Palliative Screening Tools to Identify Palliative Care Consultation at Tertiary Hospital

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ABSTRACT

Background: The need of palliative care is increasing, but it is not all achievable. It is necessary to identify palliative patients in order to provide the proper care according to the needs of the patients. Cipto Mangunkusumo Hospital has been making the identification using a palliative-patient screening questionnaire, but no performance assessment has been carried out on the screening tool. This study aimed to evaluate the performance of the screening-tool questionnaire used on palliative-care patients at Cipto Mangunkusumo Hospital in order to assess the need of palliative-care consultation and to find out the optimal cut-off point of palliative care screening tools. **Methods**: The design of this study is cross-sectional and was conducted at Cipto Mangunkusumo National Central Public Hospital in July – October 2019. The sampling was collected by consecutive sampling. The reliability test was performed by the intraclass correlation coefficient (ICC). The internal consistency was measured by the Cronbach's-Alpha coefficient. The criterion-validity test was run by an evaluation using the Pearson test. **Results**: There were 64 subjects collected, the largest age group was 51-70 years (50%). Cancer was the main disease found in most of the subjects (56 people / 87.5%). The most common comorbidity was kidney disease (11 people). The most common palliative score distribution was 6 (15 people). The average score was 7.51. The mortality rate at the hospital was 51.6%, 33 patients from a total of 64 patients. From the palliative score distribution curve, the AUC value was 0.687 with a 95% CI (0.557-0.818). The optimal cut-off point was 8. All patients were palliative according to expert opinion based on WHO criteria. **Conclusion**: The performance of this tool is sufficient to screen palliative patients in a terminal and complex condition, but requires improvements to screen for patients who need early palliative care. The optimal cut-off point to determine the limit of consultation on palliative patients is found at score 8.

Keywords: palliative care, performance, screening questionnaire, optimal cut-off point.

INTRODUCTION

Palliative care is an approach of care which aims to prevent and reduce various types of pain – physical, psychological, social, or spiritual – suffered by patients with life-threatening diseases.[1] The number of patients who are at risk of developing such conditions, such as patients with cardiovascular disease, cancer, chronic obstructive pulmonary disease, AIDS, and diabetes, continues to increase every year.[1] There are more than 20 million people worldwide who need palliative care in the last years of their lives, but there are only 14% of them who receive palliative care.[2]

A study reports that palliative-care units require fewer resources and shorter patient-care duration than the general care; therefore, they are more cost effective.[3,4] Another report suggests that palliative care results in the same survival level as the general care, improvement in symptoms, and more satisfaction in the patients and their families.[5]

The identification of palliative patients using screening tools can increase the number of patients referred to palliative care.[6,7] These tools can be used on various care backgrounds and patients, such as in the Emergency Unit, the Intensive Care Unit (ICU), cancer patients, geriatric patients, etc. Nevertheless, given the varying patient characteristics in each health facility, further evidence-based validity and standardization are required for the use of palliative-care assessment tools in every health care facility. Cipto Mangunkusumo National Central Public Hospital (CMH) has been developing screening tools adapted from other screening tools with modifications since 2015, but until now its performance has not been assessed. The aim of the research is to develop a more reliable and valid palliative-patient screening tool for use at CMH.

METHODS

The research method used in this study is a cross-sectional study. The research was conducted by collecting data from CMH medical records and started from July to October 2019 until the required data were met. The sampling technique was carried out using the consecutive sampling method.

Research inclusion criteria include: Adult patients, over 18 years of age with progressive chronic disease; recipients of palliative team consultation; and, patient with complete data in the medical records. The exclusion criteria in this research include patiens with incomplete medical records. The researchers also sought opinion from two experts to assess whether a patient was categorized as palliative/non-palliative or terminal/non-terminal.

The subjects of this research were doctors and nurses who filled out the medical records of inpatients. The researchers informed the research objectives and asked the consent to conduct the research.

The research data processing was carried out using the SPSS24.0 computer program. The normality test was run using the Shapiro-Wilk method. If the data distribution is normal (p=>0.05), a parametric test will be conducted using the Pearson correlation test. If the distribution is not normal (p=0.05), then a non-parametric test will be conducted using the Spearman correlation test. The internal consistency was assessed by calculating the Cronbach's-Alpha coefficient.

Ethics

This research was granted clearance from the Committee for Medical Research Ethics, Faculty of Medicine – Universitas Indonesia (Panitia Etik Penelitian Kedokteran Fakultas Kedokteran Universitas Indonesia) Number: KET-828/UN2. F1/ETIK/PPM.00.02/2019.

RESULTS

There were 64 palliative patients. Three patients were excluded because of incompleted data. Patient data were consulted to the palliative team consisting of 2 experts in the palliative field, which results in 64 palliative patients, as shown in **Figure 1**.

The overall research subjects were dominated by the age group of 51-70 years old (50%), while the age group of 18-30 years old had the lowest number of participants, i.e. 35 male patients (54.69%) and 29 female patients (45.31%). Cancer was the primary disease found in most of the patients (56 people – 87.5%), followed by patients
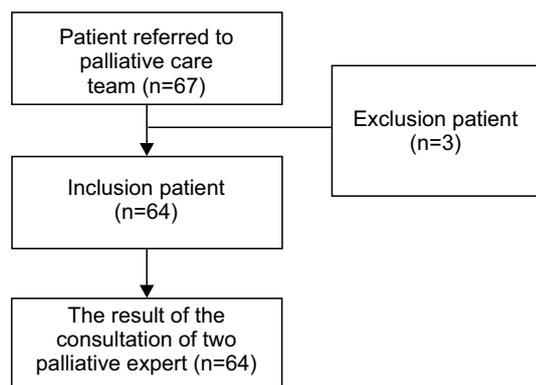
Figure 1. Study flow diagram.

who suffer from a chronic heart disease (4 people – 6.3%), advanced COPD (1 person – 1.6%), and 3 people were consulted with other main diagnoses, namely ARDS (2 people) and hepatic cirrhosis (1 person), as shown in **Table 1**.

Table 1. Characteristics of Research Subjects

Characteristics	N=64
Age, n (%)	
18-30	5 (7.8)
31-50	16 (25.0)
51-70	32 (50.0)
>70	11 (17.2)
Sex, n (%)	
Male	35 (54.7)
Female	29 (45.3)
Screener, n (%)	
Doctors	61 (95.3)
Nurses	3 (4.7)
Primary Diseases	
Cancer (Recurrent/metastases)	56 (87.5)
Advanced COPD	1 (1.6)
Stroke	0
Chronic Kidney Disease	0
Coronary Heart Disease	4 (6.3)
HIV/AIDS	0
Congenital Disease	0
Comorbid Diseases	
Chronic Heart Disease	7 (10.9)
Moderate Kidney Disease	11 (17.19)
Moderate COPD	4 (6.3)
Congestive Heart Failure	6 (9.4)
Other Conditions/Complications	15 (23.4)
Functional	
Fully active, able to perform activities without obstacles.	1 (1.6)
There are obstacles in strenuous activities but able to walk and perform light activities, such as house chores and light office work	1 (1.6)
Able to walk, perform self-care activities, but not able to perform all activities more than 50% of waking hours	3 (4.7)

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Able to perform limited self-care activities, spend more time in bed or wheelchair, more than 50% of waking hours	24 (37.5)
Not able to perform self-care activities; spend most of the time in bed. Harsh condition / disable.	35 (54.6)
Other criteria	
Will not undergo curative treatment	44 (68.7)
In severe-disease conditions and choose not to continue with the therapy	16 (25.0)
Untreated pain more than 48 hours	12 (18.7)
Have uncontrollable symptoms (e.g. nausea and vomiting)	14 (21.9)
Have a psychosocial and spiritual condition that needs attention	10 (15.6)
Frequent visit to the Emergency Unit / hospitalized (> 1x/ month for the same diagnosis)	12 (18.7)
More than once of the same diagnosis within 30 days	13 (20.3)
Undergo long treatment without any significant progress (10 days).	19 (29.7)
Undergo long treatment at the ICU without any progress (> 2 weeks)	5 (7.8)

Gastrointestinal cancer was the most found disease (31.3%), while infection was the most frequent comorbid disease (17.2%). There were 23.4% patients treated due to infection. There were 8 people (12.5%) suffering from depression, and 21 people (32.8%) with malnutrition. The most used painkiller was opiate (28.1%), while the use of paracetamol was 10.9%. One patient (1.6%) received psychopharmacotherapy and psychotherapy. The highest Palliative Performance Score was 40% (15 patients).

Distribution of Palliative Score of Screening Tools at Cipto Mangunkusumo Hospital

Table 2 describes the distribution of the palliative score collected during the research. The average score is 7.51. The mortalities of the patients at the hospital were 33 patients (51.6%) out of the total 64 patients.

Table 2. Distribution of Palliative Score and Mortalities at the Hospital

Palliative Score	Live (n=30)	Die (n=34)
4	2 (6.7)	0 (0.0)
5	1 (3.3)	2 (5.9)
6	10 (33.3)	5 (14.7)
7	6 (20.0)	4 (11.8)
8	6 (20.0)	8 (23.5)
9	3 (10.0)	8 (23.5)
10	2 (6.7)	6 (17.6)
11	0 (0.0)	1 (2.9)
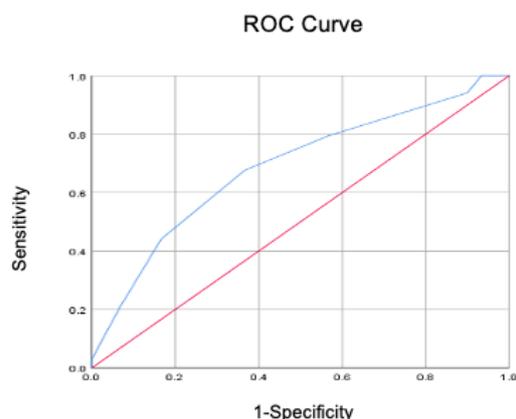
Figure 2. Distribution of Palliative Score

From the palliative score distribution curve, it is found that this tool is able to distinguish life and death, with an AUC value of 0.687 and 95% IK (0.557-0.818) with moderate correlation.

Table 3. Sensitivity and Specificity

Score	Sensitivity	Specificity
4	1.000	0.00
5	1.000	0.07
6	0.939	0.10
7	0.758	0.43
8	0.636	0.63
9	0.424	0.83
10	0.212	0.93
11	0.029	1.00

The optimal cut-off point to determine the limit of consultation on palliative patients is found at score 8.

Validity and Reliability

Based on the validity test that has been completed, 4 domains have varying validity, while the reliability test has a Cronbach's Alpha value of 0.560 from 4 domains, which means it has low reliability (<0.70). The Corrected Item – Total Correlation value shows that domain III and IV are above 0.3.

Table 4. Corrected Item – Total Correlation Value

	Average Scale when Items Deleted	Variation Scale when Items Deleted	Corrected Item Total Correlation	Cronbach's Alpha when Items Deleted
Domain I	12.92	9.184	0.224	0.588
Domain II	14.38	9.889	0.250	0.630
Domain III	12.64	8.520	0.356	0.540
Domain IV	12.78	6.110	0.438	0.425

Table 5. Validity and Reliability of Each Domain

Domain	r	p
Domain I	0.289	0.021
Domain II	0.175	0.167
Domain III	0.425	<0.001
Domain IV	0.736	<0.001

The criteria domain has the best correlation compared to the other domains, while the comorbidity domain has no correlation.

Expert Opinion

From the **Table 6**, it is indicated that all patients are palliative patients and more than 95% are patients in a terminal condition.

Table 6. Results of Consultations with Experts in the Palliative Field

	Researcher 1	Researcher 2
Palliative	64 (100)	64 (100)
Non-palliative	0 (0)	0 (0)
Terminal	62 (96.9)	61 (95.3)
Non-terminal	2 (3.1)	3 (4.7)

DISCUSSION

The participants involved in this research were dominated by those aged 51-70 years old, while those aged 18-30 years old were in a group with the lowest number of participants (7.8 %).

This shows that in general, the patients who receive palliative care by the palliative team at CMH are elderly, which is in accordance with the research at CMH on 300 palliative patients between 2016 and 2018 where 43.7% of the patients were aged 50-70 years old.[8] Data from WHO in 2011 indicates that 20.4 million people need palliative care, 69% of whom are aged above 60 years old, 25% are aged 15-59 years old.

Cancer is the most common condition found in the participants involved in this research. Early and continuous palliative care should be given to cancer patients.[8,9] Different types of cancer play a role in the difference of the improvement in the quality of life of the patients but do not affect the patient's survival rate.[8]

The characteristics of other primary diseases that are commonly found in this research are acute heart failure and advance COPD. CHF and COPD are the two main causes of chronic conditions. CHF, particularly, is the main cause

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of death worldwide while COPD is projected to increase to be the third highest cause by 2030.[4]

In this research, there were 12 patients with untreated pain for more than 48 hours. The incidence of pain in palliative, progressive patients and patients with cancer was high, with 90% of them suffering from advanced-stage cancer. [10] This untreated pain was experienced by 43% of patients with obstacles from receiving treatments is commonly found in Asia.[11] Morphine is an effective analgesic used in the pain treatment for patients with cancer.[12]

Pain was not the most common complaint in this research because CMH demonstrates good adequacy in dealing with pain, in accordance with the research conducted at CMH on 258 patients who consulted for palliative care in 2016-2018, 175 (61,4%) patients complained of pain, and it was found that 87,5% of them received adequate pain treatment.[13]

Performance of Palliative Screening Tools at CMH

Based on the validity test, 4 domains had varying validity. The r of domains of primary disease, comorbid disease, and other criteria is more than 0.2641; therefore, domains I, III, and IV are valid. The domain of other criteria has the highest correlation that is 0.736, while the domain of comorbid disease has no correlation.

According to Fabrigar *et al.*, the low correlation value indicates that there is only a small variation as a result of the sample being too homogenous, so it is possible to fail in identifying the number of factors that actually exist.[14] The consistency of the measuring instruments measures what needs or should be measured. The reliability test in this research has a Cronbach's Alpha value of 0.560 from 4 domains.

Other reliability results are seen by showing the value of *alpha if deleted item* and the value of *corrected item-total correlation*. If the value of *corrected item-total correlation* $\geq$ 0.3, it is evident that the items contained in the subscale measure the constructs in the subscale.[15] In this research, the domains of functional status and other criteria has the value of *corrected item-total correlation* $\geq$ 0.3, which is 0.356 and 0.438. Therefore, it can be stated that such items are able to measure patients that should be consulted to

the palliative team. The validity and reliability in this research is satisfactory, but improvements are required in the domains of primary and comorbid disease.

The identification process is a stage in overcoming multi-layered and complex problems. These problems may reduce the level of success in early palliative care within the hospital.[15] The effectiveness of palliative care is indicated by patients who have been identified with positive quality of life towards the end of treatments.[16] The sooner a patient is detected in need of palliative care, the sooner the needs of the treatments fulfilled, which will impact the patient's quality of life. Patients who need early identification are no longer patients who are expected to die, but patients who are at risk of deteriorating conditions and terminal conditions are more likely to receive proactive assessment and treatment plans from health workers. As a tool in assessing a patient's condition, palliative-care screening tools must have assessment contents which are valid, applicable, easy to understand, and acceptable to the users, health workers and patients, as well as easy to analyze and interpret.

In this research, the optimal cut-off point of the palliative score is 8. However, as a screening tool, the cut-off point of 6 can also be considered. In this research, the cut-off point is higher than the original score, which is 8. A report in Taiwan using a similar screening tool shows that the AUC value for all cut-off points is 0.84 – 0.88. Based on the Youden's index, the optimal cut-off point value for 14 days are 2.16 Therefore, palliative care in Taiwan can be given earlier due to the lower cut-off point, which is 2. This is in line with the suggestion that palliative care should be initiated earlier.

Several influencing factors to the cut-off point are the knowledge and skills of experts in filling out the screening tools, the type of hospital, whether it is primary, secondary, tertiary, the distribution of patient characteristic, and hospital policy.

The medical personnel knowledge on when to consult with the palliative team also plays an important role, where there has to be conformity on when to consult and the understanding on palliative self-care.

Hospital policy greatly influences the coverage of palliative services. With good support from hospital management, it is expected that a policy on palliative care will be regulated and led with clear governance, leadership, and management/operation that can guide the implementation of palliative care at a hospital, so they are able to provide comprehensive and holistic palliative services. This also applies to the screening of palliative patients.

This palliative screening tools is suitable to be applied at hospitals that treat patients with terminal conditions, at tertiary hospitals. However, it is not necessarily applicable to primary and secondary health services.

Suggestion for further studies are: research with larger samples and a more even distribution of primary and comorbid diseases, dissemination of information to health workers on when to consult with the palliative team and on the screening tools, and further development of this screening tool.

Study Limitation

Even this is the first study in Indonesia to assess the performance of palliative screening, limitations include:

- The patients admitted to the hospital were already in severe/terminal conditions.
- This research took samples from a tertiary hospital, where the majority of the patients were patients with complex and terminal conditions; therefore, it is necessary to develop other tools which are able to reach all levels of health services.
- There was an uneven distribution of primary and comorbid diseases. There were no samples from patients diagnosed with HIV/AIDS, stroke, chronic kidney disease, or congenital abnormalities.
- The absence of proper standards in assessing palliative-need services can also result in the differences in consultation time with the palliative team.
- There are differences in the perception and the understanding of officers in filling out the palliative-screening sheet.

CONCLUSION

This palliative screening tool is sufficient to assess palliative patients in terminal and complex conditions, while to assess patients who need early palliative care, it still requires improvements. The optimal cut-off point to refer to the palliative team in this research was 8.

ACKNOWLEDGMENTS

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