium in the intensive care (Table 1).

Nurses' Knowledge Level on Delirium and Personality Traits

When personality domain scores of the nurses were examined, they were ranked as agreeableness, openness, conscientiousness, extraversion and neuroticism from high to low, respectively. Total knowledge level score of the participants for delirium was found to be 44.77 ± 9.83 . The scores of the nurses were identified as 14.44 ± 3.70 for delirium signs/symptoms, 12.29 ± 3.46 for delirium management, 6.74 ± 2.27 for risk groups, 6.29 ± 1.56 for the causes of delirium and 5.01 ± 1.44 for the definition of delirium (Table 2).

Delirium Knowledge Levels of Nurses According to Their Descriptive Characteristics

A statistically significant difference was found between the nurses in terms of the definition of delirium based on their working department. Knowledge level of the nurses regarding the causes of delirium was found to be significantly different based on their period of work as a nurse, duration of working in the intensive care and their working department. Moreover, knowledge levels of the nurses regarding risk groups were found to be significant different based on their period of work in the intensive care, weekly working hours and working department. Sign/symptom knowledge scores of the participants showed statistically significant differences based on the working department. Total delirium knowledge level of the nurses in the study was found to be statistically different based on weekly working hours and working department ($p < 0.05$), (Table 3).

The differences between the scores of nurses in delirium definition, delirium causes, risk groups, signs/symptoms, delirium management and total knowledge were not found to be statistically significant based on their sex, age, role in the intensive care and the number of patients they provided care ($p > 0.05$).

Table 1. Distribution of the descriptive characteristics of the nurses (n=84)

Variable	n	%
Sex		
Female	75	89.3
Male	9	10.7
Age [$\bar{X} \pm SD \rightarrow 28.06 \pm 5.80$ (years)]		
32 and younger	71	84.5
33 and older	13	15.5
Education status		
HVHS – associate degree	32	38.1
Undergraduate or higher	52	61.9
Period of work as a nurse		
5 years and less	44	52.3
6-15 years	36	42.9
16 years and more	4	4.8
Period of work in intensive care unit		
5 years and less	56	66.7
6-15 years	25	29.7
16 years and more	3	3.6
Working department		
Anesthesiology and Reanimation intensive care unit	48	57.2
Cardiovascular Surgery intensive care unit	10	11.9
Coronary intensive care unit	8	9.5
Brain surgery intensive care unit	8	9.5
Neurology intensive care unit	2	2.4
Internal medicine intensive care unit	8	9.5
State of using risk diagnosis guide for delirium in the intensive care		
Yes	27	32.1
No	57	67.9
Guides used in risk diagnosis		
No risk diagnosis guide is used		
Psychiatric consultation	57	67.9
	27	32.1

HVHS: Health Vocational High School, \bar{X} : Mean, SD: Standard deviation.

The Correlation Between BFIS Scores of the Nurses and Their Knowledge Level Scores

A negative and significant correlation was found between knowledge scores of the nurses for the definition of delirium and their personality trait of extraversion. Their knowledge scores for delirium signs/symptoms had positive and significant

correlations with conscientiousness, agreeableness and total big five inventory scores. In addition, positive correlations were reported between knowledge scores of the nurses for delirium management and their conscientiousness, neuroticism and total big five inventory scores. Total delirium knowledge level of the nurses was determined to be significantly and positively correlated with the personality trait of conscientiousness ($p < 0.05$), (Table 4).

Table 2. Mean scores of nurses for their knowledge levels of delirium and personal traits (n=84)

Scales	Mean	Standard deviation	Median	Min.	Max.
BFI					
Openness	35.79	4.72	35.0	27.0	47.0
Conscientiousness	34.93	4.17	35.0	26.0	44.0
Neuroticism	24.54	4.38	25.0	14.0	32.0
Extraversion	28.23	5.17	28.0	12.0	39.0
Agreeableness	35.90	3.98	36.0	23.0	44.0
Total	159.38	14.32	159.0	121.0	194.0
Knowledge levels on delirium					
Delirium definition	5.01	1.44	5.0	0.0	8.0
Delirium causes	6.29	1.56	7.0	0.0	8.0
Risk groups	6.74	2.27	7.0	0.0	11.0
Sign/symptoms	14.44	3.70	15.0	0.0	21.0
Delirium management	12.29	3.46	13.0	0.0	17.0
Total	44.77	9.83	47.0	0.0	58.0

BFI: The Big Five Inventory

Discussion

In this study that was carried out to determine delirium awareness and management of the nurses working in intensive care units in terms of their personality traits, it was found that the general knowledge level of the nurses on delirium was at a moderate level. Delirium has been defined by nurses properly in some studies (Balasanova and Park, 2021; Çevik et al., 2016). In some others, it was stated that nurses could define delirium, but could not evaluate it (Dewlin et al., 2012; Rowley-Conwy, 2018). Delirium might be described at a moderate level in this study since patients in the intensive care are exposed to long-term sedation due to multiple procedures or mechanical ventilation. In addition, nurses encounter delirium patients more frequently in intensive care units. Therefore, it is forecasted that they may be more experienced in delirium. Furthermore, it is estimated that this finding has been reached due to the fact that nurses working in

the intensive care unit pass more in-service training programs as a policy of the relevant hospital. The use of different measurement tools can also be seen as a reason.

In this study, nurses gave true answers to most of the questions regarding the causes of delirium. However, they answered 2 items incorrectly. These items are “Physical illnesses do not cause delirium” and “Increased nitric oxide levels can cause delirium”. This reminded that nurses could not distinguish the information in these items since intensive care patients mostly had a comorbid disease accompanying delirium.

It was seen in the study that nurses gave true answers to half of the questions about delirium risk groups. The reasons of giving false answers might be that the nurses were limited to their practical experiences and education they acquired at school and they did not follow the recent literature on this subject. Again, knowledge level of the nurses regarding signs and symptoms of delirium was found to be at a moderate level. Their answers to the questions about delirium symptoms were incomplete, reminding us that delirium symptoms are similar to some symptoms of diseases such as dementia and depression. For this reason, nurses should observe the patient very well and get information about the patient. Besides, nurses might lack information about the symptoms of delirium due to the fact that they were unfamiliar with the use of valid and reliable tools to diagnose delirium, they were not able to observe carefully and they did not have a good knowledge on patient’s history. In some studies, findings consistent with this finding were obtained (Oosterhouse et al., 2016; Demir Korkmaz et al., 2015).

In this study, it was also determined that statements of nurses regarding delirium management were found to be at a moderate level. The reason of the lack of knowledge about delirium has been reported as the intense workload of the nurses (Nydahl et al., 2018). As parallel to this finding, many studies reported that nurses did not have sufficient knowledge about delirium management (Demir Korkmaz et al., 2015; Emme, 2020; Wong et al., 2018).

It is crucial to know the effects of personality traits on nursing profession in terms of enhancing performance exhibited while providing care and quality of care (Farčić et al., 2020; Gözel et al., 2017). The concept of personality comes to mind while mentioning about one’s distinguishing traits from the others.

Table 3. Distribution of delirium knowledge levels of nurses based on their descriptive characteristics

Variable (n=84)	n	Delirium definition		Delirium causes		Risk groups	
		$\bar{X} \pm S.D.$	Median	$\bar{X} \pm S.D.$	Median	$\bar{X} \pm S.D.$	Median
Sex							
Female	75	5.03±1.49	5.0 [2.0]	6.32±1.54	7.0 [1.0]	6.80±2.30	7.0 [4.0]
Male	9	4.88±1.05	5.0 [2.0]	6.11±1.76	7.0 [3.0]	6.22±2.05	6.0 [3.5]
Test and p		Z=-0.322 p=0.747		Z=-0.275 p=0.784		Z=-0.826 p=0.409	
Age							
32 years and younger	71	5.01±1.44	5.0 [2.0]	6.30±1.53	7.0 [2.0]	6.65±2.35	7.0 [4.0]
33 years and older	13	5.00±1.53	5.0 [1.0]	6.31±1.75	7.0 [2.5]	7.23±1.74	7.0 [3.5]
Test and p		Z=-0.186 p=0.852		Z=-0.203 p=0.839		Z=-0.731 p=0.465	
Period of work as a nurse							
5 years and less	44	5.09±1.25	5.0 [1.8]	6.02±1.37	6.0 [2.0]	6.34±2.13	6.5 [3.0]
6 years and more	40	4.93±1.64	5.0 [2.0]	6.60±1.71	7.0 [2.0]	7.18±2.36	8.0 [3.8]
Test and p		Z=-0.372 p=0.710		Z=-2.359 p=0.018		Z=-2.041 p=0.041	
Period of work in ICU							
5 years and less	56	4.91±1.53	5.0 [2.0]	6.05±1.63	6.0 [2.0]	6.38±2.26	7.0 [3.0]
6 years and more	28	5.21±1.26	5.0 [1.0]	6.79±1.29	7.0 [2.0]	7.46±2.15	8.5 [3.8]
Test and p		Z=-0.841 p=0.400		Z=-2.105 p=0.035		Z=-2.249 p=0.024	
Weekly working hours							
48 hours and less	56	5.09±1.30	5.0 [2.0]	6.30±1.43	7.0 [1.8]	7.23±1.94	8.0 [3.0]
49 hours and more	28	4.86±1.72	5.0 [1.8]	6.29±1.82	6.5 [2.8]	5.75±2.58	5.0 [4.0]
Test and p		Z=-0.600 p=0.548		Z=-0.307 p=0.759		Z=-2.489 p=0.013	
Working department							
AR ICU	48	5.13±1.42	5.0[1.8]	6.44±1.50	7.0[1.0]	6.92±2.34	7.0[4.0]
CVS ICU	10	6.00±1.05	6.0[2.0]	7.20±1.40	8.0[2.0]	7.20±2.20	8.5[4.3]
Coronary ICU	8	4.38±2.26	4.5[4.0]	4.75±1.49	4.5[2.8]	6.88±1.55	7.0[2.8]
BS ICU	8	4.00±0.76	4.0[1.5]	6.13±1.64	6.5[3.5]	4.37±1.85	3.5[2.8]
Internal medicine ICU	10	4.80±0.79	4.5[0.3]	6.10±1.29	6.5[1.3]	7.20±1.99	7.5[2.8]
Test and p		$\chi^2=13.732$ p=0.008		$\chi^2=13.598$ p=0.009		$\chi^2=9.908$ p=0.042	

Note: Bold data indicate a significant difference between two groups. \bar{X} : Mean, SD: Standard deviation, Z: Mann-Whitney U test, χ^2 : Kruskal-Wallis H" test, ICU: Intensive Care Unit, ARICU: Anesthesiology and Reanimation Intensive Care Unit, CVS ICU: Cardiovascular Surgery Intensive Care Unit, BS ICU: Brain Surgery Intensive Care Unit.

There are various personality traits and descriptions. One of these is five-factor personality concept. Conscientiousness, that is one of these factors, is to be able to accept the consequences of the behaviors. These individuals are trustworthy, determined, have a high sense of accomplishment and they show a behavior as doing their work perfectly. Agreeable individuals tend to cooperate with the opposite party. These people are compliant in their tasks and responsibilities within the institution they are working, and they undertake important roles in the success of the group which they belong. Another trait is openness. These individuals are open to new things; and their creativity is advanced, they have an imagination, they acquire new experiences and put forward ideas. The individuals showing neuroticism are generally anxious and exhibit nervous behaviours towards others. They often experience

unhappiness and have difficulty in coping with stress (Doğan, 2013). When personality domains of the nurses were examined, it was seen that their mean scores for agreeableness, openness and conscientiousness were quite high and their scores of extraversion and neuroticism were slightly above the mean. This outcome was compliant with the literature (Alan and Baykal, 2018; Doğan, 2013). It is considered that nursing, as a profession that fulfills a very important task as human health, makes individuals to take responsibility, continuous change in the treatment approaches makes individuals to stay open, and besides, establishing an interaction with people with various traits makes them to develop a personality trait of agreeableness. In addition, it can be said that individuals who are responsible, open and compatible have chosen this profession.

Knowledge scores of the participants for the causes of delirium and risk groups were found to be higher among the ones whose period of work was 6 years and more compared to less than 5 years; and among the ones whose period of work in intensive care was 6 years and more compared to 5 years and

less. In a study on delirium, it was revealed that nurses required a formal education and/or in-service trainings in order to evaluate and manage delirium in the patients undergoing treatment in the intensive care (Lieow et al., 2019).

Table 3. (Continued) Distribution of delirium knowledge levels of nurses based on their descriptive characteristics

Variable (n=84)	n	Sign/symptoms		Delirium management		Total score	
		$\bar{X} \pm S. D.$	Median	$\bar{X} \pm S. D.$	Median	$\bar{X} \pm S. D.$	Median
Sex							
Female	75	14.53±3.82	16.0 [4.0]	12.33±3.46	13.0 [4.0]	45.01±9.85	47.0 [10.0]
Male	9	13.67±2.55	14.0 [4.0]	11.89±3.66	12.0 [6.0]	42.78±10.05	43.0 [18.0]
Test and p		Z=-1.349 p=0.177		Z=-0.430 p=0.667		Z=-0.717 p=0.473	
Age							
32 years and younger	71	14.52±3.89	16.0 [4.0]	12.08±3.66	13.0 [4.0]	44.56±10.40	47.0 [10.0]
33 years and older	13	14.00±2.52	14.0 [4.0]	13.38±1.80	14.0 [2.0]	45.92±5.99	47.0 [11.5]
Test and p		Z=-1.291 p=0.197		Z=-0.992 p=0.321		Z=-0.068 p=0.946	
Period of work as a nurse							
5 years and less	44	14.27±3.60	15.5 [4.8]	11.77±3.55	12.0 [4.0]	43.50±9.02	44.5 [9.8]
6 years and more	40	14.63±3.85	15.0 [4.0]	12.85±3.32	14.0 [3.8]	46.18±10.59	48.5 [12.8]
Test and p		Z=-0.510 p=0.610		Z=-1.734 p=0.083		Z=-1.749 p=0.080	
Period of work in ICU							
5 years and less	56	14.07±4.07	15.5 [4.8]	11.77±3.86	12.0 [4.0]	43.18±10.80	45.5 [9.8]
6 years and more	28	15.18±2.75	15.0 [4.0]	13.32±2.20	14.0 [3.0]	47.66±6.60	49.0 [12.5]
Test and p		Z=-0.732 p=0.464		Z=-1.718 p=0.086		Z=-1.872 p=0.061	
Weekly working hours							
48 hours and less	56	15.00±3.26	16.0 [4.0]	12.79±3.08	13.5 [4.0]	46.41±8.00	49.0 [10.8]
49 hours and more	28	13.32±4.30	14.0 [3.0]	11.29±3.99	12.0 [4.0]	41.50±12.25	44.0 [8.5]
Test and p		Z=-2.009 p=0.044		Z=-1.799 p=0.072		Z=-2.119 p=0.034	
Working department							
AR ICU	48	14.85±4.14	16.0[3.0]	12.40±3.59	13.0[3.8]	45.73±10.62	48.5[7.0]
CVS ICU	10	15.90±2.13	16.5[3.3]	13.50±1.51	14.0[1.5]	49.80±5.79	50.0[9.5]
Coronary ICU	8	13.63±1.30	14.0[1.8]	12.88±2.47	12.5[3.8]	42.50±4.38	42.0[4.5]
BS ICU	8	10.88±3.76	11.0[5.0]	9.63±4.56	8.5 [8.5]	35.00±9.32	37.5[16.8]
Internal medicine ICU	10	14.50±2.23	14.5[5.0]	12.20±3.43	12.0[6.3]	44.80±7.97	42.5[12.8]
Test and p		$\chi^2=14.619$ p=0.006		$\chi^2=3.807$ p=0.433		$\chi^2=16.315$ p=0.003	

Note: Bold data indicate a significant difference between two groups.

\bar{X} : Mean, SD: Standard deviation, Z: Mann-Whitney U test, χ^2 : Kruskal-Wallis H² test, ICU: Intensive Care Unit, ARICU: Anesthesiology and Reanimation Intensive Care Unit, CVS ICU: Cardiovascular Surgery Intensive Care Unit, BS ICU: Brain Surgery Intensive Care Unit.

Table 4. Evaluation of BFI and delirium knowledge level scores (n=84)

Personality traits		Delirium definition	Delirium causes	Risk groups	Sign/symptoms	Delirium management	Total knowledge
Openness	r†	-0.125	-0.052	-0.014	0.180	0.086	0.051
	p	0.256	0.640	0.902	0.101	0.434	0.644
Conscientiousness	r	0.141	0.027	0.181	0.274	0.251	0.218
	p	0.202	0.807	0.100	0.012	0.039	0.047
Neuroticism	r	-0.126	0.149	0.201	0.116	0.258	0.174
	p	0.254	0.177	0.067	0.291	0.018	0.113
Extraversion	r	-0.264	-0.187	-0.134	0.005	-0.005	-0.127
	p	0.015	0.088	0.224	0.961	0.966	0.251
Agreeableness	r	-0.052	-0.176	0.096	0.262	0.205	0.169
	p	0.638	0.110	0.384	0.016	0.062	0.124
Five Factor Personality Total	r	-0.118	-0.027	0.072	0.250	0.260	0.153
	p	0.283	0.804	0.514	0.028	0.017	0.164

Note: Bold data indicate a significant difference between two groups BFI: The Big Five Inventory; †Spearman correlation coefficient.

In a previous study, continuous education and positive feedbacks were recommended for the nurses to maintain a high level of compliance in their knowledge and management of delirium (Solberg et al., 2021). In this study, the high knowledge scores of the nurses, whose total working period and working period in intensive care were longer, on the causes of delirium and its management suggested that it might be associated with their clinical experiences.

The scores of the nurses for delirium risk groups and signs/symptoms were found to be higher among the ones who were working less than 48 hours per week compared to the nurses whose working hours were 48 hours and more. The risk of failure was found to be increased among the nurses who were working for 12 hours or longer per shift in the healthcare institutions having a shift system (Rhéaume and Mullen, 2018). This outcome is expected since longer working hours will cause fatigue, decrease in the individual care of the patient and reduction in the observation capability of the nurse.

When knowledge levels of the nurses on delirium were examined based on their working department, delirium definition scores of the nurses who were working in the Anesthesiology and Reanimation Intensive Care Unit (ARICU) and Cardiovascular Surgery Intensive Care Unit (CVSICU) were found to be higher than the ones working in Brain Surgery Intensive Care Unit (BSICU). Delirium causes scores of the ones in ARICU and CVSICU were higher than the nurses working in Coronary Intensive Care Unit (Coronary ICU). Moreover, nurses working in ARICU, CVSICU, Coronary ICU and Internal Medicine intensive care unit (IMICU) had higher delirium risk group scores compared to BS ICU. Also, sign/symptom scores of the ones working in AR ICU and CVS ICU were determined to be higher than the ones working in BS ICU. Total knowledge scores for delirium were significantly higher in AR ICU and CVS ICU compared to the ones in BS ICU. The study by Çevik et al. (2016) supports the results of this study, suggesting that the patients hospitalized in AR ICU and CVS ICU require 3rd level care compared to the other intensive care units and the nurses working there may be more experienced about delirium due to this fact. Furthermore, this reminds that the nurses working in these units have taken more in-service trainings. 3rd level intensive care units are the departments where all complicated diseases as multiple organ failures are accepted, supportive

treatments as respiratory support, renal replacement therapy and plasmapheresis are provided and the highest level of medical care and treatment are given.

No significant differences were found between definition, causes, risk groups, sign/symptoms, management and total delirium scores of the nurses based on their sex, age, type of duty in the intensive care and the number of patients they provided care. These results of the study are parallel with the findings of Balasanova and Park, (2021).

A negative correlation was found between knowledge scores of the nurses for delirium definition and personality traits of extraversion. Also, their knowledge scores for delirium signs/symptoms were determined to be positively correlated with personality traits of conscientiousness and agreeableness and their total big five inventory score, meaning that their knowledge score for delirium signs/symptoms increases as their scores of conscientiousness agreeableness and total big five inventory increase. In a previous study, it was indicated that self-dedication and workforce were increased as conscientiousness personality trait was enhanced in nurses (Bhatti et al., 2018). In this study, knowledge scores of the nurses for delirium management were found to be positively correlated with the scores of conscientiousness and neuroticism personality traits and total big five inventory. As conscientiousness, neuroticism and total big five inventory scores are increased, knowledge score of delirium management also increases. Also, a positive relationship was found between total knowledge score for delirium and conscientiousness personality trait of the nurses. Accordingly, total knowledge scores of the individuals for delirium increase as their conscientiousness is promoted. As supporting this finding, it has been reported in the literature that those with conscientiousness are committed to their work, have good helping skills, are punctual and hardworking and have technical expertise. Moreover, individuals with a high level of conscientiousness have been stated to have characteristics such as keeping their environment tidy, being meticulous, striving for success and being reliable (Takase et al., 2018).

Limitations

The study has several limitations. Although we planned to include a larger sample in the study, it was conducted in a single center since the other institutions did not provide permission. Besides,

data can only be generalized to nurses working in the adult intensive care units of the hospital where the study was carried out. In addition, the scales used in the study are based on self-report.

Conclusions

It was found that nurses included in the study had personality traits of agreeableness, openness, conscientiousness, extraversion and neuroticism, respectively; and their awareness and management of delirium were at a moderate level. It was also determined that personality traits of the nurses were correlated with their delirium awareness and management; and which affected awareness and management of delirium. In conclusion, some significant differences were found in the nurses' awareness and management based on some of their sociodemographic characteristics.

Although awareness and management of the nurses for delirium were found to be at a moderate level, it may be essential to talk about this subject during undergraduate education and at working departments, to create an awareness and to organize in-service trainings continuously. It may be valuable to consider personality traits of the nurses working in the intensive care units while establishing relevant education programs in terms of the quality of care. Moreover, it is thought that it will be important to have continuous in-service trainings about communicational skills that improve and support personality traits of the nurses.

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What did the study add to the literature?

- In this study, delirium awareness and management of the nurses were addressed in terms of their personality traits.
- The study revealed a relationship between personal traits of the nurses and their delirium awareness and management.
- The results may be important in terms of taking personal traits into account when establishing training programs on delirium awareness and management among the nurses working in the intensive care units.

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