

Nurses' experiences of internet for patients cares: A systematic review of qualitative evidence

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ABSTRACT

Introduction: Nurses play important roles in the Healthcare, responding to the care needs of patients with the ever-expanding Internet of Things Internet-based care programs. This is useful for patients to better self-care. The purpose of this systematic review is to explore nurses' experiences in using the Internet to care for patients.

Material and Methods: This was a systematic review and qualitative evidence synthesis modeled on the Joanna Briggs Methodology. Pre-defined keywords were searched for in Google scholar, Medline, Pub med, CINAHL, and Internet of Science to locate studies published in the English language in no time limit until the end of 2019. Two reviewers independently screened articles for congruence with eligibility criteria, engaged in data extraction, and assessed quality of the included studies. Meta-aggregation was performed to synthesize the findings. A protocol was developed by two members of the review team prior to initiation of the study.

Results: Six studies were included in the review, three qualitative researches, one grounded theory and two interpretive descriptive approaches. Three key themes were identified from the studies: Nurses and internet-based care plan; Patients and the internet-based care plan; challenge of the hospital in relation to the internet-based care plan.

Conclusion: Nurses provide care to patients during the process of illness. Internet-based nursing care plans have created to facilitate the treatment and care, and to helps patients in self-care. Nurses face many challenges and benefits in delivering internet-based care, yet they strive to do their best to provide better patient care using new technologies for patients.

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INTRODUCTION

The Internet is a global system, which gives access to a broad range of scientific sources and information. The application of the Internet is growing in every corner of the world with 1 billion users in 2005 and 3.9 billion in 2018 [1].

To respond the medical experts' demands for information and keep up with the technological advances in the provision of information, there is an increasing tendency among these experts towards using the information technology (IT) to get access to the latest scientific information, solve clinical

problems, and provide treatment, education, and research services [2]. Therefore, the application of IT in the health system brings considerable advantages, such as providing health service providers with increased access to the latest medical information and sources [3]. One of the areas of health is nursing, which works in the field of patient care. The profession of nursing, like other subcategories of the health system, is affected by the informatics and IT developments [4]. In the field of nursing, the Internet and internet-based technologies offer new opportunities for education, research, and professional development [5]. Nurses are today

expected to be able to have access to, assess, and use research evidence in their professional judgments. Clinical practice guidelines, clinical courses, treatment protocols, and optimal information performance of drug-drug and drug interactions, nursing ethics codes, and job descriptions are information requirements, which form the specialized nursing content [6].

Nurses have an important role in the health system as they are largely involved with providing care to patients and their families at different levels. Nurses have also an important role in the provision of high-quality health services [7].

Although nurses are the largest provider of health services in hospitals and healthcare centers, there is scant published evidence about how to search for online information. Nurses prefer to look for a solution to their professional problems through consulting with their colleagues and other experts, instead of referring to conventional resources. As a result, effective search strategies and guidelines are needed to help nurses in doing integrated e-research to obtain evidence-based health information [8].

To better help these actions, the need to pay more attention to hospitals and health centers that are internet-based care program seems necessary. Hospitals equipped with computer systems and adequate Internet-based information may play a considerable role in the future by recruiting and maintaining clinical personnel. Nurses' goals in searching for online information include the improvement of patient care quality and the continuation of professional development [9].

In this regard, a study showed that such factors as insufficient time, the lack of access to resources, the lack of financial support, traditional thoughts, the lack of sufficient knowledge, and the lack of support from managers and physicians prevent nurses from using the latest information sources [10]. As well as, Jelin et al. reported such factors as inapplicable nursing studies, the lack of sufficient time, and the lack of organizational support as the major barriers to the application of the latest information sources by nurses [6].

Moreover, educational studies have shown that the nursing students in developing countries still have no access to required training, and generally information-based knowledge training, for using modern information systems to obtain required information [11]. Nurses In order to better implement internet-based care, nurses face various problems and challenges and have many needs that, if used properly and at the right time, will affect their care activities. This qualitative systematic review was performed to identify the existing gaps. The majority of qualitative studies have been done on a few participants in limited cities and centers. A

systematic review and combination of results from a number of qualitative studies can integrate data of different participants and centers, and provide nurses and planners with comprehensive information to offer better healthcare services [12]. The objective of this systematic review study was to explore nurses' experiences in using the Internet to care for patients. The following study question were posed: What are the nurses' experiences of internet for care patients?

MATERIAL AND METHODS

This is a systematic review of qualitative studies conducted based on the Joanna Briggs Institute's model, which is a methodological model to investigate systematic qualitative studies [13]. This model guides the selection of studies and analysis of data by setting eligibility criteria for studies and search strategies. The synthesis of qualitative studies provides a comprehensive view of the knowledge of a specific area and directly determines the evidence-based activities and studies' uncertainties and weaknesses [14]. This study aimed to enhance transparency in reporting the synthesis of the qualitative research framework. The main research question was about the experience of nurses in using the Internet for providing patient care.

Inclusion and exclusion criteria and search strategy

This systematic review study was conducted on eligible qualitative studies nurses' experiences in using the Internet to provide patient care. To this end, only qualitative studies on this subject were included; in addition, English studies on nurses' experience of using the Internet, published in Google Scholar, PubMed, SINHAL, Internet of Sciences, Embase, Cochrane library, Nursing & allied health database, PsycINFO, Scopus., were included. The thesis, review, quantitative, and abstract articles and articles published other language English were excluded.

The time frame of the search was until the end of 2019. To maximize the comprehensiveness of the search process, the search was conducted for Latin and MeSH keywords including: technology, patients, nursing care, qualitative research, Internet-based, and experiences.

In addition, all probable combinations of these keywords were searched using the OR and AND operators.

Search strings used in PubMed:

([Internet- based [MeSH Terms] AND nursing*[MeSH Terms] [All Fields]) OR (internet based [MeSH Terms] AND qualitative research [subheading] [All Fields]) OR (internet based [MeSH Terms] AND nursing care [Subheading] [All Fields]) OR (internet

based [MeSH Terms] AND experience*[MeSH Terms] [All Fields]).

First, the abstracts were reviewed and ineligible articles were excluded. Then, a complete report of the texts of the related articles was assessed. All studies obtained in the search phase underwent the screening and selection procedures for review. The next stage was to process the studies in terms of relevancy with the research question, and the quality of reports and codes extracted from each report.

Quality appraisal

The qualitative studies were assessed using the Critical Appraisal Skills Program (CASP), which includes 10 items on the results of qualitative studies, and their credibility and usefulness [15].

It is a review study that sought to systematically establish whether a study is eligible based on the inclusion criteria, using 10 items responded with "yes," "no," and "can't say." Each article for review was assessed by two authors independently. Two articles, as samples, were assessed by outsiders. This was done for ethical considerations and bias prevention. Table 1 presents the assessment results. The total score of each article is 10 by responding "yes" to all items and the score above 7 is regarded as very good.

The aim of the quality assessment was not to exclude the studies based on their quality; rather it was intended to study the articles in a systematic and standardized process to highlight the quality of existing evidence on given questions. We used the above instruments to assess the quality of included studies. All reviewed articles were scored 7-9. Other properties of the articles are presented in Table 1.

Data extraction

Each study was read at least twice before data extraction to ensure that the content is fully comprehended. Using the data extraction form, two research team members independently investigated the properties of the studies (the type of study, participants, setting, and the objective of the study, methodology, data collection, and data analysis) and reported data (main themes and sub-themes, labels, and citations). Then, a final meeting was held between all researchers to compare the results from data extraction, discuss the differences, and make a decision about the final data to report.

Data synthesis

The reported findings were synthesized using a meta-aggregative approach, which included re-categorization and re-classification of the studies' findings to achieve a significant synthesis. For each extracted finding, we specifically considered a credibility level (irregular, credible, or

unsupportable) based on the correlation between findings (using the author's description/interpretation) and participants' reports. Then, we identified the similarities and differences between the collected findings and certain reports, which were helpful in creating components that produced the meaning of the synthesized data. Then, these categories were reviewed to read the intrinsic considerations in the synthesized findings. This process ensured the main interpretation of the findings and was suitable for a better understanding of the concepts related to each subject [13]. The MAXQdata was used to facilitate data synthesis.

Risk of bias

All authors approved the internal validity of the article. Cochrane Collaboration conducted for High Risk of Bias standards [16].

Of the six articles, three had at least one 'high risk' of bias [17-20] and three articles had 'low risk' in all five domains [6, 17, 21].

RESULTS

Characteristics of articles

A total of 147 articles were extracted by searching the aforementioned databases, out of which 45 duplicated articles were excluded. After the initial investigation by two members of the research team, 88 articles were excluded because their topics or summaries violated the inclusion criteria. A total of 16 articles with complete text underwent the second screening stage, out of which six articles met the inclusion criteria (Fig 1).

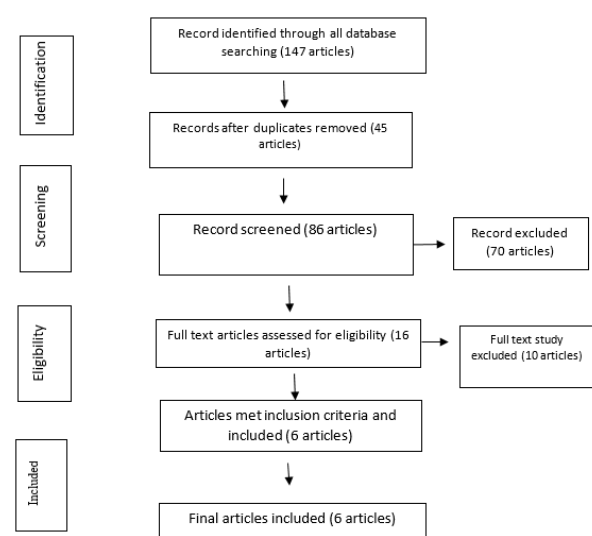


Fig 1: PRISMA flowchart

Six qualitative studies on the nurses' experiences in

using the Internet for providing care, published in credible journals until the end of 2019, were selected and reviewed. The demographic characteristics of the participants included age and sex and the number of participants in all studies were 81, varying between 7 and 22. All studies, except one grounded theory-based study, were qualitative. Three studies used purposive sampling and three studies did not mention the sampling technique. Data collection was done through semi-structured interviews in four studies and group focused interviews in two studies. Data analysis was done through content analysis, thematic analysis, and systematic text condensation. The objectives of the study and the results are

presented in Table 2.

Results from data synthesis

A total of 30 findings were extracted from the eligible studies. All findings were assessed for validity. Based on the similarities between the reports in different articles, 30 findings were placed in 13 categories. Finally, three synthesized findings were obtained (Table 3): nurses in relation to the application of the Internet, patients in relation to the Internet-based care, and challenges of the hospital management system.

Table 1: Quality appraisal of studies

	1. Was there a clear statement of the aims of the research?	2. Is a qualitative Methodology appropriate?	3. Was the research design appropriate to address the aims of the research?	4. Was the recruitment strategy appropriate to the aims of the research?	5. Was the data collected in a way that addressed the research issue?	6. Has the relationship between researcher and participants been adequately considered?	7. Have ethical issues been taken into consideration?	8. Was the data Analysis sufficiently rigorous?	9. Is there a clear statement of findings?	10. How valuable is the research?	Scoring
Jelin et al. 2012	✓	✓	✓	-	✓	✓	✓	-	-	✓	7
Beishuizen et al. 2019	✓	✓	✓	✓	-	✓	✓	-	✓	-	7
Kurki et al. 2017	✓	✓	✓	-	✓	✓	✓	-	✓	-	7
Pusa et al. 2018	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	9
Haase et al. 2018	-	✓	-	✓	✓	✓	✓	✓	✓	✓	8
Sjöström et al. 2019	✓	✓	✓	✓	✓	✓	✓	-	✓	✓	9

Table 2: Summary of studies and reported study results

Author/ year	Purpose/Aim/Research Question	Methodology/Data collection/Data analysis	Sampling and participants	Main results/Themes
Jelin et al. 2012	explore female patients' experiences of participating in a 4-week internet-based home intervention after in-house multidimensional rehabilitation	qualitative study/ semi structured interviews/systematic text condensation	Purpose sampling/ Seven women	Experience of expanding consciousness Experience of expanding consciousness
Beishuizen et al. 2019	Explore nurses' best practices concerning behavior change guidance for cardiovascular (CV) prevention in order to learn how to optimally integrate them into a coach supported internet platform for CV self-management	grounded theory/focus group/thematically analyzed	Purpose sampling/ Six Finnish and seven Dutch	(1) establishing a relationship of trust, (2) managing awareness and expectations 3) appropriate timing and monitoring of the process of behavior change
Kurki et al. 2017	describes nurses' experiences of the use of an Internet-based support system for adolescents with depressive disorders	Qualitative descriptive study/ semi-structured interview/ Inductive content analysis	total sampling method/ 9 registered nurses	Adolescent's outpatient care, Nurse's profession, Attributes of the system, Early intervention, Adolescent's mental status, Unintegrated to care
Pusa et al. 2018	describe the perceptions that municipal primary healthcare nurses and municipal registered nurses had about a internet based learning intervention concerning supportive family health conversations in municipal home health care	descriptive design/ semi-structured interview/ Inductive content analysis	Twenty-one nurses/	nurses' perceptions regarding the disposition of instruction, the prerequisites for learning and a changed approach when working with families
Haase et al. 2018	document cancer healthcare professionals' views of patients' use of cancer-related Internet information	interpretive descriptive approach/ focus groups and four interviews/ thematic analysis	purposive and theoretical sample/21 participants	pragmatic concerns and priorities; and processes and practices
Sjöström et al. 2019	explore primary health care nurses' experiences of consultations with patients who present health-related information from the Internet	qualitative study/ semi-structured interview/ content analysis	NA/ 9 participants	Facing the downsides of googling, Patients as main actors, and Nurse role challenged

Table 3: Synthesized findings

Synthesized Findings	Categories	Jelin et al. 2012	Beishuizen et al. 2019	Kurki et al. 2017	Pusa et al. 2018	Hasee et al. 2018	Sjöström et al. 2019
Nurses and internet-based care plan	Problem of education and sufficient knowledge of internet	√	√		√		
	problem with having a well-designed online plan for nurse care	√					
	Lack of coordination between nurses and other medical staff					√	√
	Increasing awareness and knowledge of nursing	√	√				
	Impact on confidence, growth of nurse creativity and innovation in work	√	√		√	√	√
	Development of Nursing Professional			√			
Patients and the internet-based care plan	The challenge of patient confidence in the nurse regarding the use of internet recommendations					√	
	Not having enough patient knowledge about internet use	√				√	√
	The complementary role of the Internet in accelerating recovery			√			√
	The role of the Internet in enhancing patient self-care			√			√
challenge of the hospital in relation to the internet-based care plan	The problem of hospital facilities for internet use				√		√
	The Challenge of Coordination between Different Health Systems for Internet Use		√	√			
	The Challenge of Updating Internet Systems		√			√	√

Nurses and Internet-based care plan

Nurses in relation to the application of the Internet was placed in following categories: the lack of sufficient education and knowledge of the Internet, the lack of an Internet-based program for care provision, the lack of coordination between nurses and other medical staff, enhanced nursing knowledge and awareness, effect on the nurses' self-confidence in their job, and professional development. Due to the lack of an educational program on the Internet during the academic years and also insufficient knowledge of using it for patient care, nurses are faced with many problems in this regard. The included articles reported the important roles of technical experience and knowledge of the Internet, receiving positive feedback from it, and motivation in using the Internet. An educational structure enhances awareness and changes the approaches and ideology of the nurses [6, 17, 18].

The technical support of the Internet is problematic and the lack of a coordinating system between the patient and nurse causes confusion for both sides and challenges the care plan [6]. In addition to nurses, a patient needs other medical staff, such as radiotherapist, oncologist, and pharmacologist, who also require an access to the Internet for the implementation of healthcare plans; in addition, there is a lack of coordination between the medical

teams that confuse the patients and thus nurses alone cannot alleviate the patient's problem. All of these issues depend on the patient's readiness to use equipment and coordination with the medical team to improve the chance of achievement [19, 20].

Improving the nurses' knowledge in using the Internet for better administration of patient care enhances the self-confidence of the nursing staff. Moreover, nurses' creativity in the provision of patient care services improves. The Internet provides nurses with a learning setting in facing problems. The Internet offers a new learning opportunity, which changes the thinking and practice and develops a new approach [18-20]. The use of the Internet improves professional nursing skills as an independent science. A nurse that uses internet-based support in providing patient care creatively employs new technologies and achieves patient's positive feedback. The general outcome of this measure will be professional development [21].

Patients and Internet-based care plan

The use of the Internet to help patients, where they have an active role, is associated with some challenges. Age, educational attainment, living in urban or rural areas, and patient's ability in using the Internet have a role in the application of the Internet. In some cases, the patients demand additional and supplemental information, and/or refer to their

physicians. They also do not trust nurses' recommendations on the use of the Internet for health care [20]. The other patient-side problem in using the Internet is that even the existence of an Internet-based health care system to help patients cannot be equally beneficial to all due to their ability differences. When using the Internet, some relevant questions are remained unanswered due to the lack of access to the physician and nurse, and/or exposure to an unfamiliar word. In addition, the lack of adequate knowledge causes stress in the patient [19, 20].

The Internet is a good source of health information for the patient. The use of the Internet at home at an appropriate time and situation can complement the care and play the role of complementary therapeutic measures for the patient. Therefore, the Internet can be helpful when there is no access to nurses and/or physicians [19, 21]. The internet-based care plans play an empowering role for the patient. The patient care plans in credible internet sites have an important role in providing the patients with a consultation about self-care activities. The self-care consultation constitutes the main part of nursing which, in turn, is an important part of the treatment process. Moreover, it improves the patient's self-confidence and the chance of achievement [18, 20].

Challenge of hospitals in relation to Internet-based care plan

The hardware and software equipment of hospitals is essential for better implementation of internet-based care plans. However, the hospitals make the required investment in this matter. Therefore, the patients should also be helped in better use of educational programs or by providing them with software and hardware equipment. In addition to the treatment personnel, other specialists are needed to be available in case of any problem for the patient or the treatment staff. The hospital administrator has a very important role in this regard [18, 19].

The different knowledge levels of the physician, nurse, and patient are of the main components of an internet-based care plan. For better administration of the internet-based care plan, it is important to coordinate the components and create a common view between them. Patients have different Internet equipment at home. Sometimes a nurse may feel overworked, which causes the role change problem. A physician is not always accessible to the patient or nurse. Ultimately, the major problems are in the patient's side, who may be unable to effectively use the internet-based care plan [17, 21].

It is very important to provide patients with updated systems. Nurses highlight the importance of frequent updates of information in recommended internet sites to the patients to help them in the self-care process. For the better use of an internet-based care

plan, hospitals need the latest computer and Internet systems. This is because the anxiety and problems of a patient increase when he/she encounters a problem and there is no access to the nurse [17, 19, 20].

DISCUSSION

This systematic review of qualitative studies has described the nurses' experiences in using the Internet for patient care. Nurses deal with both positive and negative aspects of the internet-based care plan, which affect their roles. Moreover, internet-based care plans help patients in achieving self-care capability. The identification of the challenges, advantages, and disadvantages of such a plan can contribute to better implementation of them. The literature results showed that the nurses are faced with such challenges as the lack of an Internet-based program, lack of sufficient awareness and knowledge of the Internet, inability to alleviate technical problems, untimely updates of the Internet systems, and implementation of the internet-based patient care plan. The three synthesized findings from the nurses' experiences of using the Internet are: Nurses and internet-based care plan; Patients and the internet-based care plan; the challenge of the hospital in relation to the internet-based care plan.

Nurses and Internet-based care plan

According to the results, nurses' use of the Internet to help patients in the administration of patient care and empowerment programs is associated with such problems as insufficient knowledge due to the lack of appropriate educational program, the lack of internet-based care plan for the patients, and the lack of coordination between the treatment personnel in collaborative implementation of internet-based care plans. On the other hand, the use of the Internet improves the awareness, self-confidence, and creativity and innovation of the nurses, and finally results in professional development.

As a modern technology with many capabilities, the Internet can be used to deal with some major care challenges facing nurses in hospitals. Nursing care is affected by the shortage of nursing personnel, work setting problems, impractical non-scientific physical care environments, and problems in the identification of the patients' needs. Therefore, the Internet is a solution to problems. Nurses can provide patients with better care services by using the Internet [22, 23]. Moreover, the information competence of the nurses in relation to the Internet for better use of it is a principal prerequisite of Internet use [24]. In this regard, the results of a study showed that the development of an internet-based care plan is difficult to implement because of not considering its components. As a result, it is needed to acquire a good understanding of the problem, the

target group, its settings, and barriers to change and their solutions. The identification and understanding of the barriers and facilitators of the care plans are very important for effective and sustainable use of it in the implementation of required care by the nurses and its application by the patient [25]. Results of another study showed that in addition to many advantages, the implementation of the internet-based care plans depends on three factors, namely patients, healthcare providers, and healthcare organizations. Nurses alone are not able to succeed in the implementation of this plan. Other medical personnel, such as the physicians, and even the rehabilitation team members and the psychologist, are not always available, which affect a chance of success [26].

Moreover, IT-based knowledge can support the nursing profession and contribute to professional development. The access to e-support mechanisms to implement e-care plans requires appropriate decisions to ensure high-quality care and safety, and facilitate the care process. The acquisition of knowledge and independent methodology is essential for the nurses to implement internet-based plans. Providing nurses with new knowledge is a national and regional need to implement independent care plan guidelines [27]. The results of these studies are consistent with the present study.

Patients and Internet-based care plan

Among other research results were the patients and internet-based care. With respect to the internet-based care plans for patients, the patients cannot trust these plans and nurses' recommendations. Moreover, patients are not equal in their knowledge of the Internet, which is a challenge facing them and the healthcare system. However, the use of internet-based care plans is regarded as a complementary care program, which promotes patients' independence and a sense of self-care ability. As a result, their self-confidence and motivation improve by seeing the positive effects of the plan. Consistent with the results of the present study, other studies have shown that the internet-based care plans are used as an instrument to improve healthcare process, allow for the provision of healthcare services to remote areas, reduce the costs, and improve health-related behaviors and long-term management of the duration of chronic diseases. Some patient-side barriers are the lack of trust in the medical personnel, lack of sufficient science and knowledge, financial problems, doubt in the scientific assessment of care quality, and insufficient software and hardware equipment [28, 29].

Moreover, results from other studies showed that the internet-based care plan management requires considerable time, attempt, and knowledge by the patient and sometimes the caregivers; in addition,

rapid access to information and high-quality sources through the Internet may reduce the management load. The existing structured guidelines and practice programs for the patients improve the patients' ability in dealing with chronic diseases. In some cases, access to online sources can be a substitute for frequent visits to clinics, which also alleviate the patients' commute-related problems. These programs can complement the treatment process and the Internet can facilitate the healthcare provision by the doctors and nurses, resulting in improved self-care conditions [30].

Moreover, the internet-based plans allow patients to have secure access to their electronic medical records, which are typically kept with the healthcare providers, anywhere with access to the Internet. Regarding the extensive coverage of the Internet and the growing number of patients, the Internet programs can play a complementary therapeutic role by providing valuable opportunities for cementing the relationship with the patients and encouraging their active participation in daily self-care management [31, 32].

Challenge of hospitals in relation to Internet-based care plan

Among other results of the present study are the challenges facing hospitals in the implementation of an Internet-based care plan. Hospitals and other medical centers, responsible to provide and implement internet-based care plans, should pave the way for better implementation of these plans based on three components, namely patient, nurse, and physician. In this regard, the provision of software and hardware equipment is essential, which requires the allocation of budget and experts. Another matter is to update the care system and program. It is very important to coordinate groups involved in the implementation of the program because the lack of such coordination may cause anxiety, worry, and disappointment and neutralize all attempts.

The results of a study showed that the implementation of care plans by hospitals and their implementation regulations in society by the clients are as complex as their difficulty to conduct. Although their economic advantages cannot be thought about in the initial stages, they are very difficult to support [33]. Moreover, the extensive use of the Internet and its growing popularity provide an ideal opportunity to design care interventions for more effective application by the patients. Those hospitals and health center that support internet-based care plans are faced with challenges such as easy installation and update of applications on the cell phones, tablets, and desktops, making them applicable for all patients with different levels of knowledge and ability which, in turn, encourages them to make better use of these

applications [34, 35].

Another challenge is the coordination between different hospital departments in the implementation of internet-based care plans. Coordination in connecting the patients, medical personnel, software and hardware systems, IT systems, and medical equipment, along with their integration in an application and making use of it through the Internet cannot be done easily. The advantages of an effective internet-based care plan can increase the productivity of the workforce, reduce costs, improve operational efficiency, and enhance the medical personnel's experience in the process of patient care. These advantages can be used to alleviate the healthcare challenges, facilitate behavior change, and promote the well-being of the patients by offering them their health ownership. This ownership can be associated with preventive behavior changes, prevent health-related problems, and cause better management of the situation [36, 37]. The results of these studies are consistent with the present study. Our findings were obtained from a combination of different qualitative studies to help nurses, patients, and medical systems in better use of internet-in patients cares.

Strengths and limitations

There are many limitations to the interpretation of the results of this study. First, similar to all meta-aggregation studies, it is probable that we have shown the key experiences and/or results incorrectly as it is a possible risk when qualitative data is synthesized from different sources. To minimize this probable error, we used the Joanna Briggs Institute Model. Moreover, the research team was specialized in qualitative studies and IT. Second, our search strategy was probably unable to identify all relevant articles; however, using more keywords may produce more results. In addition, searching a greater number of specialized databases may result in more relevant articles. Searching articles in other languages, in addition to English, may lead to further relevant studies.

Among the strength of the study is the team's

expertise in qualitative studies and IT. The extracted themes were the product of an intellectual integration, which included different nursing, patient, and health system areas, in which the results of reviewed studies are aggregated.

CONCLUSION

This systematic review included articles published in different countries and provided an aggregated perspective on nurses' experience in the implementation of internet-based care plans to facilitate treatment, which contributes to the self-care ability in the patient. There are similarities and differences in nurses' experiences in the implementation of internet-based care plans in different countries. Despite many challenges facing the nursing staff in the implementation of internet-based care plans, they do their best to use new patient care technologies effectively.

This review study increased our knowledge of the nurses' experience. Its results can contribute to the development of new knowledge by laying the ground for further studies. It is suggested that in order to reduce the challenges, health managers and policy makers, while implementing empowerment programs for patients and nurses and equipping hospitals and treatment centers with computer and Internet systems, help to better use and implement Internet care programs.

AUTHOR'S CONTRIBUTION

All authors contributed to the literature review, design, data collection and analysis, drafting the manuscript, read and approved the final manuscript.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest regarding the publication of this study.

FINANCIAL DISCLOSURE

No financial interests related to the material of this manuscript have been declared.

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