Implementation of an electronic nursing care plan in a training and research hospital: qualitative examination of nurses' experiences and opinions

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ABSTRACT

Aims: The aim of this study was to qualitatively examine how the electronic nursing care plan system, which was recently implemented in a training and research hospital, was evaluated by nurses, the difficulties encountered during the integration process of the system and the solution suggestions for these difficulties.

Methods: The study was conducted with a qualitative research design and was conducted with 16 nurses using the electronic nursing care plan in a 350-bed training and research hospital in the Marmara region. Data were collected between December 2022 and February 2023 using a semi-structured interview form. Interviews were audio recorded and continued until data saturation was reached. Data were analysed using content analysis.

Results: The findings of the study were categorized under three main themes: the benefits of electronic nursing care plans, problems experienced in their implementation, and suggestions for improvement. Nurses stated that electronic care plans provide safe and effective record management, time saving and efficiency, and improve the quality of patient care. However, they stated that they faced various difficulties such as technological and systemic problems (e.g., lack of nursing diagnoses, insufficient computers and slow system) and work process problems (e.g., lack of training and the need to print out care plans). Suggestions for improvement included increasing the number of nursing diagnoses and interventions in the system, increasing the number of computers, and providing periodic trainings.

Conclusion: The results of this study show that electronic nursing care plans provide significant advantages in nursing practice, but there are some technological and systemic challenges and business process problems. Nurses made various suggestions for improvement in order to use these systems more effectively and efficiently. The study fills an important gap in the literature in this field by addressing the dynamics of electronic nursing care plans in the initial phase and the adaptation process of nurses. As a result, solving the problems experienced in the integration process of electronic nursing care plans will both improve the quality of patient care and reduce the workload of nurses. These findings have important implications for healthcare managers and policy makers in strategic planning and implementation processes.

Keywords: Electronic care plan, nursing, nursing care

INTRODUCTION

Nursing care practices play a critical role in the provision of health services. Nursing diagnoses and practices used by nurses in the care services they provide to patients are of great importance in determining the scope and quality of nursing services. Nursing diagnoses have emerged with the necessity of creating a standardized language to define patients' health problems, express their current conditions, and prevent or solve possible health problems (Mendi, 2016). These diagnoses are the basic component of nursing care plans created within the framework of standards set by national and international quality and accreditation organizations. Nursing care plans are an application based on written records to identify the health-related needs of individuals and to meet these needs, aiming to provide self-care (Eriş, 2016; Öztürk et al., 2022).

Factors such as globally increasing disease burden, increasing demand for health services, and the intensity of routine work and treatments make it difficult to implement nursing care plans (Şanlı & Platin, 2015). Electronic medical records are used as an important tool to overcome these difficulties and to realize modern healthcare delivery. Electronic care plans increase quality and efficiency in healthcare services by enabling the creation, sharing and tracking of information

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and data (Buçan Kırkbir & Kurt, 2020). Nurses' recording their practices electronically ensures that records are securely protected, stationery and workload are reduced, and costs are reduced (Escalada Hernandez et al., 2015; Öngün & Eyi, 2020). In addition, electronic care plans facilitate clinical decision-making processes by preventing errors and data loss that may occur in manual writing (Lee & Lee, 2021).

Electronic nursing care plans are reliable documents in legal processes thanks to the records created with digital signatures (Bilgiç & Şendir, 2014). These plans create a valuable database for research by systematically accumulating patient records. In addition, it increases patient safety by making warnings and reminders to nurses by defining patient-specific characteristics into the system. These positive effects significantly improve the quality of nursing care (Yılmaz, 2014). In a study conducted in the literature, 59.4% to 86% of nurses stated that electronic care plans contribute positively to the quality of patient care, emphasizing the importance of these systems (Tsai et al., 2020).

Although there are various studies in the literature on the implementation of electronic nursing care plans (Aleandri et al., 2022; Demiray & Babaoğlu, 2021; Russell & McNeill, 2023; Yurtsever & Karagözoğlu, 2020), there are no studies examining the effects of these systems in hospitals where these systems have just been implemented. In the process where the electronic care plan system has just started to be used, there is an important opportunity to understand the first impressions of the nurses about the system, the difficulties they face and the integration process of this new application. In the literature, there is limited information about the problems experienced in the early stages of the newly implemented electronic care plans and the solution suggestions for these problems. Generally, studies examining long-term use do not adequately reflect the dynamics and the adaptation process of nurses in the initial phase of the system. Understanding how electronic care plans are evaluated by nurses in the initial phase is critical for developing strategies to improve the effectiveness of the system. This study aims to analyze nurses' early feedback and provide recommendations for more efficient and effective implementation of electronic care plans.

In this context, it is thought that the findings of the study will provide important implications for both health institution managers and policy makers. It will contribute to improving the quality and safety of healthcare services by revealing the problems experienced in the integration process of electronic nursing care plans and solution suggestions for these problems. In addition to filling the gap in the literature, this study may provide practical information for faster and more effective adaptation of new applications.

METHODS

Ethical Aspects of the Research

Ethics committee approval was obtained from a public Bandırma Onyedi Eylül University Health Sciences Non-interventional Researches Ethics Committee (Date: 16.11.2022, Decision No: 2022-158) and institutional permission was obtained from the institution where the research was conducted at the meeting dated 19.01.23. Written informed consent was obtained from all participants who

agreed to participate in the study by reading the voluntary participant information form. All procedures were carried out in accordance with the ethical rules and the principles of the Declaration of Helsinki.

Research Design

The research was conducted with qualitative research method.

Working Group

This study was conducted in a 350-bed training and research hospital providing outpatient and inpatient services in Marmara region. There are 345 nurses working in the hospital. The hospital has started to use the electronic nursing care plan system since October 2022. While determining the participants of the study, maximum diversity sampling method, which is one of the purposive sampling methods, was used in order to provide maximum diversity among nurses working in various units and in different positions.

The inclusion criteria were as follows: working as a nurse in the hospital included in the study for at least one year, actively using the electronic care plan since October 2022, being open to communication and cooperation, consenting to audio recording, and being voluntary and willing to participate in the study. Interviews continued until data saturation was reached. Semi-structured qualitative interviews were conducted with 16 nurses. Descriptive characteristics of the participants are given in Table 1.

It was observed that 75% of the participants were undergraduate graduates, with an average age of 30.81±4.92 years (23-38), a total working period of 8.43±4.58 years (1-16) and a total working period of 6.3±3.02 years (1-10) in the institution. The study group consisted of 16 nurses, 75% of whom were female and 25% were male. It was determined that 4 of the nurses worked as service unit managers, while 12 were clinic nurses. The nurses worked in various services, including intensive care (n=6), internal medicine (n=5), cardiology (n=1), pediatrics (n=3), and urology (n=1). Additionally, 37.5% of the nurses participating in the study were first assigned to this hospital, while 62.5% had previously worked in other hospitals (Table 1).

Data Collection Tool

Introductory Information Form: This form was designed to collect basic demographic and professional information about the nurses participating in the study. The form includes basic information such as age, gender, education level, current position, professional and institutional experience, and the unit they work in. This information was used to assess the demographic and occupational diversity of the participants during the analysis.

Semi-Structured Interview Form: This form, which was used to examine the experiences and opinions of nurses regarding the implementation of the electronic care plan in depth, was prepared based on previous studies in the literature and the opinions of two experts (Demiray & Babaoğlu, 2021; Holmberg et al., 2010). One of these experts is specialized in qualitative research, and the other is an experienced nurse in the clinical field. The form consists of 6 questions that thoroughly inquires in detail about nurses' experiences with the use of electronic care plans, the difficulties they face and how they benefit from this system.

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Table 1. Descriptive characteristics of the participants (n=16)							
Participant no	Gender	Age	Location in unit	Education	Worked service	Professional experience	Organization experience
1	Male	27	Staff nurse	License	Child service	3	3
2	Female	23	Staff nurse	License	Internal medicine service	1	1
3	Male	29	Staff nurse	License	Child service	6	1
4	Female	33	Unit manager	License	Urology service	10	5
5	Female	24	Staff nurse	License	Internal medicine service	4	4
6	Female	27	Staff nurse	License	Internal medicine service	5	1
7	Female	34	Staff nurse	License	Internal medicine service	10	2
8	Female	27	Staff nurse	Postgraduate	Intensive care service	4	3
9	Female	30	Unit manager	Postgraduate	Intensive care service	10	10
10	Female	34	Unit manager	Postgraduate	Child service	14	8
11	Male	38	Unit manager	Postgraduate	Intensive care service	16	4
12	Female	37	Staff nurse	License	Intensive care service	15	3
13	Male	29	Staff nurse	License	Intensive care service	8	8
14	Female	37	Staff nurse	License	Intensive care service	13	8
15	Female	37	Staff nurse	License	Cardiology service	10	1
16	Female	27	Staff nurse	License	Internal medicine service	5	1

The form consists of 6 questions that thoroughly inquire about nurses' experiences with using electronic care plans, the challenges they encounter, and how they benefit from this system.

Data collection: The data were collected between December 2022 and February 2023, two months after the system was introduced. Before starting the data collection process, a pilot study was conducted with three nurses to test the effectiveness of the in-depth interview questions. This preliminary study was important to assess the clarity and scope of the questions. The pilot study was not included in the study. Interviews with nurses who agreed to participate in the study were conducted at their convenience and in appropriate settings (e.g., nurses' rest rooms in clinics and the meeting room of the hospital). Interviews were conducted face-to-face and individually, and each interview was recorded with a voice recorder. Interviews were continued until data saturation was reached, and after a total of 16 interviews, 3 additional interviews were conducted to increase the reliability of the data as themes and sub-themes started to recur. In this way, it was decided that data saturation was reached and the interviews were terminated. The interview durations were conducted without any time limitations for the participants, and the durations varied between 15 and 35 minutes.

The first author of this study is a female researcher with a PhD degree in Nursing Management and experienced in qualitative research. The second author is a PhD student in Nursing Management and an active nurse working in the hospital where the research was conducted. During the research process, the second author was responsible for conducting the interviews and transferring them to the computer.

Statistical Analysis

The recorded audio data were transferred to the computer environment and written using Microsoft Word. Content analysis method was used to evaluate the data. The data were read many times by the researchers and themes were created from each word, sentence and paragraph. The analysis of the data was carried out with the level coding system using the manual method and themes were created. Level coding was applied as open coding (first level), selective coding (second level), and themes (third level) (Toker, 2022). After this stage, the relevant codes were classified, and themes and sub-themes were formed. As a result of this thematic analysis, 3 main themes and 8 sub-themes were identified. The findings related to the main themes and sub-themes were coded by giving numbers to the participants and presented in the research report by indicating them at the end of the sentence.

Validity and reliability: The reliability and validity of the data were supported by methodological rigor. The validity of the interview questions was pre-evaluated and approved by two experts in terms of face validity. During the data collection process, trusting relationships were established with the participants. In addition, participants were asked for clarification for unclear statements during the interviews, and it was ensured that the data were recorded as they were without any bias on the part of the researchers. Data saturation was recognized when the repetition of themes and sub-themes was observed and additional interviews were conducted to increase the reliability of the data.

RESULTS

At the end of the interviews with the nurses, 3 main themes were identified. These themes are:

- Benefits of an electronic nursing care plan
- Problems experienced in electronic nursing care plan implementation
- They are suggestions for improving the electronic nursing care plan.

Main Theme 1. Benefits of an Electronic Nursing Care Plan

Three sub-themes were formed in the opinions of the nurses working in the hospital where the research was conducted regarding the benefits of electronic care plans. These were safe and effective record management, time management and efficiency, quality and holistic patient care (Table 2).

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Table 2. Themes and sub-themes of the benefits of electronic nursing care plan		
Themes	**Sub-themes**	**Description from interviewees**
Secure and effective records management	Secure, systematic and accessible archiving	"...it ensures that what we do is securely recorded...because it is recorded, I can say "I did this" and this is evidence. Who did it, what they did, everything is written in the records (p: 1)". "We see the past records. When we open the system, for example, when we create a care plan for infection, it is safe to see the options of what to check... (p: 13)".
	Reduce the risk of loss and damage to records	"...For example, papers can burn when there is a fire in the hospital. Therefore, being in electronic environment ensures that it is under a guarantee... (p: 7)". "...there was a risk of losing our forms. However, since everything is registered on the system, even if that paper disappears, we find it in the system (p: 9)".
	Elimination of problems such as misspellings and illegibility	"... some of our friends have bad handwriting, so it is not legible. It can be very difficult to read and since the same people do not always work here, we cannot ask them and evaluate what they have written... (p: 4)".
	Ensuring accuracy and security in judicial processes	"Will be able to prevent nurses from incorrect or incomplete practice. Because not all of us have good writing, it may not be readable. Or we may find it difficult to write and write it briefly. Later, when there is a judicial process or any situation, these can be a problem for us... (p: 11)"
Time management and productivity	Saving time	"We get rid of the trouble of writing. It saves time (p: 1)". "It is both convenience, time saving and practical (p: 2)". "... Because before, when you wrote by hand, it took a very long time. This way, we can do it faster when it is electronic (p: 4)". "...it is more effective, it is easier because we see the options, so there is no waste of time, it saves time (p: 13)".
	Workload reduction	"...I think it facilitates our work, in terms of time, workload, paper and documents...in these respects it is better than the manual system... (p: 9)" "...Writing the maintenance plan one by one every day beforehand increases the workload for me... (p: 13)"
Quality and holistic patient care	Providing ease and variety in accessing nursing diagnoses	"...Boxes appear. Diagnoses appear, we choose the diagnoses. We get rid of the trouble of writing (p: 1)". "...otherwise, we could not always think of another diagnosis. We were going back and forth on the same diagnoses most of the time. So, it offered us options in terms of diagnosis (p: 5)".
	Increased patient time	"...It can allow us to spend more time with patients because it saves time (p: 6)". "...Since the diagnoses are directly ready, we can pass by putting a tick. It takes more time to write a long text. For example, I can pay more attention to the patient when I would otherwise waste time writing the diagnosis (p: 15)". "...marking the diagnoses in a selected way gives us an advantage in terms of time (p: 7)".
	Ensuring quality care	"Since it saves time, more time will definitely be allocated to care, and nurses will be used effectively and efficiently. In this sense, the quality of care will increase... (p: 11)".
	Ensure holistic assessment of patients	"...Since I will be able to make a care plan more quickly in patient care, I will be able to evaluate the patient more holistically and my one-to-one communication with the patient will increase... I will be able to see the patient more holistically in hospital nursing services rather than trying to write for a long time... (p: 10)".

Main Theme 2. Problems in the Implementation of the Electronic Nursing Care Plan

Two sub-themes were formed in the opinions of the nurses working in the hospital where the research was conducted regarding the problems experienced in the electronic care plan. These are technological and systemic problems and user and work process problems (Table 3).

Main Theme 3. Suggestions for Improving the Electronic Nursing Care Plan

Three subthemes were created in the opinions of nurses working in the hospital where the research was conducted regarding suggestions for improving the electronic care plan. These are the development of the electronic maintenance plan system, development of application conditions, user support and training (Table 4).

DISCUSSION

Theme 1. Benefits of an Electronic Nursing Care Plan

The nurses stated that the electronic nursing care plan provides a safe, systematic and accessible archiving. This finding is also supported in the literature. For example, Birol (2014) and Escalada-Hernández et al. (2015) emphasized that electronic care plans provide safe and effective record management. Nurses also stated that electronic records reduce the risk of loss and damage, eliminate problems such as misspellings and illegibility, and provide accuracy and security in forensic processes. De Veer and Francke (2010) found that electronic care plans provide safer and better-quality care. This literature supports the findings of our study.

Electronic nursing care plans have enabled nurses to save time and reduce their workload. In the literature, studies such as Büyükyılmaz and Kaya (2016) and Öztürk et al. (2022) show that electronic care plans offer significant advantages in terms of time management and efficiency. For example, nurses reported that they saved time by avoiding the hassle of writing and thus were able to spend more time with patients. Tsai et al. (2020) found that computerized records reduced the paperwork burden and increased the time devoted to direct patient care. This enables nurses to use their workforce and time more effectively and efficiently (Demiray & Babaoğlu, 2021).

Nurses stated that electronic care plans provide ease and variety in accessing nursing diagnoses and thus increase the time allocated to the patient. This finding is also supported in the study conducted by Çakırlar and Mendi (2016); in the study, 59.4% of the nurses stated that electronic patient records positively affected the quality of patient care and 57.5% stated that they increased patient safety. Electronic nursing care plans enable nurses to create care plans more quickly and efficiently, which allows for more holistic evaluation of patients (Öztürk et al., 2022).

The findings of our study are consistent with and supported by the existing literature. For example, De Veer and Francke (2010) reported that electronic nursing care plans provide safe and quality care and that computerized records are more easily and timely accessible. In a study by Ausserhofer et al. (2021), 69.42% of care workers reported that electronic care plans allow for safe care and treatment. Laukvik et al. (2024) explained that electronic care plans contribute to continuity of care and patient safety. These results support

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the findings of our study and show that electronic nursing care plans provide important advantages in nursing practice. Our findings reinforce the existing information in the literature and reveal that electronic care plans are effective in both improving the quality of patient care and reducing the workload of nurses. More widespread use and continuous development of electronic care plans will improve the quality and efficiency of nursing care.

Table 3. Themes and sub-themes of problems experienced in electronic nursing care plan

Themes	Sub-themes	Description from interviewees
Technological and systemic problems	Lack of nursing diagnoses	"...for example, I am in the pediatric ward and there are no ward-appropriate diagnoses. There are only a few. Fever, lack of information. There is also dehydration. None of the rest are appropriate for the child (p: 1)". "...I see that my patient is not diagnosed with an appropriate care plan." I have to write the things I want to add in the description section, and this is not exactly the care plan I want to do, and I can write a description in a certain character in the description section (p: 10)".
	Lack of nursing interventions to be implemented	"...the fact that only specific things are registered in units such as bleeding risk or infection risk where we will intervene in diagnoses, and that we cannot add them, is a problem for us (p: 4)". "...even if there is a diagnosis, the interventions are wrong and incomplete (p: 8)".
	Lack of diagnosis and description fields to be added	"I have to write the things I want to add in the description section, and this is not exactly the care plan I want to do and I can only write a certain number of characters in the description section (p: 10)". "...In the maintenance plans, if I cannot find the diagnosis, there is no segment where I can write extra or make an explanation, there is a systemic deficit (p: 11)".
	Power outages	"...when there is a power outage, if you do not save it directly to the system, the part up to the point where we logged in at that moment is deleted, and when the power comes back on, we have to start all over again and make new entries (p:2)". "...I cannot enter maintenance plans when the power goes out on weekends, this is a problem (p:15)".
	Lack of computers and waiting times	"...there are two computers in the ward...so we sometimes have problems in implementing electronic care plans due to lack of computers (p: 2)". "...one of the major problems in creating a care plan is the lack of a computer accessible to every nurse... (p: 11)". (p: 7): "... there is only one computer in the ward, and we all have to wait for that computer one by one (p: 7)". "... we have difficulty finding a computer because there are two computers in the ward, one of them is used by the ward secretary. I actively use the computer inside as the responsible person and it can be a problem in terms of time for our other friends to use it (p: 4)".
	Slow system	"...of course, the biggest problem is that the system is heavy right now... (p: 1)" "...You know, there is a problem caused by the slowness of the computer. Let's say I did the maintenance plan, the system freezes, it doesn't save, I have to do it again (p: 3)".
Business process issues	Lack of education	"...Actually, we were not informed by the training unit and quality in the first place, and then we had problems with this issue. We didn't know how to do it; we were back to square one again (p: 4)".
	Printing and filing process	"…but you print out the care plan. You have to put it back in the file on a daily basis. This way, we give back the time you saved…(p: 1)". "...because why do we print and file what we have already recorded electronically? If only there was no filing process, it would be a waste of time for us… (p: 8)".

Table 4. Themes and sub-themes of suggestions for improving the electronic nursing care plan

Themes	Sub-themes	Description from interviewees
Development of electronic maintenance planning system	Increasing diagnoses in the system	"...Their diagnoses need to be increased. Then for the diagnosis, for example, it says result... (p: 1)". "... I think it would be better if we had the opportunity to add a new diagnostic intervention, it would make it easier for us." it would be better (p: 4)".
	Adding customization and description fields	"...Especially NANDA diagnoses, which are missing in the electronic care plan we use, should be added appropriately. The evaluation section and interventions section should be added appropriately. In addition, in cases where we perform extra interventions, there should be a separate button where we can write those interventions (p: 8)". "... a segment to systematically explain nursing care practices needs to be developed (p: 11)".
Improving terms of reference	Elimination of computer deficiencies	"...first of all, the number of computers in clinics and wards should be increased. When we enter daily care, we should wait for our other friend to enter, and computers should be increased to prevent the loss of time there (p: 7)". "...It would be good to increase the number of computers and to work with more computers so that we can plan electronic maintenance (p: 15)".
	Preventing paper waste by not printing	"...for me, it makes more sense if it stays on the computer rather than as a printout. Because it would reduce paper waste, I don't think we should print (p: 14)". "...electronic maintenance plans are already saved electronically; I think there is no need to wastepaper by taking it again (p: 15)".
User support and training	Providing periodic trainings for the clinic and the individual	"...in some places, when there is a change of unit or new recruits to the hospital, it would be easier for both the incoming person and his/her service colleagues if the training unit or the quality unit provides this training in the first place (p: 4)". "... electronic care plan training should be given to everyone. First of all, our friends who start working... They should definitely be given a training. As a result of this training, they should be made to practice (p: 7)".
	Increasing and encouraging nurse involvement	"...While preparing care plans, support should be obtained especially from the nurses actively working in that unit, and studies should be conducted on this (p: 9)". "I think I should be appreciated rather than criticized for using the electronic nursing care system.... I think there should be a certain appreciation mechanism especially for nurses who actively use the electronic nursing care plan (p: 10)".

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Theme 2. Problems Experienced in Electronic Nursing Care Plan

Öztürk et al. (2022), it was reported that 16.6% of nurses considered the lack of interventions to be applied and 23.5% considered the inadequacy of diagnoses and interventions as an important problem. In addition, in the study by Ausserhofer et al. (2021), 46.61% of care workers stated that there were not enough computers in their units to allow timely documentation. These findings support the results of our study and show that problems in the implementation of electronic nursing care plans are common.

Participants stated that nursing diagnoses were incomplete and therefore they had difficulty in finding appropriate diagnoses for the patient profile. In addition, the lack of interventions to be applied in existing diagnoses was also stated as an important problem. For example, nurses stated that inadequate diagnoses and lack of interventions negatively affected the effectiveness of care plans. In the study by Öztürk et al. (2022), it was reported that 23.5% of nurses considered insufficient diagnoses and interventions as an important problem.

The nurses stated that the lack of additional diagnosis and explanation fields in the electronic care plan prevented them from customizing their care plans as needed. This problem makes it difficult to customize care plans for patients. Participants stated that these deficiencies reduce the accuracy and effectiveness of care plans. This finding is in line with Erdoğan (2003) who stated that each patient's nursing care plan is individual and has different time periods.

Power outages and lack of computers prevent nurses from using electronic care plans effectively. Loss of data during power outages and the need for re-entry cause loss of time. In addition, the insufficient number of computers and their slow operation disrupt nurses' work processes and make it difficult to complete care plans on time. In the study by Ausserhofer et al. (2021), less than half of the nursing staff (46.61%) stated that there were enough computers in their units to enable timely documentation, which supports this finding.

Theme 3. Suggestions for Improving the Electronic Nursing Care Plan

In our study, nurses made various suggestions for improving the electronic nursing care plan. The participants stated that the nursing diagnoses in the current system are insufficient and that these diagnoses should be increased. Increasing the diagnoses will allow nurses to create more accurate and effective care plans. This will enable nurses to better tailor care plans to the individual needs of patients. In the study of Hayrinen et al. (2010), it was emphasized that the deficiencies in nursing diagnoses in the system should be eliminated for effective and quality nursing care. In addition, Demiray and Babaoğlu (2021) stated in their study that the nursing diagnoses in the system were insufficient, and arrangements should be made for manual interventions. These findings support the results of our study and show that electronic nursing care plans need to be improved.

Participants stated that there were not enough computers in the clinics and wards and this situation made it difficult to implement care plans. Increasing the number of computers will allow nurses to make care plans more quickly and

efficiently. In the study by Ausserhofer et al. (2021), less than half of the nursing staff stated that there were enough computers in their units to allow timely documentation, which supports this finding. Nurses stated that printing out electronic care plans caused paper waste and additional workload. Keeping records electronically and not printing them out will both save time and be environmentally beneficial.

Nurses emphasized that periodic trainings should be provided on the use of the electronic care plan system. Providing regular trainings for both new nurses and existing nurses will ensure more effective use of the system. Darmer et al. (2004) and Müller-Staub et al. (2004) emphasized the positive effects of training on the implementation of electronic nursing care.

Nurses stated that nurses who are active in the preparation of care plans should be more involved in the process and nurses who actively use electronic care plans should be encouraged. Increasing and encouraging the participation of nurses will increase the effectiveness and acceptance of care plans. Adereti and Olaugun (2019) found that training on the use of electronic care plans improved the quality of documentation.

Limitations

The results of this study are based on qualitative research methodology and a limited sample group conducted in a specific hospital. This limits the generalizability of the findings. In addition, the research was conducted over a specific time period (December 2022 - February 2023), and specific events or conditions that occurred during this period may affect the results.

CONCLUSION

In this study, the effects of electronic nursing care plans on nursing practices and the opinions of nurses on the improvement of these systems were examined. Our findings show that electronic nursing care plans provide significant advantages in improving the quality of nursing care, but some technological and systemic problems and business process problems are also present. Electronic nursing care plans offer great benefits for nurses in terms of safe and effective record management, time management and efficiency, and providing quality and holistic patient care. However, nurses face various problems such as inadequacy of nursing diagnoses in the current system, lack of nursing interventions to be applied, lack of diagnosis and explanation fields to be added, power outages, computer inadequacy and slow operation of the system. In addition, lack of training and work process problems such as printing and filing of care plans were also cited as important challenges.

In the light of these findings, some suggestions are made for more effective and efficient use of electronic nursing care plans in nursing practices. First of all, nursing diagnoses and interventions in the system should be expanded and updated. Customization and explanation fields should be added so that nurses can adapt care plans according to the individual needs of patients. A sufficient number of computers should be available in clinics and wards and these computers should be updated regularly. The electronic care plan system should be ensured to work quickly and smoothly and slowdowns in the system should be eliminated. Safe backup systems and generators should be used to prevent data loss due to power

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outages. Regular and periodic training programs should be organized for both new nurses and existing employees, and these trainings should enable nurses to use the electronic care plan system effectively. Nurses who use electronic care plans effectively should be encouraged and nurses who are successful in this regard should be rewarded. Finally, printing out the data recorded electronically causes unnecessary waste of paper and time; therefore, it should be ensured that they remain in the electronic environment as much as possible and the printing process should be minimized.

These recommendations were developed to increase the effectiveness of electronic nursing care plans and to facilitate the work processes of nurses. More widespread use and continuous development of electronic nursing care plans will increase the quality and efficiency of nursing care. In order to improve the quality of nursing care and reduce workload, both technological infrastructures should be improved, and user support should be provided. In this context, continuous improvement and development studies should be carried out to increase the quality and efficiency of nursing care.

The findings of this study suggest that continuous education and technological support are needed to enable nurses to be more effective in the use of electronic nursing care plans. By using electronic systems effectively, nurses can spend more time on patient care and improve the accuracy of records. The time savings and workload reduction of electronic care plans will increase nurses' professional satisfaction and quality of patient care. In addition, improving the customization and explanation fields of the system will make it easier for nurses to tailor care plans to the individual needs of patients.

Nurse managers should organize periodic training programs and take nurses' feedback into account to encourage the use of electronic care plans and increase efficiency. Adequate and fast computers should be available in the clinic and precautions should be taken against power outages. Paper waste should be prevented by minimizing the printing of electronic records. In addition, rewarding and recognizing nurses who use electronic care plans effectively will increase motivation. These strategies will make significant contributions to improving the quality and efficiency of nursing care.

ETHICAL DECLARATIONS

Ethics Committee Approval

The study was carried out with the permission of Bandırma Onyedi Eylül University Health Sciences Non-interventional Researches Ethics Committee (Date: 16.11.2022, Decision No: 2022-158).

Informed Consent

All patients signed and free and informed consent form.

Referee Evaluation Process

Externally peer-reviewed.

Conflict of Interest Statement

The authors have no conflicts of interest to declare.

Financial Disclosure

The authors declared that this study has received no financial support.

Author Contributions

All of the authors declare that they have all participated in the design, execution, and analysis of the paper, and that they have approved the final version.

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