

Paker Digital Application in Making Palliative Nursing Care

Rindy Antika¹, Karolin Adhistry², Khoirul Latifin³

¹Nursing Science Study Program, Faculty of Medicine, Sriwijaya University, 30662, South Sumatera, Indonesia.

²Nursing Department, Department of Nursing Maternity, Faculty of Medicine, Sriwijaya University, 30662, South Sumatera, Indonesia.

³Nursing Department, Department of Medical Surgery Nursing, Faculty of Medicine, Sriwijaya University, 30662, South Sumatera, Indonesia.

*Correspondence: karolin.adhistry@fk.unsri.ac.id

Abstract: Digital documentation as legal ethics in reporting nursing care is a way to save and evaluate the actions taken by nurses. Digital documentation has several advantages rather than manual documentation, including increased communication between nurses, and medical workers as well as the effectiveness of time in making nursing care documentation better. This study aims to create Android-based digital documentation which can be used as a guide in providing palliative nursing care for cancer patients with a focus on physical and social problems. The research design used in this research was research and development (R&D) with a quantitative approach and ADDIE development model. The trial of this application was conducted on 15 nursing students with a purposive sampling technique. The Blackbox and application eligibility test got an 83 score which showed that this application is categorized as excellent, acceptable, and suitable for use. Documentation is an important part of making nursing care which must be learned and mastered by nurses through lectures. Studying documentation from assessment to evaluation can improve the professional ability of prospective nurses in providing real implementation to patients. This application can be a useful tool for nurses as a medium for learning nursing care documentation.

Keywords: Palliative, Cancer, Application, Social

INTRODUCTION

The nursing process has an important role in improving the quality of health services (Dermawan, 2012). The quality of services can be seen from complete, better, and correct documentation, but documentation is still considered something too complicated, diverse writing, and time-consuming (Erna & Dewi, 2020). Complete and accurate quality nursing care documentation is needed to increase the effectiveness and efficiency of nursing services, especially palliative services (Prastanti, 2012). Long-term palliative service needs comprehensive service facilities so that cancer patients get good quality and holistic services (Cemy, 2012). Documentation is also important to determine the readiness of patients and families to undergo the treatment (Nur et al., 2022)

Global Atlas of Palliative Care 2020 states that it is estimated that there are 56,8 million people who require palliative care each year, including 31,1 million people before and 25,7 million people towards the end of life (*World Health Organization*, 2020). In Indonesia, palliative care still has limitations, one of them is the palliative assessment guideline that is not yet available either in health or education services. Meanwhile, there is a standard book on diagnosis, outcomes, and nursing interventions issued by the Indonesian National Nurses Association (PPNI) which can be used as a standard in implementing nursing care.

Nursing students as future nurse candidates should have the ability to write comprehensive documentation of nursing care. Recording of nursing care reports conventionally is still done manually by handwriting. It causes difficulties for the students, especially in palliative nursing care which is very complicated. Production of nursing care reports manually makes the students only focus on recording

rather than paying attention to the care process carried out for patients (Tuhareal, Payung, Purnawinadi, & Rotikan, 2019). However, making complex palliative nursing care reports can be developed using technology.

Technology has a big influence on health services so medical workers must realize and accept the internet developments. The use of technology in healthcare gives positive impacts, such as improving the efficiency and quality of services, maintaining the safety and secrecy of patients' data, providing useful, and accurate information, and supporting the nursing process (Mulyani et al., 2019). Utilization of technology can realize that using the application that can help nurses especially nursing students.

An application can make the students easier in making nursing care reports. Furthermore, they will focus on learning intervention and implementing it in the patients. Consequently, providing palliative nursing care can be more optimal in improving the life quality of patients. Improving the life quality of cancer patients is carried out by paying attention to the bio-psycho-social-spiritual and cultural aspects. However, the social aspect takes a special role in increasing the life quality of cancer sufferers. The provision of social support can affect someone's adaptation to the disease and therapy that he or she is doing and motivation to recover. The support systems, such as family and close people become important sources in carrying out religious rituals that are adhered to by the patients (Herdiana, 2016). Therefore, medical workers need to pay attention to the needs of the social aspect of cancer patients so their quality of life increases through a good nursing process.

Paker's digital application can be used as guidelines in making palliative nursing care for cancer patients by focusing on physical and social problems. This application also aims to assist students in learning palliative nursing care from assessment, diagnosis, intervention, and nursing outcomes.

METHOD

This research design involves research and development with the ADDIE development method. The population in this research were students of the Nursing Science Study Program, Faculty of Medicine, and Sriwijaya University Class 2018. The sample of this research used a non-probabilistic sampling method of purposive sampling of as many as 15 respondents with inclusion criteria, namely Sriwijaya University Nursing S1 students' batch 2018 that had taken nursing courses of Palliatives I, II, and III. Researchers conducted research trials on students by paying attention to the observation factor of the respondents. The questionnaire in this research used the *System Usability Scale (SUS)*. Researchers analyzed the data and application requirements using the calculation of the SUS score. This research has been registered for the ethics committee of the Faculty of Medicine under No. 029-2022.

RESULT

The result of this research resulted in an application that can be used as a guide to making nursing care with a focus on physical and social problems with palliative cancer patients. This application can produce nursing diagnoses, nursing interventions, and nursing outcomes with a focus on the patient's physical and social problems. The following is a display of the digital application of a cancer aspirant guide, also abbreviated as a packer.

New User Form

The new user form contains their name, *email address*, *password*, and *confirm password*. This form is used for new *users* that do not have an account to register themselves very easily. Users only need to enter their *name* (name), *email address* (email address), *password* (password), and *confirm password* (password confirmation) to make sure the password is correct. After that, the user can click "register" (register), and the user already has an account. However, users can only log in if they have received verification from the admin.



Figure 1. New User Form

Login Form

The *log-in form* contains an *email column* and a *password column*. Users who have previously registered can *log in* with the account that was created. The form *login* will appear first when opening the application if the user already has an account.



Figure 2. Registration Form

Form Home

The form contains an explanation of the application of cancer asked in the guide and steps for operating the application. The form appears for the first time after the user logs into the application.

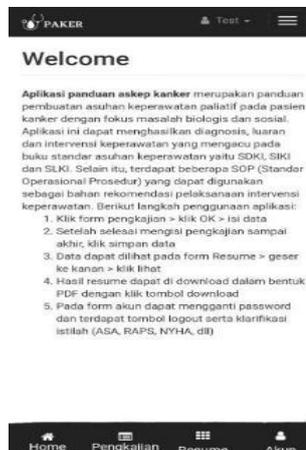


Figure 3. Form Home

Palliative Assessment Form

The *form assessment logs* into this application. The assessment form contains an assessment of the patient's identity, an assessment of physical condition, and an assessment of social conditions. In this form, a drop-down list can be selected as desired. Patient identity consists of the patient's name, patient age, patient's date of birth, gender, ward, and date of assessment.

Figure 4. Form of *Palliative Assessment*

Resume Nursing Care Form

Form resume displays the results of the assessment that have been filled in with the final results in the form of nursing diagnoses, nursing interventions, and nursing outcomes as well as SOP (Standard Operating Procedures). The initial display of this *resume form* is a list of resumes equipped with three buttons, namely delete, view, and download. With these three buttons, users can delete, preview, or download resume results. A *resume* can be saved in the application and also be saved in the form of a pdf file so that it can be printed. When the user clicks the view button on this form, the user can see the resume results. There are "back" and "downloading" at the top.

#	Nama Pasien	Usia	Tanggal Lahir	Jenis
1	Ny.K	42 th	1980-03-20	Peren
2	Ny.A	35 th	1987-02-11	Peren
3	Tn.J	33 th	1988-11-24	Laki
4	Tn.B	55 th	1968-07-07	Laki
5	Ny.Z	40 th	1974-01-22	Peren
6	Ny.R	29 th	1992-08-06	Peren
7	Ny.P	47 th	1974-06-28	Peren
8	Tn.J	36 th	1986-03-03	Laki
9	Tn.H	69 th	1953-01-23	Laki
10	Tn.S	52 th	1969-10-15	Laki

Figure 5. *Resume Nursing Care Form*

Form Account

This form contains a *profile*, clarification of terms, and settings. In the settings, the user can change the full name, email, and password. The clarification of terms contains words that are not understood on the assessment form.

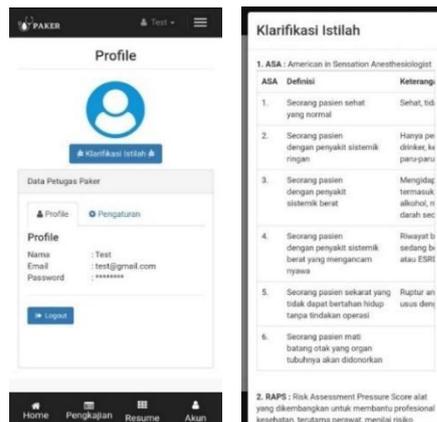


Figure 6. Form Account

Based on the calculation of the SUS score on the usability testing of the cancer-*askep* guide application, it can be seen that the highest score was 97.5, the lowest score was 70, and the most common score was 77.5. The number of SUS scores obtained in this study for 15 respondents was 1245. This value was entered into the formula for the average value of the SUS score, namely:

$$\bar{x} = \frac{1245}{15} = 83$$

The results of the average value are interpreted into the SUS score category to determine the feasibility of the application of the cancer medical care guide.

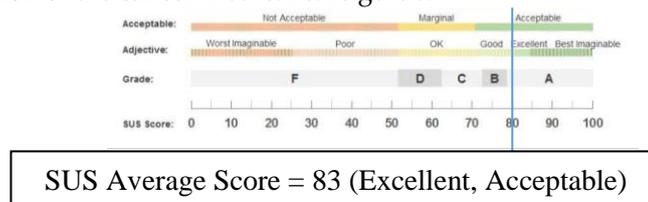


Figure 7. SUS Score Scale (System Usability Scale)

The SUS (System Usability Scale) score in the research results obtained a score of 83, classified as excellent and acceptable.

DISCUSSION

According to the results of the assessment using the usability scale system (SUS), the level of acceptability range for the users of the *pakcer* application is included in the acceptable category. The user's grade scale level for the *pakcer* application is included in the A category. At the Adjective Rating level, users of the *pakcer* application are in the excellent category. Based on the provisions of determining the results using the SUS Score Percentile Rank, the results obtained show that the *pakcer* application has an 83 score of SUS. It is indicated that the *pakcer* application is excellent and feasible to use

The realization of this application consists of six views. They are the new user form, login form, home form, assessment form, resume form, and account form. Each form has functions and uses that make it easier to use the application. This *PAKER* application or cancer care guide is an android based system that can be used to input patient identity data, select patient signs and symptoms, display nursing diagnoses automatically, display causes of patient diagnoses/problems, display nursing care outcomes/objectives, display patient nursing action plans, and download assessment results files for printing. This application is based on the process of selecting a diagnosis that often appears in palliative patients. *The Pakcer* application is equipped with a term clarification dictionary to increase user knowledge. Besides that, this application is equipped with standard operating procedures (SOP) that can be used as recommendations for providing implementation to patients.

The use of Android-based applications can save time and can be used as a learning medium in lectures. Dewi's research (2011) also mentions that the development of information technology-based electronic nursing documentation can provide benefits, including shorter documentation time, ease of reading data, and accessing documents as well as a learning tool. The data obtained will also make it easier for nurses to provide education about types of care for a palliative patients (Mamniah & Trihidayati, 2022). The research from Mohammadi Firouzeh et al. (2017) mentioned that the quality of electronic-based documentation is significantly better than paper-based documentation. This is because the quality and completeness of nursing records in the electronic system are increased compared to traditional paper-based methods. In addition, the electronic system can also save time while increasing the safety and quality of patient care.

The use of android-based application technology was chosen as a guide in documenting nursing care reports because the use of mobile phones that can practically be carried anywhere is different from a larger computer or laptop. The Android-based documentation method is usually used with the use of a smartphone. Android-based documentation methods are usually utilized with the use of smartphones. According to the Oxford University Dictionary (2017) cited by Setyawan (2017), it is stated that smartphones have higher capabilities than computers with large screens. Smartphones are smart cellular phones that can perform many computer functions, usually have a touch screen, can access the internet, and have an operating system that is capable of running general-purpose applications.

Moreover, the use of android-based applications can also improve the quality of nursing documentation, which can improve nursing services. The research of *the Paker* application produces an android-based application that can generate diagnoses, outcomes, and nursing interventions automatically by selecting the assessment data that has been provided. The results from Atmanto's (2020) research in the intervention group showed an increase in the quality of documentation of nursing diagnoses and interventions, before (pre-test) 31.4% and after (post-test) 97.1%. This means that the guidelines for documenting nursing diagnoses and nursing interventions based on Android are effective in improving the quality of documentation of nursing diagnoses and interventions.

This application is designed with three system designs, such as visual studio code, java, and MySQL. The visual studio code used is as a text editor, text editor is application software that allows users to create, modify, and edit text files (Matondang et al., 2016). The use of Java as a programming language and MySQL as a database. A programming language is a computer-understandable language that is used to create applications (Rizan, 2018). A database is a collection of information that is stored on a computer system so that data retrieval becomes fast and efficient (Rizki & Amijaya, 2019). This nursing care guide application has been operated by 15 nursing students of FK Unsri and the operation of the application has been running well.

The application as a guide for palliative nursing care for cancer patients has been designed and created with two tests: black-box testing and usability testing. Based on the results of the two tests that have been carried out, the operational functions of the Android-based application are considered effective and efficient for use by nursing students to improve the quality of reports on palliative nursing care for cancer patients. The results of the literature review by Rabiuliyah & Hariyati (2022) analyzing 19 journals said that the application via Android can improve the quality of nursing documentation.

The black box testing test aims to ensure that no coding errors are using repeated checks related to the emergence of the diagnostic results. The first check revealed 48 diagnoses that appeared when all the assessment data was selected. Diagnoses that have not appeared are recorded and the IT expert informed that 21 diagnoses have not appeared. The next step is for the IT expert to re-check and report the results that have been checked one by one and all diagnoses have appeared. After that, the researcher rechecked the diagnoses one by one to make sure there were no coding errors in the application. Repeated checks are also carried out on the appearance of SOP (Standard Operating Procedures) for each diagnosis. Researchers checked SOPs one by one and reported to IT experts if there were SOPs that had not appeared. Then, IT experts ensure that all SOPs have appeared. Then IT experts ensure that all SOPs have appeared. According to Rayanto & Sugianti (2020), the research

products produced need to be tested through several scientific stages so that the products meet standards and needs. In the research journal Arofah & Cahyadi (2019), it is stated that a revision of the evaluation results is needed according to the need to complete it.

In this application, there is an assessment of the functional status of palliative patients, namely the PPS (Palliative Performance Scale) and ECOG (Eastern Cooperative Oncology Group). The use PPS and the ECOG Performance Status Scale is the most widely used quality of life instrument for cancer patients because it is easy and simple to use, so they can shorten the time. The ECOG scale is designed to assess the progress of the patient's disease, measure how the disease affects the patient's ability to carry out daily activities and can determine the prognosis of the disease and the most appropriate therapy (Sinulingga, 2014).

In addition, there is a study of pain using the VAS (*Visual Analog Scale*) and NVPS (*Nonverbal Adult Pain Scale*). In a literature review conducted by Vitani (2019) regarding pain measurement tools for adult patients using five journal articles, the comparison results show that VAS is a better pain assessment tool than NRS and VRS because it has good sensitivity, reliability, and also has properties of a simple ratio scale and easy to use. Other research conducted by (Marmo & Fowler, 2011) also showed that NVPS has high reliability with a *Cronbach* alpha coefficient of 0.89. High reliability shows a small error in obtaining assessment results. The greater the reliability of an instrument, the smaller the measurement error.

The determination of the SOP is also based on scientific literature. The selection of SOP for warm compared to cold compresses is considered more effective for pain management in cancer patients. Sinaga's research (2017) on the effectiveness of warm and cold compresses on neuropathic pain in post-chemotherapy breast cancer patients found that there were significant differences in the results of the tests carried out, where warm compresses were more effective than cold compresses.

Data analysis using the calculation form SUS (System Usability Scale) to determine the feasibility of this operating system. Based on the analysis obtained a total of 1245 of 15 respondents. Then the average value obtained is 83, which means that the application is included in the very good category (excellent) and acceptable or suitable for use. The highest score is 97.5 and the lowest score is 70, also the highest score appears to be 77, 5. The calculation indicates that the *Paker* application is a suitable application for use. The results of the calculation of the SUS assessment are seen from three angles point of view, namely acceptability, grade scale, and adjective rating. Acceptability has three levels consisting of acceptable, marginal (high or low), and not acceptable. The grade scale category consists of A, B, C, D, and F. Adjective rating category has more levels, namely best imaginable, excellent, good, ok, poor, and worst imaginable. Acceptability is used to see the level of user acceptance of the software, grade scale to see the level (grade) of the software, and adjective rating to see the rating of the resulting software. (Ependi et al., 2019) .

The results of research conducted by Ramdani & Sulastini (2019) using the normalized *Gain test* showed that there was an increase in the ability to document nursing before and after using the application which showed that the application was effective in increasing the ability to document nursing diagnoses in students. This nursing diagnostic mobile application is also designed to be simple and general for all types of disease diagnosis so that this application (*cancer nursing care guide*) updates existing applications by focusing on palliative/e nursing. *Paker* applications can produce diagnoses, outcomes, and interventions as well as SOPs (Standard Operating Procedures) that can be used as recommendations for implementing nursing implementation.

This application development step begins by looking at the nursing care procedures from the IDHS, SIKI, and SLKI books which use paper-based sheets that must be turned over. In 2019, PPNI has developed an android-based diagnosis application, but it is not yet focused on palliative care. Therefore, in this study, the researchers made an application that focuses on palliative nursing. From the 149 diagnoses in the IDHS, the researchers sorted out the diagnoses to be more focused on palliative care.

The application of the guidance on cancer health care has been designed and created, which can be used as a guide in making reports on nursing care with standards that apply in Indonesia because

this application adopts three books issued by PPNI. Those books are the Indonesian Nursing Diagnosis Standards (IDHS), the Indonesian Nursing Intervention Standards (SIKI), and the Indonesian Nursing Outcomes Standards (SLKI). As well as for palliative intervention, refers to the Palliative Nursing textbook based on the 2015 AIPNI Curriculum. Although there are nursing standard books that have been internationally recognized, these books are deemed not suitable to be applied in Indonesia because they do not pay attention to the uniqueness of Indonesian nursing services (PPNI, 2016). Rangkuti's scientific article (2011) also stated that the IDHS is a national standard book needed by all Indonesian nurses, 80% of the IDHS books also come from Nanda which has adapted to the nursing culture in Indonesia.

The literature guidelines used in this application are the result of the combined palliative care guidelines in the *National Clinical Program for Palliative Care* and books on nursing care standards in Indonesia. This cancer nursing guide application has 51 nursing diagnosis for physical problems and 18 nursing diagnoses for social problems. The choice of diagnosis is following the relevant clinical conditions in the IDHS book. The overall diagnosis consisted of 47 actual diagnoses, 20 risk diagnoses, and 2 health promotion diagnosis. Nursing interventions are taken from the main and additional interventions in the SIKI (Indonesian Nursing Intervention Standards) book. Palliative intervention in the form of Standard Operating Procedures (SOP) therapy can be used to assist the healing process of cancer patients. The use of therapy can reduce the side effects of treatment, and disease complications, and improve the patient's quality of life (Yodang, 2018).

CONCLUSION

The research resulted in an Android-based digital application called *Paker* or *Cancer Askep Guide*. This application can be used as a guide for making nursing care with a focus on physical and social problems for palliative cancer patients. *Paker* application is very practical in its use because it can be used anytime and anywhere. *Paker* applications can produce nursing diagnoses, outcomes, and interventions by using three system designs, namely visual studio code, java, and MySQL. This application is equipped with features register, login, home, palliative assessment, *askep* resume, and account (profile) as well as SOP (standard operating procedure) as a recommendation for the implementation of nursing care.

The operational function of the application is based on black-box testing which has been tested several times to get the expected results, namely operating well. Usability testing on 15 respondents got a score of 83, meaning that this application is considered excellent and acceptable or suitable for use. The tests were also carried out using cases on 5 respondents, the difference in the average of making *nursing care* manually and making *nursing care* with android was that the number of diagnoses that appeared was 3 and 4.6. It means that the use of this application is appropriate and can help correct or complete the diagnosis.

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