Factors Associated with Pain in Palliative Patients and the Role of Spiritual Services in Pain Management

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ABSTRAK

Latar belakang: *nyeri merupakan gejala yang paling sering dialami oleh pasien paliatif yang dapat menyebabkan penurunan kualitas hidup pasien. Nyeri pada pasien paliatif belum mendapatkan perhatian yang cukup, terutama faktor-faktor yang berkaitan dengan nyeri dan penatalaksanaannya. Penelitian ini bertujuan untuk mengetahui faktor-faktor yang berhubungan dengan nyeri pada pasien paliatif dan juga menilai apakah terdapat hubungan timbal balik antara faktor psikologis dengan nyeri. Selain itu, akan dinilai pula apakah layanan spiritual berperan dalam mengurangi rasa nyeri.* ***Metode:*** *penelitian ini menggunakan studi potong lintang dengan data sekunder melalui rekam medis 285 pasien paliatif di RSUPN Cipto Mangunkusumo, Jakarta, Indonesia. Data diolah untuk menentukan karakteristik psiko-sosio-demografik, hubungan timbal balik aspek psikologis dan nyeri, serta hubungan terapi faramakologis (opioid), terapi non-farmakologis (layanan spiritual), dan kombinasi kedua terapi dalam pengelolaan nyeri pada pasien paliatif.* ***Hasil:*** *dari 285 pasien paliatif, 59.9% pasien merasakan nyeri, yang terutama ditemukan pada pasien kanker (74.4% vs 25.6%). Nyeri lebih banyak ditemukan pada pasien berusia 41 – 60 tahun (51.1%), wanita (51.2%), dan pengangguran (30.2%). Derajat nyeri memiliki signifikansi pada pasien dengan gejala depresi (p=0.045), sedangkan pada pasien dengan gejala ansietas (p=0.155) dan gangguan tidur (p=0.619) tidak memiliki hubungan yang signifikan. Nyeri yang dialami oleh pasien paliatif juga tidak signifikan secara statistik dalam menyebabkan depresi (p=0.058), ansietas (p=0.107), dan gangguan tidur (p=0.639). Selain itu, tatalaksana nyeri dengan opioid, layanan spiritual, atau kombinasi keduanya ternyata memiliki hasil yang berbeda secara signifikan (p=0.022).* ***Kesimpulan:*** *nyeri pada pasien paliatif terutama dialami oleh pasien kanker dan lansia. Faktor psikologis mempengaruhi kondisi nyeri, sehingga penatalaksanaan nyeri dengan memperhatikan aspek biopsikososial akan mampu mengurangi rasa nyeri secara signifikan.*

Kata kunci: *opioid, nyeri, layanan paliatif, layanan spiritual.*

ABSTRACT

Background: *pain is one of the most often symptoms experienced by patients with advanced or chronic diseases which can cause a decrease in the quality of life of palliative patients. Pain in palliative patients has not yet received enough attention, especially factors associated with pain and its management. This study aimed to determine the factors associated with pain in palliative patients and also assess whether there is a two-way relationship between psychological factors and pain. In addition, we will also see whether spiritual services play a role in relieving pain.* ***Methods:*** *cross-sectional study were used and secondary data were obtained from medical records of 285 palliative patients at Dr. Cipto Mangunkusumo Hospital, Jakarta, Indonesia. The data were processed to determine*

the psycho-socio-demographic characteristics, the reciprocal relationships of psychological and pain aspects, and the relationship of pharmacological therapy (opioids), non-pharmacological therapy (spiritual services), and combination of both therapies in pain management. ***Results:*** *of the 285 palliative patients, 60.3% had pain, which was found more in cancer patients (74.4% vs 25.6%). Pain was found more in patients aged 41-60 years (51.1%), women (51.2%), and unemployed (30.2%). The severity of the pain was found to be significant in patients with depressive symptoms (p=0.045), while patients with anxiety symptoms (p=0.155) and sleep disorders (p=0.619) had no significant relationship. Pain experienced by palliative patients was not statistically significant in causing depression (p=0.058), anxiety (p=0.107), and sleep disorder (p=0.639). Moreover, pain management with opioids, spiritual services, or combination of them turned out to have significant results (p=0.022).* ***Conclusion:*** *pain in palliative patients is mainly experienced by cancer patients and the elderly. Psychological factors affect the condition of pain, so the management that includes biopsychosocial aspect will be able to reduce pain significantly.*

Keywords: *opioid, pain, palliative care, spiritual service.*

INTRODUCTION

Advanced and chronic diseases often cause a variety of symptoms that reduce the quality of life, thus requiring an approach that is able to improve the quality of life. The current approach is palliative care.[1,2] World Health Organization (WHO)[3] defines palliative care as an approach that improves quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial, and spiritual. WHO and Worldwide Palliative Care Alliance estimate that approximately 40-60% of patients with a terminal disease need palliative care.[4] Palliative care has been used in Indonesia since 1992. However, it has not yet spread throughout the country, and generally has only been used in big cities. This is because palliative care requires a multidisciplinary team, while the experts are not evenly distributed.[5]

The study by Potter J. et al.[6] found that the most symptom often felt by palliative patients was pain. Pain is subjective, and different individuals who get the same pain stimuli will respond differently. This is not only influenced by genetic variation in pain perception, but also influenced by emotional and spiritual factors.[7] Therefore, pain management should include pharmacological and non-pharmacological therapy.[8]

Pharmacological therapy to relieve pain uses the WHO Pain-Ladder.[9,10] Pain experienced by palliative patients is generally moderate to severe, and WHO recommends giving opioids for this level of pain.[11] However, opioids can cause several side effects, such as gastrointestinal and central nervous system disorders.[12,13] Long-term use of opioids can cause addiction and even increase the required dose. It has to be discussed with the family. With the consideration of short-life expectancy and suffering due to pain, giving an appropriate dose of opioids to palliative patients is considered useful.[12] Besides pharmacological therapy, psychosocial, spiritual, and cultural therapies are considered capable of reducing suffering due to physical symptoms[14] because psychosocial and spiritual health can reduce negative emotional conditions such as depression or anxiety which are considered to be able to aggravate pain.[15]

Through this research, we will determine sociodemographic and psychological factors associated with pain in palliative patients, and then assess whether there is a relationship between pain and the psychological condition. In addition, it will be investigated whether there are significant differences in patients who receive pharmacological therapy only, non-pharmacological therapy, or the combination of both therapies.

METHODS

This study is a cross-sectional descriptive analytic study and data were taken from medical record of palliative patients who were consulted to Psychosomatic Palliative Team, Cipto Mangunkusumo Hospital in the period of

2016 to 2018. All of the palliative patients' data were recorded and were used as the sample of the research, which are 285 subjects. The data were processed using SPSS 25 which included demographic characteristics, namely age, gender, occupation, and diagnosis. The study then looked at the relationship among several risk factors that aggravate pain, including the psychological factors (depression and anxiety) and sleep disorder.

The severity of pain experienced by the patients was assessed using the Visual Analogue Scale (VAS) method on a scale of 1-10. VAS was assessed at the time before receiving treatment and was assessed after receiving treatment. Thus, it can be seen whether or not there is a decrease in VAS.

In palliative patients, management of pain can be treated using pharmacological and non-pharmacological therapy. Therefore, it can be seen whether there are significant results in relieving pain if both therapies are combined. The relationship will be analyzed with bivariate chi-square method. It is said to be statistically significant if $p \leq 0.05$ is obtained.

The study has been approved by the Ethical Review Committee of the Medical Faculty Universitas Indonesia, reference number 0406/UN2.F1/ETIK/2018 on April 30, 2018.

RESULTS

Palliative patients treated at Dr. Cipto Mangunkusumo Hospital, as a national referral tertiary hospital, have a variety of symptoms that interfere and cause a decrease in the quality of life (**Table 1**). The percentage of symptoms were often experienced by palliative patients. There are four symptoms that are most commonly found in palliative patients: loss of appetite (69.0%), loss of weight (62.7%), pain (60.3%), and dyspnea (53.0%).

This study focused on palliative patients with pain. Pain was found to vary in certain psycho-socio-demographic conditions (**Table 2**), where pain was more experienced by elderly (41 – 60 years) with average age 53.88 years, and was seen more in female patients (51.2%) and unemployed patients (30.2 %). When looking at the disease, cancer patients complained of pain more often (74.4%). A few of painful palliative patients experienced psychological disorders (anxiety

Table 1. Symptoms of palliative patients treated at hospital (N = 285)

Symptoms	n (%)
Loss of appetite	197 (69.0)
Loss of weight	179 (62.7)
Pain	172 (60.3)
Dyspnea	151 (53.0)
Loss of consciousness	125 (43.9)
Nausea	125 (43.9)
Cough	124 (43.6)
Vomiting	91 (32.1)
Sleep disorder	82 (28.9)
Fatigue	74 (25.8)
Depression	21 (7.3)
Anxiety	4 (1.4)

Table 2. Profile of palliative patients with pain symptom at hospital (N = 172)

Variables	n (%)
Age	
- 11 – 20 y.o.	4 (2.3)
- 21 – 30 y.o.	14 (8.1)
- 31 – 40 y.o.	31 (18.0)
- 41 – 50 y.o.	42 (24.4)
- 51 – 60 y.o.	46 (26.7)
- 61 – 70 y.o.	23 (13.4)
- 71 – 80 y.o.	10 (5.8)
- 81 – 90 y.o.	1 (0.6)
- 91 – 100 y.o.	1 (0.6)
Gender, male	84 (48.8)
Occupation	
- Unemployment	52 (30.2)
- Housewife	14 (8.1)
- Student	8 (4.7)
- Government Employee	7 (4.1)
- Retired	8 (4.7)
- Private Employee	17 (9.9)
- Entrepreneur	10 (5.8)
- Seller	13 (7.6)
- Laborer/Farmer/Fisherman	10 (5.8)
- Others	33 (19.2)
Diagnosis, cancer	128 (74.4)
Psychological Disorder	
- Anxiety, yes	4 (2.3)
- Depression, yes	17 (9.9)
- Sleep Disorder, yes	15 (8.7)

2.3%; depression 9.9%; sleep disorder 8.7%).

We could see factors that influence pain symptom in palliative patients (**Table 3**).

Table 3. The relationship between pain and psychosocio-demographic factors in palliative patients at hospital

Variables	Pain, n (%)		P value*
	Yes	No	
Age			0.000
- 11 – 20 y.o.	4 (2.3)	0 (0.0)	
- 21 – 30 y.o.	14 (8.1)	5 (4.4)	
- 31 – 40 y.o.	31 (18.0)	9 (8.0)	
- 41 – 50 y.o.	42 (24.4)	15 (13.3)	
- 51 – 60 y.o.	46 (26.7)	32 (28.3)	
- 61 – 70 y.o.	23 (13.4)	25 (22.1)	
- 71 – 80 y.o.	10 (5.8)	24 (21.2)	
- 81 – 90 y.o.	1 (0.6)	3 (2.7)	
- 91 – 100 y.o.	1 (0.6)	0 (0.0)	
Gender			0.681
- Male	84 (48.8)	58 (51.3)	
- Female	88 (51.2)	55 (48.7)	
Occupation			0.272
- Unemployment	52 (30.2)	30 (26.5)	
- Housewife	14 (8.1)	10 (8.8)	
- Student	8 (4.7)	1 (0.9)	
- Government Employee	7 (4.1)	9 (8.0)	
- Retired	8 (4.7)	9 (8.0)	
- Private Employee	17 (9.9)	11 (9.7)	
- Entrepreneur	10 (5.8)	2 (1.8)	
- Seller	13 (7.6)	9 (8.0)	
- Laborer/Farmer/ Fisherman	10 (5.8)	3 (2.7)	
- Others	33 (19.2)	29 (25.7)	
Diagnosis			0.000
- Cancer	128 (74.4)	47 (41.6)	
- Non-cancer	44 (25.6)	66 (58.4)	
Psychological Disorder			
Anxiety			0.155
- Yes	4 (100.0)	0 (0.0)	
- No	168 (59.8)	113 (40.2)	
Depression			0.045
- Yes	17 (81.0)	4 (19.0)	
- No	155 (58.7)	109 (41.3)	
Sleep Disorder			0.619
- Yes	15 (65.2)	8 (34.8)	
- No	157 (59.9)	105 (40.1)	

* chi-square and fisher's exact.

Psychological disorders were also assessed for the incidence of pain in palliative patients. Psychological disorders assessed are anxiety, depression, and sleep disorders. Depression gave significant results ($p = 0.045$), while anxiety and sleep disorders were not significant. However, anxiety was clinically significant in conditions of pain where the difference between anxiety and not anxiety in aggravating pain is 40.2%.

A multivariate analysis was conducted to look more deeply at the psycho-socio-demographic characteristics for pain. The analyzed variables were ones with $p < 0.25$ (age, diagnosis, anxiety, and depression). The results of multivariate analysis in **Table 4** show statistically significant results for age and diagnosis (cancer-non-cancer) variables.

From the **Table 4**, anxiety and depression is not statistically significant in aggravating pain. It may be due to small number of subjects who experienced anxiety and depression.

Table 4. Results of multivariate analysis of variables related to pain

Variables	OR (95% CI)	P value*
Age	1.042 (1.259 – 1.828)	0.000
Diagnosis	3.811 (0.158 – 0.461)	0.000
Anxiety	1.158 (0.000 – -)	0.999
Depression	1.896 (0.545 – 6.341)	0.322

* Logistic regression

Pain perception and psychological factors are considered to have a two-way relationship. In **Table 3**, we have seen a link among psychological disorders in aggravating pain. Next, we will assess the opposite relationship, the condition of pain in causing psychological disorders. The assessment uses a 2 x 2 table. There are no statistically meaningful results between pain and psychological disorders (depression 10.0% ($p = 0.058$); anxiety 2.5% ($p=0.107$); and sleep disorder 8.8% ($p=0.639$)).

In the previous data, it was found that there was a correlation between psychological disorders and pain; thus, it would be assessed whether there were significant differences if the patients were given pharmacological therapy (opioid administration), non-pharmacological therapy (spiritual service), or the combination of both therapies.

Palliative patients generally get opioid to reduce pain compared to spiritual therapy. But some patients get the combination of both therapies. From **Table 5**, it turned out that significant results were obtained if patients were given different therapies (p = 0.022).

Table 5. Opioid, spiritual service, and combination of both therapies in decreasing VAS

Therapy	VAS Decreasing, n (%)		P value*
	Yes	No	
Opioid	66 (85.7)	11 (14.3)	0.022
Spiritual Service	7 (50.0)	7 (50.0)	
Opioid + Spiritual Service	12 (75.0)	4 (25.0)	
No Therapy	30 (81.1)	7 (18.9)	

* Chi-square

DISCUSSION

Cipto Mangunkusumo Hospital is a national referral hospital, so it treats quite a lot of patients with advanced diseases, at all ages. If these conditions have reduced the quality of life of the patients, then holistic palliative care is needed. One of the goals of this therapy is to relieve the pain which is a cardinal symptom in palliative patients.[6]

Pain in palliative patients is influenced by the patient's psycho-socio-demographic characteristics. Based on **Table 2**, it can be seen that patients aged over 40 years (average 53.88 years) complained of pain more. The results of multivariate analysis also gave significant results in the perception of pain. Wandner L. D. et al.[16] also stated the same, elderly patients are more sensitive to pain stimuli. This is due to the existence of the learning process towards pain. However, above 80 years old, the percentage of patients with pain is lower (only 0.6%). This is due to the decreasing number of palliative patients at that age because the population is also decreasing. In regards to the average life expectancy, it is around 72 years.[17]

Besides age, gender and occupation influence pain, too. Women experience more pain symptoms than men, which is about 51.2%. This finding is also similar with that discovered by Wandner L. D. et al.[16] Shankland W. E. also found that women are more sensitive to pain.[18]

Eighty-two palliative patients were recorded as unemployment and became the most group with pain, which was 30.2%. It can occur because of the psychological influence of the patients due to not being able to do activities and feel useless. Farre L. et al.[19] found that people who did not work (unemployed) experienced mental disorder and chronic pain (p=0.0198 and p=0.0218).

Diseases that require palliative care are very diverse. In this study, they are categorized as cancer and non-cancer. The number of cancer patients who received palliative care was higher than the number of non-cancer patients (74.4% vs. 25.6%). Pain is more often experienced by cancer patients, and even about 80% of advanced cancer patients suffer from moderate-to-severe pain. The high incidence of pain in cancer is caused not only by the malignancy process but also by one of the effects of the treatment.[20] However, in the results of multivariate analysis, it was found that cancer actually reduced pain sensation (CI 95%: 0.158 – 0.461). It happens because cancer patients who experienced pain received more attention in handling pain than non-cancer patients (76.6% vs. 59%). In addition, opioid is more beneficial to treat pain in cancer patients than on non-cancer patients. For patients with chronic non-cancer pain, the benefit of opioid may not outweigh the drugs' adverse effects, a new systemic review and meta-analysis suggestion.[21]

As discussed earlier, psychological factors could affect the pain perception. De Heer et al.[22] said that depression and anxiety can significantly aggravate the condition of pain. Castro et al.[23] stated that patients with symptoms of pain accompanied by depression and anxiety will experience more severe symptoms of pain, which is slightly different from the data that we have obtained. In these data, depression is said to be statistically significant in aggravating pain but not with anxiety. This happens because the data on patients who experienced anxiety were too small, only 1.4% of all cases.

Pain and psychological factors are said to affect each other. Besides psychological factors that aggravate pain, pain that is not handled properly can also cause psychological disorder.[24] However, from the processing data, no significant relationship was found between pain and the

occurrence of depression and anxiety.

Pain is also said to cause sleep disorder due to uncomfortable sensations.[18] However, this research shows that no significant relationship was found. This occurs because patients have handled pain management and also according to Campagna S. et al.,[25] circadian rhythms of pain occur more frequently during the day (12.00 p.m.); thus, the patients are not bothered by pain during sleep at night.

After looking at the relationship between psychological factors and pain, and vice versa, the result of the therapy given to palliative patients was assessed. The therapies were opioid administration, spiritual services, and the combination of both therapies. It turned out that the results were statistically significant if patients were given different therapies. Thus, it is expected that the existence of spiritual services in pain management for palliative patients can reduce pain significantly. This is consistent with the statement of Rego F. et al.[15] that pain management accompanied by psychosocial and spiritual therapy will relieve the pain optimally.

CONCLUSION

One of the symptoms often experienced by palliative patients is pain. It is found more in cancer patients and the elderly. The degree of pain is significantly affected by depression but not by anxiety and sleep disorder. Pain itself is not significantly related to the occurrence of psychological disorders. In pain management for palliative patients, spiritual services provide good results in addition to opioid administration.

Initial assessment should be examined and documented completely, including pain, psychological symptoms of anxiety, depression and spiritual aspects. Further research is needed regarding the combination of opioids and spiritual services to improve the symptoms of pain. It also needs to be further investigated whether the combination of opioid therapy and spiritual services reduce the dose of opioid in relieving pain.

CONFLICT OF INTERESTS

We have no conflict of interests to disclose.

REFERENCES

1. Kite S, Hicks F. Palliative medicine for the cancer and non-cancer patient. Clinical Medicine. 2005;5(6):626-9.
2. Murtagh F, Preston M, Higginson I. Patterns of dying: palliative care for non-malignant disease. Clinical Medicine. 2004;4:39-44.
3. World Health Organization. WHO definition of palliative care. https://www.who.int/cancer/palliative/definition/en/.
4. Sawhney M, Fletcher GG, Rice J, Watt-Watson J, Rawn T. Guidelines on management of pain in cancer and/or palliative care. Toronto (ON): Cancer Care Ontario. 2017. Program in Evidence-Based Care Evidence Summary No.:18-4.
5. Putranto R, Mudjaddid E, Shatri H, Adli M, Martina D. Development and challenges of palliative care in Indonesia: role of psychosomatic medicine. Bio Psycho Social Med. 2017;11(29):1-5.
6. Potter J, Hami F, Bryan T, Quigley C. Symptoms in 400 patients referred to palliative care services: prevalence and patterns. Palliative Medicine. 2003;17:310-4.
7. Kittelson SM, Elie MC, Pennypacker L. Palliative care symptom management. Crit Care Nurs Clin N Am. 2015;27:315-39.
8. Marie BS. Pain management in patients receiving palliative care. Oncol Nurse Advis. 2013;2013:e1-e6.
9. Vargas-Schaffer G. Is the WHO analgesic ladder still valid? Twenty-four years of experience. Canadian Fam Physic. 2010;56:514-7.
10. Bhatnagar S, Gupta M. Integrated pain and palliative medicine model. Ann Palliative Med. 2016;5(3):196-208.
11. Sathornviriyapong A, Nagaviroj K, Anothaisintawee T. The association between different opioid doses and the survical of advanced cancer patients receiving palliative care. BMC Palliative Care. 2016;15(95):1-8.
12. Krashin D, Murinova N, Jumelle P, Ballantyne J. Opioid risk assessment in palliative medicine. Expert Opinion. Drug Saf. 2015;14(7):1023-33.
13. Leppert W, Zajaczkowska R, Wordliczek J. The role of oxycodone/naloxone in the management of patients with pain and opioid-induced constipation. Expert Opin Pharmacother. 2019:1-12.
14. Brant JM. Holistic total pain management in palliative care: cultural and global consideration. Palliative Med Hosp Care Open J. 2017;SE(1):S32-S38.
15. Rego F, Pereira C, Rego G, Nunes R. The psychological and spiritual dimensions of palliative care: a descriptive systematic review. Neuropsychiatry (London). 2018;8(2):484-94.
16. Wandner LD, Scipio CD, Hirsh AT, Torres CA, Robinson ME. The perception of pain in others: how gender, race, and age influence pain expectations. J Pain. 2012;13(3):220-7.

17. World Health Organization. Global Health Observatory (GHO) data. Available online: https://www.who.int/gho/mortality_burden_disease/life_tables/situation_trends/en/.
18. Shankland WE. Factors that affect pain behaviour. The J Carniomandibular Pract. 2011;29(2):144-54.
19. Farre L, Fasani F, Mueller H. Feeling useless: the effect of unemployment on mental health in the great recession. Barcelona Grad School Economic. 2015;1-26.
20. Prommer EE. Pharmacologic management of cancer-related pain. Cancer Control. 2015;22(4):412-25.
21. Busse JW, Wang L, Kamaleldin M, et al. Opioids for chronic non-cancer pain: a systematic review and meta-analysis. JAMA. 2018;320(23):2448-60.
22. De Heer EW, Gerrits MM, Beekman ATF, et al. The association of depression and anxiety with pain: a study from NESDA. PLOS One. 2019;9(10):1-11.
23. Castro MMC, Quarantini LC, Daltro C, et al. Comorbid depression and anxiety symptoms in chronic pain patients and their impact on health-related quality of life. Rev Psiq Clin. 2011;38(4):126-9.
24. Hooten WM. Chronic pain and mental health disorders shared neural mechanism, epidemiology, and treatment. Mayo Clin Prog. 2016;91(7):955-70.
25. Campagna S, Sperlinga R, Milo A, et al. The circadian rhythm of breakthrough pain episodes in terminally-ill cancer patients. Cancers. 2019;11(18):1-11.