

Original Article

## Evaluation of Care Plans Prepared by First-Year Nursing Students According to the Activities of Daily Living Model and NANDA Diagnoses

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### Abstract

**Aim:** The aim of this study was to assess first-year nursing students' data collection, identification of NANDA-I nursing diagnoses according to the data collected, and their perceptions of nursing diagnoses based on the Activities of Daily Living (ADL) model.

**Methodology:** The study data were collected using the Perceptions of Nursing Diagnosis Survey and student questionnaire form, and the students' data collection forms and care plans.

**Results:** The most commonly used diagnoses by students included impaired sleep pattern, lack of knowledge, and risk of infection. However, it was observed that none of the students made any diagnoses related to the activities of controlling body temperature, working and playing, or expressing sexuality.

**Conclusions:** It was concluded that the students did not collect enough data related to the activity of expressing sexuality, had difficulty collecting data related to elimination, and had a moderately negative perception of nursing diagnoses.

**Keywords:** Nursing Students, NANDA-I, Activities of Daily Living Model

### Introduction

The nursing process is a systematic, scientific problem-solving method used to determine the healthcare needs of a healthy or sick individual and to provide personalized care (Carpenito, 2012). The nursing process consists of six steps: data collection, diagnosis, identifying outcome criteria, planning, implementation, and evaluation (Carpenito, 2012). Accurately determining the care needs of a patient or healthy person first requires accurate, thorough, and objective data collection. Various models are used for this purpose, one of which is the activities of daily living (ADL) model (Roper et al., 1996; Buyukyilmaz & Asti, 2009).

The ADL model, developed by Roper, Logan, and Tierney in 1980, aimed to identify and solve problems faced by healthy/sick individuals with

respect to ADL and improve quality of life for the individual and his/her family (Roper et al., 1996; Buyukyilmaz & Asti, 2009). The model includes 12 ADLs. Some of these activities include physiological activities necessary for survival (maintaining a safe environment, breathing, eating/drinking, elimination, temperature regulation, mobilization, sleeping) whereas others encompass activities that increase quality of life (personal hygiene and dressing, communication, working, playing, expressing sexuality) and finally, the process of death and dying (Buyukyilmaz & Asti, 2009; Jenkins et al., 2012). Nurses collecting data using this model are expected to collect data related to these 12 ADLs.

Nurses use the data they collect for diagnosis, the second step of the nursing process (Karadakovan

& Yesilbalkan, 2004). Preparing personalized care plans containing nursing diagnoses made according to a standard diagnostic system is important in terms of promoting the use of a common language among nurses at the national and international level. Today, the nursing diagnosis terminology commonly used internationally is the North American Nursing Diagnosis Association (NANDA) system. Previous studies have demonstrated that the NANDA nursing diagnosis system was effective and convenient for identifying patients' care problems and was beneficial in terms of diagnosing patients in various disease groups and determining their care needs, though it was noted these findings should be confirmed with further studies (Karadakovan & Yesilbalkan, 2004; Ilce et al., 2010).

The nursing process should be actively used by nurses during patient care to achieve the benefits mentioned above. However, some authors have reported that working nurses did not actively use the process in patient care and were reluctant to do so (Guner & Terakye, 2000). Although nurses take courses about the nursing process and use of the NANDA taxonomy during their undergraduate education, it seems that this training does not adequately convey the importance of using the nursing process to nursing students (Tasdemir & Kizilkaya, 2013).

A study on nursing students in Turkey demonstrated moderate levels of ability in identifying patients' descriptive characteristics, associated factors, nursing diagnoses, and outcome criteria; planning/implementation; and evaluation (Gok-Ozer & Kuzu, 2006). Karadakovan and Yesilbalkan (2004) found that nursing students could not adequately select interventions for the nursing diagnoses they identified while caring for individuals with neurological diseases. Tasdemir and Kizilkaya (2013) determined from nursing students' care plans that a low proportion of students appropriately applied the SEP (symptom–etiology–problem) format in determining nursing diagnosis, outcome criterion, planning, implementation, and evaluation. Yont et al. (2009) stated that although 76.9% of the students knew what nursing diagnoses were, 31.5% had difficulty expressing the care needs of patient in the form of a nursing diagnosis.

In the literature, there are many studies investigating care plans generated by nursing students for the patients in their care (Guner & Terakye, 2000; Gok-Ozer & Kuzu, 2006; Tambag & Can, 2013; Tasdemir & Kizilkaya, 2013; Yönt et al., 2009). However, when these studies are examined, it appears that most studies only evaluated the students' diagnostic skills or focused on identifying the most frequently used NANDA diagnoses. Based on the belief that model-based data collection and assessment of diagnostic skills based on data obtained specifically for this model would be more objective, the present study evaluated care plans prepared by students according to the ADL model and NANDA-I diagnoses. Furthermore, identifying and mitigating apprehension about using the nursing process in students before graduation is important in terms of improving their ability to provide better quality and patient-centered care after graduation.

**Aim:** The present study was conducted to assess first-year nursing students' patient care plans to evaluate their capabilities in data collecting and identifying NANDA-I nursing diagnoses according to the data collected, and to determine their perceptions of nursing diagnoses according to the ADL model.

### Methodology

**Population and Sample:** The population of this descriptive research consisted of 120 students in their first year of undergraduate nursing education in the fall semester of the 2016–2017 academic year. No sampling was performed. Inclusion criteria were being a first-year nursing student, having prepared a care plan for the first time, and volunteering to participate in the study. Based on these criteria, 108 students were recruited (participation rate of 90%). The care plans evaluated in the study were prepared by the students during the 140-hour clinical practice part of the Basic Principles and Practices in Nursing course. The clinical practice portion of the course was preceded by theoretical education regarding the application of the nursing process in clinical practice and data collection according to the ADL model. This was followed by ADL-based data collection and use of the NANDA-I taxonomy were studied using sample scenarios. During clinical practice, the students used a structured data collection form that was prepared by the researchers and included questions for

each of the 12 ADLs. Our rationale for examining the care plans of first-year students is that this is their first clinical practice experience after receiving theoretical information about collecting data and preparing care plans. In clinical practice, the students were asked to prepare three care plans. The first and second care plans were supervised by the consultant lecturers and nurses and discussed with the student. For this study, the students were asked to bring in their third care plan.

**Data Collection:** Study data were collected using the Perception of Nursing Diagnosis Survey (PND) and a student questionnaire form. The forms were administered to the 108 participants in the classroom environment during the last week of the semester. The students were also asked to submit their care plans and ADL-based data collection forms in the last week of the semester.

**Student Questionnaire:** The questionnaire was prepared in line with the relevant literature and comprised 15 open-ended questions. It included questions such as the student's age and gender, how long they had been providing care for the patient, and most commonly used diagnoses.

**Perception of Nursing Diagnosis Survey:** The PND was developed by Olsen, Forst, and Orth and its Turkish validity and reliability study was conducted by Akin-Korhan et al. (2013). It consists of 26 items in 4 subscales (delineation and promotion of the nursing profession, clear representation of the patient's condition, ease of use, conceptual orientation). Total score ranges from 1 to 5, with lower score indicating more positive perception of nursing diagnoses. In this study, Cronbach's alpha coefficient of reliability of the PND was 0.88.

**Data assessment:** PND scores and student questionnaire data were summarized using number, percentage, mean, and standard deviation. The students' care plans were evaluated in terms of the completeness and appropriateness of data collection according to the ADL model, diagnosis based on the collected data, determination of NANDA-I diagnoses according to the ADL model, and most frequently used NANDA-I diagnoses. For this purpose, the researchers prepared and used an 8-item form to assess the data collected by the students and NANDA diagnoses determined. The Turkish translation of the *Handbook of Nursing Diagnosis* by Carpenito-Moyet (Erdemir, 2012) and NANDA-I Taxonomy-II were used as a

guide during this assessment. If the diagnoses written in the care plans were not present in the Taxonomy-II or if they were expressed differently, the diagnoses were considered wrong. The rates at which students collected data and made diagnoses according to the ADL model, the number of nursing diagnoses determined, and how frequently the diagnoses were made were assessed in number and percentage. The data were analyzed using SPSS 15.0 statistical package program.

**Ethical Considerations:** Written approval was obtained from the Faculty of Health Sciences, Nursing Department and the Clinical Research Ethics Committee (no: 20/09/2017-05/03) of the institution in which the study was conducted. As per the Declaration of Helsinki, all participants were informed about the aim of the study and their written informed consent was obtained before the study.

## Results

The students' mean age was  $19.62 \pm 2.19$  years, 74.1% were female, and 76.9% of them stated that nursing was their preference for undergraduate major. Of the students, 96.3% stated that the nursing process was necessary for nursing care and 97.2% stated that using the nursing process was beneficial for professional development. In addition, 98.1% of the students stated that working with nursing diagnoses improved quality of care and 92.6% expressed that they would choose to use nursing diagnoses in their professional practice, but 34.3% of the students expressed having difficulty with diagnosis. It was determined that the patients had cared for their patients for a mean of  $4.59 \pm 3.79$  days and that 24.1% of the students made 5 nursing diagnoses for their patient. 'Risk of infection' was the most commonly used diagnosis according to the students' self-report (30.6%). The students had difficulty collecting data related to elimination (19.4%) and sexual activity (16.7%), and 82.4% of them used the actual and risk diagnoses together.

When the students' data collection forms were assessed, it was found that the students most frequently collected data related to the activity of maintaining a safe environment (98.1%), whereas for sexual activity, 23.1% of the students did not collect enough data and 4.6% collected no data at all (Table 1).

Consistent with the data they collected, 95.4% of the students' care plans included diagnoses related to maintaining a safe environment, while none made diagnoses related to expressing sexuality or work/play (Table 2).

The most common diagnoses used by the students in their care plans were disturbed sleep pattern (42.6%), lack of knowledge (25%), and risk of infection (17.6%). In contrast, there were

no diagnoses related to the activities of controlling temperature, working and playing, or expressing sexuality (Table 3).

Mean total PND score was  $2.40 \pm 0.52$ . Subscale scores were  $2.81 \pm 0.51$  for conceptual orientation,  $2.10 \pm 0.76$  for promotion of the nursing profession,  $3.02 \pm 0.55$  for clearly representing the patient's status, and  $2.46 \pm 0.65$  for ease of use (Table 4).

**Table 1. Assessment of the students' data collection according to the ADL model**

ADL	Data collected, n (%)		
	Adequate	Inadequate	None
Creating and maintaining a safe environment	106 (98.1)	2 (1.9)	–
Breathing	101 (93.5)	7 (6.5)	–
Eating	104 (97.2)	3 (2.8)	–
Mobilization	105 (97.2)	3 (2.8)	–
Elimination	102 (94.4)	6 (5.6)	–
Expressing sexuality	78 (72.2)	25 (23.1)	5 (4.6)
Communication	107 (99.1)	1 (0.9)	–
Personal hygiene and dressing	101 (93.5)	6 (5.6)	1 (0.9)
Controlling body temperature	107 (99.1)	1 (0.9)	–
Working and playing	101 (93.5)	7 (6.5)	–
Sleep	105 (97.2)	3 (2.8)	–

**Table 2. Appropriateness of the Nursing Diagnoses Made by the Students According to the ADL-Based Data Collected**

ADL	Diagnosis Status, n (%)			
	Diagnosed	Not Diagnosed	Not Assessed	No Problem
Creating and maintaining a safe environment	103(95.4)	4 (3.7)	-	1(0.9)
Breathing	24 (22.2)	23 (21.3)	6 (5.6)	55 (50.9)
Eating	44 (40.7)	16 (14.8)	-	48 (44.5)
Mobilization	39 (36.1)	37 (34.3)	1 (0.8)	31 (28.8)
Elimination	28 (25.9)	21 (19.4)	2 (1.9)	57 (52.8)

Expressing sexuality	-	11 (10.2)	25 (23.1)	72 (66.7)
Communication	67 (62.0)	10 (9.3)	-	31 (28.7)
Personal hygiene and dressing	45 (41.7)	20 (18.5)	2 (1.9)	41 (37.9)
Controlling body temperature	-	-	10 (9.3)	98 (90.7)
Working and playing	-	22 (20.3)	4 (3.7)	82 (76.0)
Sleep	44 (40.7)	18 (16.7)	1 (0.9)	45 (41.7)

**Table 3. Most Frequently Used Diagnoses by the Students According to the ADL Model**

ADL	NANDA diagnoses	n (%)
Creating and maintaining a safe environment	Risk of infection	19 (17.6)
	Acute pain	9 (8.3)
	Risk for trauma	3 (2.8)
Breathing	Risk for aspiration	6 (5.69)
	Ineffectivity in respiratory functions	5 (4.6)
	Inefficient breathing pattern	8 (7.4)
	Ineffectivity in cleaning airway	3 (2.89)
Eating	Imbalanced nutrition (lesser than body requirements)	8 (7.4)
	Excessive fluid volume	7 (6.5)
	Deficient fluid volume	4 (3.7)
	Imbalanced nutrition (more than body requirements)	4 (3.7)
Mobilization	Impaired physical mobility	12 (11.1)
	Activity intolerance	11 (10.29)
	Impaired walking	4 (3.7)
	Impaired bed mobility	2 (1.9)
Elimination	Constipation	17 (15.7)
	Risk for constipation	3 (2.8)
	Functional incontinence	2 (1.9)
Expressing sexuality	-	-
Communication	Lack of knowledge	27 (25.0)
	Anxiety, lack of knowledge	17 (15.7)
	Anxiety	15 (13.9)
Personal hygiene and dressing	Deficiency in self-bathing/hygiene	9 (8.3)
	Risk for impaired skin integrity	8 (7.4)
	Impaired skin integrity	6 (5.6)
	Self-care deficiency syndrome	4 (3.7)
Controlling body temperature	-	-
Working and playing	-	-
Sleep	Disturbed sleep pattern	46 (42.6)

**Table 4. Mean scores of Perception of Nursing Diagnoses survey**

	Mean±SD	Min.	Max.
Conceptual orientation	2.81 ± 0.51	1.50	4.00
Delineating and promoting the nursing profession	2.10 ±0.76	1.15	4.62
Clearly representing the patient's condition	3.02±0.55	1.20	4.20
Ease of use	2.46±0.65	1.00	4.00
Total	2.40±0.52	1.23	4.23

SD: Standard deviation

## Discussion

This study assessed the patient care plans made by first-year nursing students, of whom 96.3% stated that the nursing process was necessary for nursing care and 34.3% reported having difficulty in diagnosing. In a previous study conducted to determine nursing students' opinions about nursing diagnoses, 63.9% of the students stated that it was necessary to use nursing diagnoses in patient care, whereas 31.5% stated that they had difficulty determining patients' needs and diagnoses (Yont et al., 2009). In another study carried out with 44 nursing students, 65.9% of the students stated that it was necessary to use the nursing process in the patient care (Taskin Yilmaz et al., 2015). In the present study, nearly all of the students agreed that working with nursing diagnoses improved the quality of care (98.1%), that using the nursing process was beneficial for professional development (97.2%), and that they would prefer to use nursing diagnoses while working as a nurse (92.6%). In another study, 56.1% of the students stated that it was necessary to use nursing diagnoses in order to improve care standards, provide holistic care, and increase the quality of care (Yont et al., 2009).

According to their self-report, the nursing diagnosis most commonly used by the students in our study was risk of infection. Areas of difficulty in data collection included the urinary system for 19.4% and sexual activity for 16.7% of the students, and it was determined that 82.4% used the actual and risk diagnoses together. In the study by Yont et al. (2009), the students also reported that risk of infection was the nursing

diagnosis they used most often. Similar results were obtained in other studies conducted on this subject (Uysal et al., 2016; Hakverdioglu Yont et al., 2014).

Evaluation of the students in terms of ADL-based data collection showed that 23.1% did not collect enough data related to sexual activity and 4.6% of collected no data related to this activity. Similarly, Avsar et al. (2014) found that nurses did not collect data related to working and playing, expressing sexuality, and death in their study evaluating data collection by nurses according to the ADL model. In a study evaluating care plans prepared by nurses in a psychiatric clinic according to the Functional Health Patterns model, the nurses were found to have collected data about sexuality and reproduction (20%), values and beliefs (62.5%), and stress and coping with it (66.3%) (Sabanciogullari et al., 2011). In contrast, the students who participated in our study made no diagnoses related to controlling temperature, working/playing, or expressing sexuality. Investigation into the reasons for this revealed that the students did not collect enough data about sexual activity in particular. It is not possible to make a diagnosis without collecting enough data on sexual activity. Other studies conducted with nursing students also demonstrated that the students did not make any nursing diagnoses related to sexuality or reproduction function (Uysal et al., 2016; Zaybak et al., 2017). Yont et al. (2009) determined that the students in their study did not make any diagnoses about the functions of sexuality, reproduction, values, and beliefs and that they

made very few diagnoses about the functions of stress, coping, roles, and relationships in their study. Taskin Yilmaz et al. (2015) determined that the students in their study made no diagnoses about the functions of sexuality, reproduction, values, and beliefs. In another study, only 2 of 50 students made a diagnosis about sexuality (Cavalcante et al., 2016). Many studies conducted in Turkey yielded findings similar to ours, showing that students had difficulty in collecting data on and diagnosing sexual function and that they did not address relevant diagnoses in their care plans. It has also been emphasized by many authors that students were uncomfortable and embarrassed talking about sexual problems with the patients in their care (Guner & Terakye, 2000; Kaya et al., 2004; Ozer & Kuzu, 2006; Aydin & Akansel, 2013; Turk et al., 2013; Noh & Lee, 2015). Therefore, it is expected that students would rather focus on physiological problems. As a matter of fact, in the study by Yont et al. (2009), the students pointed out that it was more difficult to diagnose psychosocial problems than physical problems.

There may be several reasons for students' tendency to avoid collecting data and making diagnoses related to sexual activity. Given the curricular content of the nursing program in the university where our study was conducted, it may be related to not having enough theoretical knowledge about this field yet. However, as stated above, students are embarrassed to talk about the topic and likely prefer to avoid discussing it because they consider it to be private/intimate information. In addition, talking about subjects related to sexuality is not culturally acceptable in Turkish society. Akinci et al. (2011) reported that Turkish students were more uncomfortable discussing sexuality than foreign students, whereas studies conducted in other countries showed that more than 50% of students were able to speak comfortably to patients about sexuality (Magnan & Norris, 2008; Kong et al., 2009). These results support the view that Turkish students' hesitation to discuss sexuality is due to cultural factors.

In our study, the diagnoses most commonly made by the students were found to be disturbed sleep pattern (42.6%), lack of knowledge (25%), and risk of infection (17.6%). Hakverdioglu Yont et al. (2014) determined that the students in their study most commonly used the nursing of disturbed sleep pattern, imbalanced nutrition,

constipation, and chronic pain. Other studies that examined the nursing diagnoses found in student nurses' care plans, the most common nursing diagnoses included risk of infection, disturbed sleep pattern, acute pain, constipation, anxiety, activity intolerance, impaired physical mobility, and trauma (Uysal et al., 2016; Aydin & Akansel, 2013; Ozer & Kuzu, 2006; Turk et al., 2013). In another study, the most common nursing diagnoses made by students included risk of infection, lack of self-care, risk for impaired skin integrity, impaired physical mobility, and disturbed sleep pattern (Karadakovan & Yesilbakan, 2004). Palese et al. (2009) cited impaired mobility, deficient bathing and personal hygiene, impaired skin integrity, acute pain, ineffective airway clearance, malnutrition, weight loss, lack of self-care syndrome, risk of infection, anxiety, and ineffective breathing pattern as the most common nursing diagnoses made by students in their study. Noh and Lee (2015) found that students used the diagnoses of acute pain, hyperthermia, constipation, lack of knowledge, and impaired skin integrity, whereas in the study by Cavalcante et al. (2016), the most common diagnosis used by the students was risk of infection. Our findings in this study were consistent with those of previous studies, in which risk of infection is almost always among the diagnoses most frequently used by students. We believe this can be attributed to the fact that the students were in their first year of nursing education and thus did not yet have sufficient knowledge of disease or skill in interpreting concrete data.

The students' PND scores indicated that they had more positive perceptions in terms of how nursing diagnoses describe and promote the nursing profession and more negative perceptions in the dimensions of conceptual orientation, accurate representation of the patient's status, and ease of use. Overall, our results show that the students perceive nursing diagnoses negatively. Akin-Korhan et al. (2013) reported a mean total PND score of  $2.48 \pm 0.45$  in their validation study. In terms of total score, the results from that study and our own are fairly consistent and suggest that both students and nurses usually do not perceive nursing diagnoses positively. Our findings departed from theirs in the subdimensions of clearly representing the patient's status and delineating the nursing profession. Possible explanations for the higher

scores in these subscales may be that our study group was in the first year of their studies and still had low levels of professional knowledge, had not received theoretical education about the diseases yet, had recently been introduced to the profession, and had just had their first experience with preparing a care plan. It is hoped that the negative perceptions of the students will change during the ongoing training process. The positive shift in students' perceptions of nursing diagnoses over the course of their education is an important factor that will increase the quality of care provided to patients as well as increase the quality and visibility of nursing practice. It is encouraging that nearly all of the students who participated in our study stated that working with nursing diagnoses would increase the quality of care and that they would prefer to use nursing diagnoses in their professional practice. Based on these findings, it can be said that these perceptions will become more positive during the education process.

**Limitations:** This study had some limitations. Firstly, the results were partially based on self-reported information. Although the participation rate was 90%, the sample was limited to first-year students. Therefore, our results cannot be generalized to all nursing students.

**Conclusion:** The results of our study indicate that first-year Turkish nursing students could not collect enough data about the activity of expressing sexuality and had difficulty collecting data about the activity of elimination. Their nursing diagnoses were mostly related to maintaining a safe environment, while they never made diagnoses related to the activities of controlling body temperature, working and playing, or expressing sexuality. The most common diagnoses they made were disturbed sleep pattern, risk of infection, and lack of knowledge, and their perceptions of nursing diagnoses were moderately negative.

Based on the results obtained from our study, several modifications to the nursing curriculum content and implementation can be recommended. Methods of collecting data related to the activity of expressing sexuality should be reviewed and students should be trained about this subject. Students should receive individual feedback on their care plans during the clinical practice and clinics in which the nurses actively use care plans should be preferred when deciding

where students will do their practice. In addition, an instructor/nurse should always be present to guide/supervise the student and provide training to increase students' awareness of the importance of nursing diagnoses. It is clear that students require more training on the collection of data pertaining to sexuality and identifying and managing problems related to sexuality. The nursing education curriculum should be modified to foster the development of a holistic perspective in the students and the effectiveness of these changes should be evaluated in order to ensure new generations of nurses that can perceive and treat patients holistically.

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## References

- Akin-Korhan, E., Hakverdioglu-Yont, G., Ak, B., Erdemir, F. (2013). Analysis of Turkish validity and reliability of perception of nursing diagnosis. *Turkish Journal of Research & Development in Nursing*, 15(3), 13-25.
- Akinci, A.C., Yildiz, H., Zengin, N. (2011). The level of comfort among nursing students during sexual counseling to patients who have chronic medical conditions. *Sexuality and Disability*, 29(1), 11-20. <https://doi.org/10.1007/s11195-010-9185-1>
- Avsar, G., Ogunc, A.E., Taskin, M., Burkey, O.F. (2014). Evaluation of the nursing process practices used by nurses in patient care. *Journal of Anatolia Nursing and Health Sciences*, 17(4), 216-221. (in Turkish)
- Aydin, N., Akansel, A. (2013). Determination of accuracy of nursing diagnoses used by nursing students in their nursing care plans. *International Journal of Caring Sciences*, 6(2), 252-257.
- Buyukyilmaz, F., Asti, T. (2009). Nursing care of postoperative pain. *Journal of Anatolia Nursing and Health Sciences*, 12(2), 84-93.
- Carpenito, J.L. (2012). *Nursing Diagnostics Handbook*. Erdemir, F. (trans.), 13th Edition, Nobel Medicine Bookstores, Istanbul. (in Turkish)
- Cavalcante, K.M.H., Botelho, M.L., Cavalcanti, P.P., Garcia, F.M.P. (2016). Discussing nursing diagnosis applied by nursing students. *Scientific Electronic Archives*, 9(3), 87-94.
- Gok Ozer, F., Lamb, N. (2006). The status of students' use of nursing process and nanda diagnostics in their care plans. *Journal of Ege University School of Nursing*, 22, 69-80.
- Guner, P., Terakye, G. (2000). The level of determination nursing diagnosis of senior nursing school students. *Journal of Cumhuriyet University School of Nursing*, 4(1), 9-15.

- Hakverdioglu Yont, G., Korhan, E. A., Erdemir, F., Muller-Staub, M. (2014). Nursing diagnoses determined by first year students: a vignette study. *Int J Nurs Knowl*, 25 (1), 39–42.
- District, A., Totur, B., Ozbayir, T. (2010). Evaluation of brain tumor patients according to international NANDA nursing diagnoses: care recommendations. *J Neurol Sci*, 27:178-84. (in Turkish)
- Jenkins, J., Solomon, J., Whittam S. (2012). Applying the Roper. Logan. Tierney model in practice. Second Edition, Elsevier Limited, China.
- Karadakovan, A., Yesilbalkan, O.U. (2004). The Investigation of the NANDA Nursing Diagnosis Determined by the Students on Neurological Patient. *Journal of Atatürk University School of Nursing*, 7, 1-7.
- Kaya, N., Kaya, H., Babadag, K. (2004). Investigation of planning stage of student's nursing process form. *İstanbul University Florence Nightingale Journal of Nursing*, 13(52), 79-90.
- Kong, S.K.F., Wu, L.H., Loke, A.Y. (2009). Nursing students' knowledge, attitude and readiness to work for clients with sexual health concerns. *Journal of Clinical Nursing*, 18(16), 2372-2382.
- Magnan, M.A., Norris, D.M. (2008). Nursing students' perceptions of barriers to addressing patient sexuality concerns. *Journal of Nursing Education*, 47(6), 260-268.
- NANDA-I. 2012. Home page. <http://www.nanda.org> (Accessed December 12, 2019).
- Noh, H.K., Lee, E. (2015). Relationships among NANDA-I diagnoses, nursing outcomes classification, and nursing interventions classification by nursing students for patients in medical-surgical units in Korea. *Int J Nurs Knowl*, 26(1), 43-51.
- Ozer, F.G., Kuzu, N. (2006). The status of students' use of nursing process and NANDA diagnoses in their care plans. *Journal of Ege University School of Nursing*, 22(1), 69–80.
- Palese, A., De Silvestre, D., Valoppi, G., Tomietto, M. (2009). A 10-year retrospective study of teaching nursing diagnosis to baccalaureate students in Italy. *Int J Nurs Knowl*, 20, 64–75.
- Roper, N., Logan, W.W., Tierney, A.J. (1996). *The Elements of Nursing*. 4 Edition, Churchill Livingstone, Newyork.
- Sabancıogullari, S., Ata, E.E., Kelleci, M., Dogan, S. (2011). Evaluation According to the Functional Health Pattern Model and NANDA Diagnoses of Patient Care Plans Made by Nurses in a Psychiatry Department. *Journal of Psychiatric Nursing*, 2(3), 117-122.
- Tambag, H., Can, R. (2014). Evaluation of the NANDA nursing diagnoses level of determining in nursing students during application of the psychiatric nursing course. *Yildirim Beyazit University Journal of Nursing*, 2(3), 12-20.
- Tasdemir, G., Kizilkaya, M. (2013). Evaluation of NANDA nursing diagnoses of healthcare college final year students during the clinical application of the mental health and disease nursing course. *International Journal of Human Sciences*, 10(1), 246-257.
- Taskin Yilmaz, F., Sabancıogullari, S., Aldemir, K. (2015). The opinions of nursing students regarding the nursing process and their levels of proficiency in Turkey. *Journal of Caring Sciences*, 4(4), 265-275. <https://doi.org/10.15171/jcs.2015.027>.
- Turk, G., Tugrul, E., Sahbaz, M. (2013). Determination of nursing diagnoses used by students in the first clinical practice. *Int J Nurs Knowl*, 24(3), 129-133.
- Uysal, N., Arslan, G.G., Yilmaz, I., Alp, F.Y. (2016). Nursing diagnoses in care plans of second year nursing students and analysis of data. CBU-SBED Celal Bayar University, *Journal of Health Sciences Institute*, 3(1), 139-143. (in Turkish)
- Vicdan, A.K., Karabacak, B.G., Alpar, S.E. (2015). Classification of 2012-2014 NANDA-I nursing diagnostics using the Nursing Model Based on Activities of Living. *Journal of Human Sciences*, 12(2), 1626-1636.
- Yilmaz, F.T., Sabancıogullari, S., Aldemir, K. (2015). The opinions of nursing students regarding the nursing process and their levels of proficiency in Turkey. *Journal of Caring Sciences*, 4(4), 265.
- Yont, G.H., Khorshid, L., Eser, I. (2009). Examination of nursing diagnoses used by nursing students and their opinions about nursing diagnoses. *Int J Nurs Knowl*, 20, 162–168. <https://doi.org/10.1111/j.1744-618X.2009.01131.x>
- Zaybak, A., Ozdemir, H., Erol, A., Ismailoglu, E.G. (2017). An exploration of nursing students' clinical decision-making process. *Int J Nurs Knowl*, <https://doi.org/10.1111/2047-3095.12179>