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### Nursing Students' Evaluation of the Omaha Care System

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#### ABSTRACT

**Objective:** The aim of the study is to determine the change in the level of care plan after the education of nursing students related to the Omaha classification system and to reveal their views on the Omaha care system. **Materials and Methods:** This research covers the qualitative part of a mixed-method intervention study. Students from the Faculty of Health Sciences, School of Higher Education, Bursa Uludağ University were interviewed for the study between June and July 2019. The population of the study consisted of 153 students taking public health nursing courses at Bursa Faculty of Health Sciences, Faculty of Health Sciences, and 52 students who agreed to participate in the study were sampled. Numbers, percentages, and a Wilcoxon sign test analysis were utilized to examine the data in the SPSS 23.0 program. To evaluate qualitative data, thematic analysis was employed. **Results:** The Omaha system total score ( $p<0.001$ ), problem classification score ( $p<0.001$ ), intervention scheme score ( $p=0.016$ ), and problem assessment scale score ( $p=0.006$ ) of the students after the training were higher and statistically significant compared to their pre-training scores ( $p=0.05$ ). 95.3% of the students evaluated the Omaha system as a difficult, complex, time-consuming, different, important, professional system that allows evaluation of each stage and questioning of causality; while 4.7% of the students evaluated it as a system that they could not understand at all. **Conclusion:** As a result of the study, students' knowledge levels increased after the training. **Keywords:** Omaha Care System, Nursing, Student, Public Health.

### Hemşirelik Öğrencilerinin Omaha Bakım Sistemini Değerlendirmesi

#### ÖZ

**Amaç:** Çalışmanın amacı hemşirelik öğrencilerinin Omaha sınıflama sistemi ile ilişkili eğitimi sonrasında bakım planı bilgi düzeyindeki değişimi tespit ederek Omaha bakım sistemine ilişkin görüşlerini ortaya koymaktır. **Gereç ve Yöntem:** Bu araştırma karma yöntem ile yapılmış bir müdahale çalışmasının nitel bölümünü kapsamaktadır. Araştırma Haziran-Temmuz 2019 tarihleri arasında Bursa Uludağ Üniversitesi Sağlık Bilimleri Fakültesi öğrencileriyle görüşülerek yürütülmüştür. Araştırmanın evreni Bursa Uludağ Üniversitesi Sağlık Bilimleri Fakültesinde halk sağlığı hemşireliği dersi alan 153 öğrenciden oluşmaktadır. Araştırma sırasında evrenin tümüne ulaşılmaya çalışılarak, araştırmaya katılmayı kabul eden 52 öğrenci örnekleme oluşturmuştur. Veriler SPSS 23.0 programında çözümlenmiş; verilerin çözümlenmesinde sayı, yüzdeler, Wilcoxon işaret testi analizi kullanılmıştır. Nitel verilerin analizinde tematik analiz kullanılmıştır. **Bulgular:** Eğitim sonrası öğrencilerin Omaha sistemi toplam puanı ( $p<0.001$ ), problem sınıflama puanı ( $p<0.001$ ), girişim şeması puanı ( $p=0.016$ ), problem değerlendirme ölçeği puanı ( $p=0.006$ ) eğitim öncesi puanlarına göre daha yüksek ve istatistiksel olarak anlamlı olduğu saptanmıştır ( $p=0.05$ ). Öğrencilerin %95.3'ü Omaha sistemini zor, karmaşık, zaman alıcı, farklı, önemli, her aşamasında değerlendirme yapılabilmesine ve nedenselliğin sorgulanmasına olanak sağlayan profesyonel bir sistem olarak değerlendirirken; %4.7'si ise hiç anlayamayacakları bir sistem olarak değerlendirmiştir. **Sonuç:** Çalışma sonucunda öğrencilerin eğitim sonrası bilgi düzeyleri artmıştır. **Anahtar Kelimeler:** Omaha Bakım Sistemi, Hemşirelik, Öğrenci, Halk Sağlığı.

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## INTRODUCTION

Nursing is an applied science with its own principles and notions (Körpe et al., 2019). With the advancement of technology and globalization, nursing practices are evolving and becoming more professional. A unique classification system must be developed and put into place for nursing practices to be of the same caliber and intelligible throughout the world (İskender and Kaplan, 2019). By establishing a common language, it clarifies the outcomes of care, demonstrates the standard of care, standardizes, and professionalizes nursing practices, improves the objectivity of practices, and offers information management (Erdoğan et al., 2016; Karahan and Erdoğan, 2019; Önder, 2019). This consistent and trustworthy recording method is aided the universalization of the profession (Kulakçı and Emiroğlu, 2012). Which also enhances communication between nurses and other healthcare professionals (İskender and Kaplan, 2019). The American Nurses Association has identified 12 classification systems worldwide. One of these is the Omaha classification system (İskender and Kaplan, 2019; Körpe et al., 2019). This system has been in use since 1975 (İskender and Kaplan, 2019; Korkmaz Aslan and Emiroğlu, 2012), and its validity-reliability has been shown. The Omaha classification system was developed by the North American Visiting Nurses Association within the framework of Neuman's "Systems Model", Dreyfus' "Skill Development Model" and Donabedian's "Health Care Quality Model" in line with the problem-solving approach (Mutluay and Özdemir, 2014; Yılmaz et al., 2018). This system, which is used in 26 states of the United States of America, has been translated into the languages of Denmark, the Netherlands, Japan, China, Sweden, Korea, Slovenia, Spain, Turkey, Canada, Estonia, and Thailand, and used in the field of nursing and the education of students in various cultures (Öztürk, 2011). In addition to the nursing discipline, the Omaha system is also used by physicians, dieticians, pharmacists, public/community health workers, social workers, physiotherapists, speech and language therapists, and other health care professionals. The Omaha system is frequently used both electronically and manually in the documentation of services in many areas such as home care services, nursing centers, nursing schools, and school health programs, especially in community health areas (Erdoğan et al., 2016; Korkmaz Aslan and Emiroğlu, 2012). In our country, there are examples of the use of the system in home care, primary health care institutions, long-term elderly care, discharge planning, acute care, occupational health, and school health (Seçginli et al., 2014). The system is a comprehensive, valid, and reliable health care system that is frequently used in many areas and consists of the

stages of investigating the health status of the individual, family, or community and determining the problems, if any; if not, increasing their health status, planning and implementing care interventions appropriate to this problem or situation and evaluating the results of care (Coşansu, et al., 2014). It defines health problems, interventions for problems, and the results of the care applied in line with the interventions with simple codes and provide a very suitable infrastructure for nurses in the documentation of the health services provided (Kaya, 2019).

Although the Omaha classification system is increasingly known and used worldwide, there are not many studies on its use in our country. The Omaha classification system was first adapted into Turkish by Erdoğan and Esin (2004) and took its place in the national literature. Afterward, studies on its use in various fields have been put forward in terms of its use as a classification system. Studies have shown that it is effective in early diagnosis, health protection, and development (Coşansu et al., 2014; Karahan and Erdoğan, 2019; Kaya, 2019; Kulakçı and Emiroğlu, 2012; Önder, 2019; Öztürk, 2011; Seçginli et al., 2014; Yılmaz, et al., 2018).

In our study, its use in the field of school health was addressed. Our aim in the study was to determine the change in the Omaha care plan knowledge level of the students after the training related to the Omaha classification system. Another aim of this study is to determine the views of nursing students on the Omaha system used in school health practice. In addition, this study aims to make a scientific contribution to the national literature. It is thought that the data to be obtained from the study will contribute to the education of students in addition to contributing to the national literature.

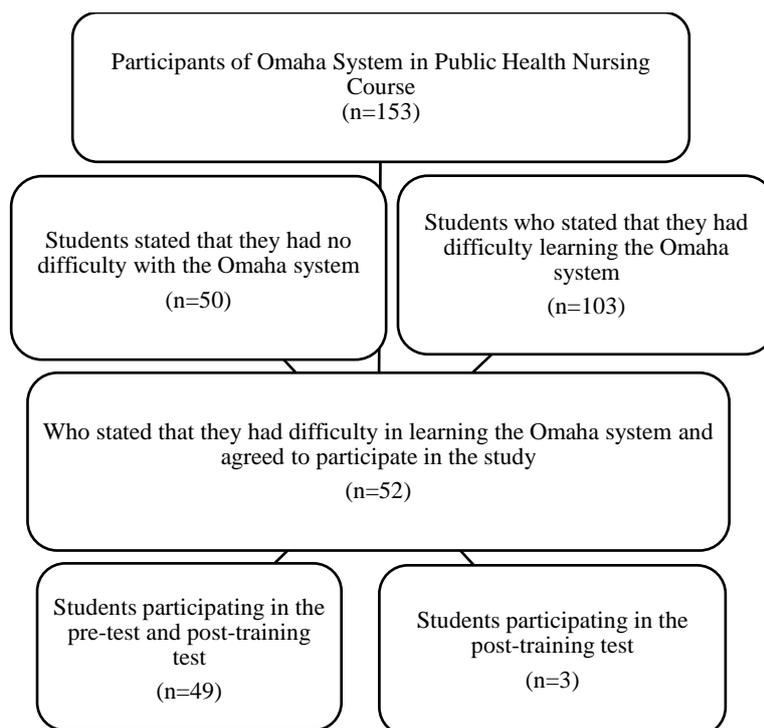
## MATERIALS AND METHODS

### Type of research

This research covers the qualitative part of a mixed-method intervention study.

### Population and sample of the study

The population of the study consisted of the students of the public health nursing course in the spring semester of the 2018-2019 academic year, studying in the nursing department of Bursa Uludağ University Faculty of Health Sciences (n=153). The sample consisted of volunteer students who agreed to participate in the study and expressed that they had difficulty learning the Omaha system (n=52). The pre-test of the study was conducted with 52 students on June 17, 2019, and the post-test was conducted with 49 students after the students left the study 1 month after the training, and the data collection phase of the study was completed. Training is given at the end of the pre-test.



**Figure 1. Flowchart.**

#### Data collection tools

The research data were collected using the "Sociodemographic Data Form and Omaha System Information Form.

**Sociodemographic Data Form:** It was prepared by the researchers and included the questions of age, gender, and general academic grade point average (GPA) of the students.

**Omaha System Information Form:** It consists of 54 questions measuring the ability to use the components of the Omaha system.

**Omaha System Learning Process Evaluation Form:** It consists of 3 open-ended questions about the students' thoughts about the Omaha system, the techniques of learning the Omaha system, and the materials they used.

#### Research implementation process

##### Administering the Pre-Test

The students who stated they did not comprehend the Omaha system as it was explained in the public health nursing course and who consented to participate in the study and whose consent was obtained underwent the Omaha System Knowledge Test (pre-test). Additionally, a Socio-demographic Questionnaire was given to them (Omaha system Knowledge test First measurement).

##### Theoretical Education

The students who accepted to take part in the study were informed of the location and timing of the 135-minute session. With the aid of case studies, the Omaha system and its components were described (45 minutes). Students were instructed to create a care plan after receiving a case (45 minutes). The researcher then created the care plan in the classroom (45 minutes). It took 135 minutes in total to finish.

##### Implementation of the Final Test

One month after the implementation, the Omaha System Knowledge test (post-test) and Omaha System Learning Process Evaluation Form were applied. (Omaha System Knowledge test second measurement)

##### Data analysis

The statistical data analysis was performed using the Statistical Package for Social Sciences 23.0 statistical package program. The distribution of data was tested using the Shapiro–Wilk test. Also, descriptive statistical tests (mean, standard deviation, frequency, and percentage) and analytical statistics (Dependent-Samples T-Test, Pearson Correlation Test) were used. She was not aware of the allocation of students to the groups. The significance level was considered  $p < 0.05$ .

Qualitative data were evaluated by thematically categorizing the answers given by the students to the open-ended questions about their thoughts about the Omaha system, the techniques of learning the Omaha system, and the materials they used with the "Omaha System Learning Process Evaluation Form" and creating sub-themes. In the analysis of the data, experts in the field of public health nursing made separate evaluations and agreed on the classification of the data within the thematic grouping (Braun and Clarke, 2006).

##### Ethical consideration

Ethics committee permission dated May 29, 2019 and numbered 2019-6/18 was obtained from Bursa Uludağ University Health Research and Publication Ethics Committee for this study. Verbal consent was obtained from the students participating in the study.

**RESULTS**

The mean age of the students was 20.93±0.82 years, GPA was 2.92±0.46, 95.9% were female and 73.5% were graduates of Regular High School (Table 1).

Pre-test problem classification list score of female students (p=0.003); pre-test problem evaluation

scale score (p<0.001) and pre-test total score (p=0.032) were higher than male students. Post-test initiative scheme score of male students is higher than female students (p=0.035). Pre-test problem evaluation scale score is higher in health high school students than regular high school student.

**Table 1. Distribution of descriptive characteristics of students.**

Characteristics	Mean±SD	n(49)	%
Age	20.93±0.82		
GPA	2.92±0.46		
<b>Pre-test</b>			
Problem Classification List Score	21.31±6.42		
Initiative Scheme	10.51±4.34		
Problem Evaluation Scale	2.51±1.21		
Total Score	34.33±10.42		
<b>Post-test</b>			
Problem Classification List Score	25.78±3.69		
Initiative Scheme	12.24±2.43		
Problem Evaluation Scale	3.10±1.27		
Total Score	41.18±5.44		
<b>Gender</b>			
Female		47	95.9
Male		2	4.1
<b>School graduated from</b>			
Health High School		13	26.5
Regular High School		36	73.5

**Table 2. Distribution of the analysis of the descriptive characteristics of students with dependent variables.**

Variables	Gender		Test	p
	Female	Male		
Pre-test Problem Classification List Score	47	2	3.134*	<b>0.003</b>
Pre-test Problem Evaluation Scale	47	2	9.046	<b>&lt;0.001</b>
Pre-test Total Score	47	2	2.206	<b>0.032</b>
Post-test Initiative Scheme	47	2	2.173	<b>0.035</b>
<b>School graduated from</b>				
	Health high school	Regular high school		
Pre-test Problem Evaluation Scale	13	36	2.659	<b>0.011</b>
<b>GPA</b>				
Pre-test Initiative Scheme				r=0.319* p=0.025
Pre-test Problem Classification List Score				r=0.296* p=0.039
Pre-test Problem Evaluation Scale				r=0.488** p<0.001
Pre-test Total Score				r=0.371** p=0.009
Post-test Problem Classification List Score				r=0.416** p=0.007
Post-test Total Score				r=0.343* p=0.016

\*\*Pearson correlation.

A positive and significant relationship was found between the students' GPA score and pre-test initiative scheme score, pre-test problem evaluation scale score,

pre-test total score, post-test problem classification list score, and post-test total scores ( $p < 0.05$ ) (Table 2).

**Table 3. Distribution of students' scores before and after the training.**

	Min-Max	Pre-test Mean±SD	Post-test Mean±SD	t	p
<b>Problem Classification List Score</b>	0-33	21.31±6.42	25.78±3.69	4.818	<b>&lt;0.001</b>
<b>Initiative Scheme</b>	0-15	10.51±4.34	12.24±2.43	2.488	<b>0.016</b>
<b>Problem Evaluation Scale</b>	0-6	2.51±1.21	3.10±1.27	2.873	<b>0.006</b>
<b>Total Score</b>	0-54	34.33±10.42	41.18±5.44	4.593	<b>&lt;0.001</b>

It was observed that the Omaha system total score ( $p < 0.001$ ), problem classification score ( $p < 0.001$ ), initiative scheme score ( $p = 0.016$ ), and problem evaluation scale score ( $p = 0.006$ ) of the post-training students were higher and statistically significant compared to their pre-training scores (Table 3).

#### **What Do Students Think About the Omaha System?**

The majority of the students defined the Omaha care system, which nursing students used in data collection and implementation of care plans during school health nursing practice, as a difficult, complex, time-consuming, different but important professional system. "I met the Omaha care system in school health practice, it is different from the one I use in the clinic, it requires me to place my symptom findings under their components, to create a problem assessment scale, and to determine information, behavior, and situation, it requires me to constantly research and I have a lot of difficulty in doing so (P, 33)".

While some of the students found it fun, they emphasized that it was time-consuming to be manual, to define the case correctly to Omaha components, and to create problem evaluation scales.

"It is fun, but it is tiring and time-consuming to create the problem evaluation scales manually, it could be simpler if there was a computer system (P, 16)".

Some of the students evaluated it as a system that they could not understand.

"It would be better if it was not a system that I could not understand (P, 5)".

Some of the students stated that it should be made widespread because it allows each stage to be evaluated and causality to be questioned.

"While applying the problem I have determined in the Omaha system, I measure knowledge, behavior, and attitude at every stage, I proceed according to the existing cause, I re-evaluate as I progress, and I make my interventions accordingly, I think it is very professional and dynamic (P, 27)".

The working methods used by the students to understand the Omaha system, which they encountered for the first time, were writing, reading, explaining it to others

"I encounter Omaha for the first time, there are components I don't know, and I have to learn them. To learn, I read, write, try to put it in place in the case (P, 21)".

While studying, students benefited from the textbook, lecture slides, website, articles, and advisor.

"To learn Omaha, I look at the slide in the lecture, I try to find the online system on the internet, I consult my advisor (P, 41)".

#### **DISCUSSION**

This study aimed to evaluate the students' post-Omaha system training scores on the overall Omaha scale, the problem classification scale, the initiative schema scale, and the problem evaluation scale. The students' post-training scores improved above their pre-training scores for the Omaha total score, problem classification score, initiative schema score, and problem evaluation scale score. According to studies that are comparable to this one, knowledge and skills improved as a result of quasi-experimental educational interventions in a variety of fields (Arslan et al. 2016; Çelikkalp et al., 2017; Jung, Park, Min and Ji, 2020; Kim et al., 2019; Seo and Cho, 2021; Shamsaee et al., 2021; Yılmaz and Özbek Güven, 2022). In our survey, 42.50% of the participants said they read about the Omaha system, while 37.50% said they used lecture notes or presentations to learn. Similar to our study, Turan's study from 2022, "Perceptions of Nursing Students Taking Pediatric Health and Diseases Nursing Course on Concept Map: A Metaphor Study," found that 47.17% of the students benefited from lecture notes and 79.24% of the students studied by writing. In the parts of our study where qualitative data were presented, students' opinions about the Omaha system after the training were evaluated. In similar studies in the literature, students stated that the Omaha system is inclusive, simple, and successful in questioning causality and should be expanded (Yılmaz et al., 2018).

Similar to our study, Radhakrishnan et al., (2016) study revealed similar results in both quantitative and qualitative evaluations. As a result, in light of our study, we contributed to the participants and the literature by increasing the level of knowledge of the students about the Omaha system and improving their ability to use the system. Therefore, it is appropriate to use the Omaha system as an active educational tool for public health and the training of public health nurses (Eardley et al., 2018; Erdoğan and Esin, 2004; Erdoğan et al., 2013; Radhakrishnan et al., 2016; Zhang et al., 2021).

Studies on the Omaha system in our country and various countries have often been carried out by trying to fix the system in various areas, and in light of the results; it has been revealed that it is inclusive in school health, community health, and nursing care services and provides systematic evaluations (Ateş and Ulus, 2019; Aylaz, et al., 2010; Coşansu et al., 2014; Erdoğan et al., 2013; Karahan and Erdoğan, 2019; Kaya, 2019; Köseoğlu et al., 2019; Kulakçı and Emiroğlu, 2012; Önder, 2019; Öztürk, 2011; Seçginli et al., 2014; Yılmaz, Özden and Gürol Arslan, 2018).

#### Limitations of the Study

This study shows the results of a sample of university students. The small sample size of this study limits its generalization. Even if many aspects of the system are expressed with the research, it is recommended to deepen and diversify with experimental studies to fully reveal and explore the potential.

#### CONCLUSION

The students' post-training scores improved above their pre-training scores for the Omaha total score, problem classification score, initiative schema score, and problem evaluation scale score. The Omaha method was rated by some students as a challenging, time-consuming, unique, significant, professional system that allowed review of each stage and causality inquiry, while it was rated negatively by others.

The students employed writing, reading, explaining it to others, and practicing it as study techniques to comprehend the Omaha system. Students benefited from the textbook, lecture slides, website, articles, and advisor while studying.

#### Acknowledgement

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#### Conflict of Interest

The authors declare no potential conflicts of interest with respect to the research, authorship and/or publication of this article.

#### Author Contributions

**Plan, design:** AO, SY; **Material, methods and data collection:** AO, SY; **Data analysis and comments:** AO, EU; **Writing and corrections:** AO, SY, EU.

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