

The Magnitude and Intensity of Physical Pain, Common Physical and Psychological Symptoms among Adult Cancer Patients in Ethiopia

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Abstract

Background: In sub-Saharan Africa (SSA), urgent action is needed to curb a growing crisis in cancer incidence. Without rapid interventions, data estimates show a major increase in cancer mortality from 520-348 in 2020 to about 1 million deaths per year by 2030. Despite a large increase in cancer cases, most Sub-Saharan African countries have inadequate palliative care services and research on the subject. Palliative care is the primary stay of treatment for all non-communicable diseases, including cancer. Physical pain and psychosocial symptoms are the two most common and essential symptoms for most persons in need of palliative care. Treatment of physical pain, symptoms, and psychological symptoms in cancer patients improves their quality of life at any stage of the illness.

Objectives: The study aimed to determine the magnitude and intensity of physical pain, as well as common physical and psychological symptoms among adult cancer patients in Ethiopia.

Methods: A total of 272 cancer patients were surveyed with stratified sampling methods. Quantitative; A hospital based cross sectional study was conducted in Addis Ababa starting from September 22 to October 27, 2022 in selected health facilities. Completed the memorial symptoms assessment scale form in addition to demographic and disease oriented variables.

Result: A total of 271 cancer patients participated in the study. Most of the respondents, 162 (59.6%) had physical pain, among these 78 (28.7%) had severe to worst pain, and 56 (20.6%) had moderate pain.

With regard to physical symptoms, 182 (67.3%) of patients have drowsiness, most of the patients 116 (42.6%) had mild depression. 204 (73.4%) had tiredness symptoms, 156 (57.7%) of the patients had nausea symptoms, 92 (34.2%) had shortness of breath, and 179 (66.2%) of the cancer patients had loss of appetite.

With regard to psychological symptoms magnitude and intensity, 53 (15.9%) of the cancer patients had mild anxiety, 87 (26.1%) of the patients had moderate depression symptoms, 100 (30%) of cancer patients had moderate insomnia and 22 (6.6%) of the patients had high risk of severe suicidal ideation.

Conclusion: This study sheds light on the considerable burden of physical pain and associated physical and psychological symptoms faced by adult cancer patients in Ethiopia. The findings emphasize the need for comprehensive pain management strategies tailored to different cancer types and stages, as well as interventions to address the psychological well-being of patients. Improved pain assessment and symptom management are essential components of holistic cancer care, aiming to enhance the quality of life for cancer patients in Ethiopia.

Keywords: Palliative care; Cancer; Sub-Sahara Africa; Common palliative patient's symptoms

Introduction

The most frequent cancers differ by country. Cervical cancer is the leading cause of death in 23 nations. According to the International Agency for Research on Cancer, there were 811,000 new cancer cases and 534,000 cancer deaths in Sub-Saharan Africa in 2018, and the figure is increasing. The WHO anticipates that this figure will skyrocket. The number of new diagnoses every year is predicted to rise from 19 million in 2015 to 21.7 million by 2030 and 24 million by 2035 over the following five years. The burden of NCDs is increasing in Ethiopia, as it is in other LICs. Cancer has risen to become the second biggest cause of mortality in adults [1].

The primary goal is typically to cure cancer or considerably extend life. Another key goal is to improve the patient's quality of life. This can be accomplished through promoting the physical, emotional, and spiritual well-being of the patient and providing palliative care at all

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stages of cancer. Palliative care is treatment to relieve, rather than cure, symptoms and suffering caused by cancer and to improve the quality of life of patients and their families. Palliative care can help people live more comfortably. Relief from physical, psychosocial, and spiritual problems through palliative care is possible for more than 90% of patients with advanced stages of cancer. The two most common and critical symptoms for most cancer patients in need of palliative care are pain and psychological symptoms [2].

The study aimed to determine the magnitude and intensity of physical pain, as well as common physical and psychological symptoms among adult cancer patients in Ethiopia [3].

Objectives

General objective: To assess the magnitude and intensity of physical pain, common physical and psychological symptoms among cancer patients of black lion specialized hospital and Saint Paul's millennium medical college cancer patients starting from September 22, 2022.

Specific objectives

- To determine the magnitude and intensity of physical pain among cancer patients.
- To determine the magnitude and intensity of common physical symptoms among cancer patients.
- To determine the magnitude and intensity of common psychological symptoms among cancer patients.

Materials and Methods

Study area

The study was conducted in Addis-Ababa in two federal hospitals. The two major tertiary hospitals in Ethiopia are Saint Paul's hospital millennium medical college and Black Lion compressive specialized hospital, both of which are governmental hospitals. The Saint Paul's millennium medical college had 752 beds, 4873 employees, 21 specialization and sub-specialties. Black Lion compressive specialized hospital is the other biggest hospital in Ethiopia. The hospital also had 90 various general and specialized disciplines [4].

Study design

Hospital based cross sectional study was conducted to describe the magnitude and intensity of physical pain, common physical and psychological symptoms among palliative patients.

Study period

This study was conducted from September 22 to October 27, 2022.

Target population

All cancer patients of Ethiopia whose age is above 18 years.

Study population

The study population included all outpatient and inpatient cancer patients over the age of 18 who received oncology clinical care at these two hospitals during the study period.

Sample size determination

The actual sample size for the study was determined by using the single population proportion formula for single population proportion. The total number of patients who visited the oncology departments of BLH and SPHMMC in a year is 9463, which implies that about 789 individuals receive cancer care at both hospitals in one month.

$$n = \frac{\frac{Z^2 p(1-p)}{d^2}}{1 + \frac{1}{N} \left(\frac{Z^2 p(1-p)}{d^2} - 1\right)}$$

$$n = \frac{358}{1 + \frac{1}{789}(357)} \quad n = 247$$

Where,

 $Z_{\alpha/2}$ is the critical value of the Normal distribution

 $\alpha/2$ (e.g. for a confidence level of 95%, α is 0.05 and the critical value is 1.96),

W is the margin of error,

P is the sample proportion.

N is the number of cancer patients receiving cancer care in a month, which is equal to the study period.

A previous study was conducted in Ibadan, Nigeria, the magnitude of physical pain was 37.1% and the magnitude of the psychological symptoms was 37.2%. So I went with 37.2 percent because that provides me with the most sample size. A total of 272 cancer patients will be surveyed, with a 10% non-response rate.

Sampling technique

A systematic random sampling technique was used to select cancer patients from the two hospitals assuming that the hospitals were heterogeneous with respect to some services providing for cancer patients, difference between inpatient and outpatient services and administration mechanism. Thus, a proportional to size allocation for each strata (were called hospitals). By using the following formula $nf=n/N \times Nj$ (nf=final sample size from each facility, N total annual population size, Nf=facility annual patients of a year), therefore, 128 cancer patients selected from BLH and 144 from St. Paul [5].

Inclusion criteria

Adult age greater than 18 years and cancer patients who had confirmed cancer diagnosis departments of Black Lion Hospital and Saint Paul's Millennium Medical College [6].

Exclusion criteria

Patients with cognitive impairment, unconfirmed diagnosis of cancer, age less than 18 years cancer patients, voluntary patient supporters and business related home based and hospital based health care providers.

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Operational definitions

Visual Analogue Scale (VAS): VAS is used to score the severity of pain experienced by patients within the previous month by both patients and their caregivers. This scale consists of a vertical line 10 cm in length and the scale is anchored by "no pain" (score of 0), mild scale 1-3, moderate 4-6 and "worst imaginable pain" (score of 7-10).

Physical pain: According to the international association for the study of pain, pain is "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage."

Acute pain is the duration of pain less than a month and chronic pain is physical pain duration greater than 3 months.

Physical symptoms: According to WHO, the common physical symptoms among cancer patients are fatigue, dyspnea, drowsiness, sleep disturbance, nausea, and loss of appetite.

Psychological symptoms: According to WHO, the common physical symptoms among cancer patients are depression, anxiety, sleeplessness, and suicidal ideation. These can co-occur with physical pain with depression being one of the most common psychological symptoms.

Data collection tool

The information was collected using a well-structured Englishlanguage questionnaire that was translated into Amharic. Then back to English by using expert translators.

Data management and analysis

To assure the quality of data, properly designed data collection instruments and training of both data collectors and supervisors were done. The collected data were reviewed and checked for completeness and relevance by the supervisors and principal investigator each day.

Data quality assurance and management

Eight BSc nurses and two MD-degree supervisors were trained for data collection on palliative care, physical pain, and psychological symptoms. A pretest was conducted on 5% cancer patients to ensure questionnaire relevance and consistency.

Ethical consideration

Ethical clearance was obtained from Yekatit 12 hospital medical college ethical clearance committee and the Institutional Ethical review board of the college. Then ethical clearness was also obtained from both facilities' oncology departments. Informed consent was obtained from all participants involved in the study [7].

Measures

The WHO numerical physical pain scale, PHQ-2 for depression, GAD-7 for anxiety, insomnia severity index for insomnia, and SIQ-9 are widely used assessment tools in cancer patients. ESAS is an internationally validated, comprehensive, and categorical classification system for assessing cancer pain symptoms. All assessment methods are numerical scaling methods which indicate. 0 is no, 1 to 3 is Mild, 4-6 is moderate and 7-10 is severe to worst.

Results

Socio-demographic characteristics

A study of 272 cancer patients with a 99.4% response rate, 64.7% female, and a mean age of 46.22 years. The majority were married, with 153 (56.3%) orthodox Christians and 72 (26.4%) Muslims. The majority were married, with 67 (24.5%) completing primary school and 23.9% illiterate (Table 1) [8].

 Table 1: Socio-demographic characteristics of cancer patients of Black Lion and Saint Paul's millennium medical college, Addis Ababa,

 Ethiopia September, 2022.

Variable	Category	Frequency (272)	Percent
Sex	Male	96	35.3
	Female	176	64.7
Age	19-29 years	54	16.2
	30-39 years	84	25.2
	40-49 years	48	14.4
	50-59 years	57	17.1
	Greater than 60 years	90	27
Religion	Orthodox Christin	153	56.3
	Muslim	66	24.3
	Protestant	47	17.3
	Others	3	1.1
Residency	Urban	200	73.5
	Rural	72	26.5

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Marital Status	Single	57	21.6	
	Married	169	62.1	
	Separated	16	5.9	
	Windowed	39	11	
Educational status	Illiterate	65	23.9	
	Reading and writing only	34	12.5	
	Primary school	67	24.6	
	Secondary school	39	14.3	
	Vocational school	7	2.7	
	University degree	58	21.3	
Occupation	Housewife	115	34.5	
	Farmer	37	11.1	
	Merchant	16	4.8	
	Governmental/private worker	94	28.2	
	House worker	6	1.8	
	Student	22	6.6	
	Others	43	12.9	
living with	Spouse	131	48.1	
	Children	66	24.3	
	Parent	46	16.9	
	Siblings	10	3.7	
	Relatives	4	1.5	
	Alone	15	5.5	

Cancer characteristics

Out of 272 cancer patients, 29.1% have breast cancer, 22.5% have gastrointestinal cancer, and 54.3% have other types. 38.2% of patients have not metastasized, and 36.4% don't know the stage. The leading site of metastasis is the lung, followed by the liver. 67.4% have had cancer symptoms for 1-4 years, and 82.4 have had chronic cancer (Figure 1) [9].



Ethiopia September, 2022.

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Magnitude and intensity of physical pain and symptoms

Among the total respondents, 162 (59.6%) had physical pain. The common site of physical pain 62(17.5%) were back pain, then followed by 57 (17.1%) were abdomen. Among the respondents according to World Health Organization pain classification, 78 (28.7%) had severe to worst pain, followed by 56 (20.6%) of the respondents had moderate pain and 41 (15.1%) had mild pain. Among cancer patients 201 (64.1%) had pain, among this 35 (19.1%) had acute pain and 166 (80.97%) had chronic pain. However, 187 (68.8%) of cancer patients do not take any analgesic drugs, 14 (13.7%), 60 (58.8%), 28 (27.5%) patients had NSAIDs, mild opioids (tramadol) and strong opioid morphine respectively. When we see the management of pain regarding to WHO ladder there is a significant gap, patients with mild to worst pain but have no analgesic drugs were totally 116 (38%), among a patient with severe to worst physical pain only 15 (12.6%) of patients had proper analgesics drugs. followed by patients with mild pain but who got proper analgesic drugs were only 1 (4.17%). According to cancer patients reported about physical symptoms, 228 (68.5%) of patients have drowsiness, among this patients 139 (41.9%) had moderate depression and 105 (31.5%) of the respondents do not have depression symptoms. From the respondents 261 (78.4%) of the

cancer patients have tiredness symptoms, from those patients 111 (33.3%) had severe to worst range of tiredness and followed by 81 (24.3%) of the respondents had mild tiredness symptom. From those had physical symptoms 109 (32.7%) of the cancer patients had nausea symptoms, 90 (27%) of the patients had moderate nausea and followed by 56 (16.7%) of patients had severe to worst nausea symptoms. Among the cancer patients 121 (33.3%) had shortness of breath symptoms, from these 81 (24.3%) had mild symptoms of shortness of breath. 225 (67.6%) of the cancer patients had loss of appetite, from those cancer patients 94 (28.2%) of the patients had severe to worst loss of appetite symptom and followed by 68 (20.4%) had moderate loss of appetite symptom. From those responders 228 (68.5%) had mild to extremely worried about their physical symptoms, 238 (71.8%) of cancer patients responded that they had a difficulty to handle their physical pain and 224 (67.3%) of the respondents said their physical pain had significant effect to perform their daily activities [10].

The presence of physical pain was associated with age of the patient, marital status, educational status, cancer type, cancer stage, and anatomical location of pain, and site of metastasis (Tables 2 and 3).

 Table 2: Magnitude and intensity of physical pain and common physical symptoms among cancer patients of Black Lion and Saint Paul's millennium medical college, Addis Ababa, Ethiopia September, 2022.

S. no.	variables	Characteristics	Frequency	Percent
1	Drowsiness	No	89	32.7
		Mild	116	42.6
		Moderate	35	12.9
		severe	32	11.8
2	Do you have physical pain?	No	110	40.4
		Yes	162	59.6
3	WHO pain scale	Mild	41	15.1
		Moderate	56	20.6
		No	97	35.7
		Severe	78	28.7
4	Duration of pain	Acute	48	17.6
		Chronic	224	82.4
5	Appetite lost	Mild	56	20.6
		Moderate	55	20.2
		No	92	33.8
		Severe	69	25.4
6	Shortness of breath	Mild	60	22.1
		Moderate	17	6.3
		No	179	65.8
		Severe	16	5.9
7	Nausea	Mild	75	27.6
		Moderate	41	15.1

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		No	115	42.3
		Severe	41	15.1
8 Tiredness		Mild	61	22.4
		Moderate	54	19.9
		No	67	24.6
		Severe	90	33.1

 Table 3: Relationship between of selected socio-demographic variables and presence of physical pain among cancer patients of BLH and SPHMMC, Addis Ababa, Ethiopia, September 2022.

S. no.	Predictive variables	Characteristics		Physical pain scale				Pearson <i>Chi-squar</i> e value
				No	Mild	Moderate	Severe	
1 Sex	Female	Counts	69	28	26	53	0.015	
			Expected	62.8	26.5	36.2	50.5	-
		Male	Counts	28	13	30	25	
			Expected	34.2	14.5	19.8	27.5	
2	Marital status	Married	Counts	68	28	35	41	0.003
			Expected	34.2	25.5	34.8	48.5	
		Separated	Counts	6	8	5	11	-
			Expected	5.2	5.5	6.8	8.5	
		Single	Counts	10	12	22	13	
			Expected	8.6	11.7	20.3	16.3	
		Widowed	Counts	8	9	6	13	
			Expected	5.2	6.5	5.8	9.5	
3 Cancer stage	l don't know	Counts	50	25	32	53	0.041	
			Expected	57.1	24.1	32.9	45.9	
		1	Counts	16	6	7	8	
			Expected	10	5.8	6.2	6	
		II	Counts	19	6	7	8	
			Expected	18.7	5.8	6.5	7.3	
		III	Counts	6	8	7	9	
			Expected	5.8	7.8	6.9	8.7	
		IV	Counts	8	6	9	13	
			Expected	7.6	5.9	8.7	10.3	

Magnitude and intensity of psychological symptoms

Out of 272 cancer patients, 53 (15.3%) of the cancer patients had mild anxiety, followed by 51 (15.1%) severe anxiety and 87 (26.1%) of the patients had moderate depression symptoms, the remaining 27

(8.1%) of cancer patients had mild depression symptoms. Among those who had psychological symptoms 100 (30%) of cancer patients had moderate insomnia and 25 (7.5%) patients had mild clinical insomnia. From those cancer patients 10 (3%) of the patients had high risk of suicidal ideation. Unfortunately, severity of physical pain was

associated with intensity of common psychological symptoms (Table 4). Those cancer patients with physical pain had no significant association with anxiety, depression and insomnia psychological symptoms [11-15].

Table 4: Magnitude and intensity of common psychological symptoms among cancer patients of Black Lion and Saint Paul's millennium medical college, Addis Ababa, Ethiopia September, 2022.

Variable	Category	Frequency (272)	Percent
Anxiety	No	186	55.8
	Mild	53	15.9
	Moderate	43	12.9
	Severe	51	15.3
	No	178	53.45
Depression	Mild	27	8.1
	Moderate	87	26.1
	Severe	41	12.3
	No	190	57
Insomnia	Mild	25	7.5
	Moderate	100	30
	Severe	18	5.4
Suicidal ideation	No	283	85
	Mild	17	5.1
	Moderate	10	3
	Severe	22	6.6

Discussion

This study provides important information about the extent and intensity of physical pain, as well as typical physical and psychological symptoms, for adult cancer patients in Ethiopia. In this study, 162 adult cancer patients (59.6%) reported physical pain; 41 (15.1%) had pain scores of mild, 41 (15.1%), moderate, and 78 (28.7%), severe to worst. These numbers are remarkably comparable when compared to the findings of research with a comparable sample size and demographic area. According to a Black Lion hospital study, 62.3% of cancer patients reported physical discomfort, with 36.9% reporting moderate pain and 24.5% reporting severe pain. Our findings, however, differ from those of the following studies. Physical pain was found to be prevalent (87.5%) in cancer patients in South Africa and Uganda, according to research. In Nigeria, 149 adult cancer patients reported pain, with 87.3% experiencing moderate to severe pain [16].

In Australia, there were 30 cancer patients who reported feeling pain; of these, 7 (21% of all patients) had mild pain (scoring=1-4), 11 (33%) had moderate pain (score=5-6), and 12 (36%) had severe pain. Because our study had a larger sample size than other studies, it is possible that the lower figure in our study is related to religion, social attitudes towards expression, and cultural practices. In this study, we used the WHO physical pain scaling method, but in Australia, they used their own local physical pain scaling methods. When we compared our common physical symptoms finding which is appetite

loss were 66.2%, shortness of breath were 34.2%, nausea were 57.7%, drowsiness were 67.3% and tiredness were 75.4% findings with a research done from South Africa and Uganda, which found that 77.7% of people were tired, 72.3% were drowsy, 41.1% were nauseated, and 47.3% had a decrease in appetite, which is similar to our findings. Other research conducted in Australia revealed 75.7% tiredness, 48% drowsiness, 54% nausea, 16% dyspnea, and 67% decreased appetite, which are more similar to our findings [17].

According to research conducted in Nigeria, the prevalence of psychological symptoms is similar to our figures, with depression at 41.1% and anxiety at 25.2%, but there is a difference in the following symptoms at 65.2% suicidal ideation and 49% insomnia. There is little information available on the severity and magnitude of common physical and psychological symptoms among cancer patients [18-20].

Conclusion

We discovered that having physical pain had a significant association with age of the patient, marital status, educational status, cancer type, cancer stage, and anatomical location of pain, and site of metastasis. However, did not have an association with insomnia, anxiety, depression, and suicidal ideation in comparison to other research findings. Previous studies have found that there is a significant relationship between physical pain and psychological symptoms. These psychological symptoms tend to worsen as the disease's prognosis and the severity of physical pain worsen. Physical pain is strongly associated with loss of appetite, tiredness, anxiety, insomnia, and depression.

Limitations of the Study

The study's limitations include being the first in Ethiopia, cultural issues affecting respondents' openness and information on suicide thoughts, and not implying cause-and-effect linkages. Scaling methods with culture and financial and time constraints also impacted sample size and study area.

Recommendations

This study sheds light on the considerable burden of physical pain and associated physical and psychological symptoms faced by adult cancer patients in Ethiopia. The findings emphasize the need for comprehensive pain management strategies tailored to different cancer types and stages, as well as interventions to address the psychological well-being of patients. Improved pain assessment and symptom management are essential components of holistic cancer care, aiming to enhance the quality of life for cancer patients in Ethiopia.

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References

- Jarvis JD, Kataria I, Murgor M, Mbau L (2016) Community health workers: an underappreciated asset to tackle NCD. Glob Heart 11: 455-457
- Adair LS (2012) How could complementary feeding patterns affect the susceptibility to NCD later in life?. Nutr Metab Cardiovasc Dis 22: 765-769.
- Chang J, Han KT, Medina M, Kim SJ (2022) Palliative care and healthcare utilization among deceased metastatic lung cancer patients in US hospitals. BMC Palliat Care 21: 136.
- Wearne N, Davidson B, Mc Culloch M, Krause R (2021) Radically rethinking renal supportive and palliative Care in South Africa. Kidney Int Rep 6: 568-573.
- van der Plas WY, Benjamens S, Kruijff S (2020) The increased need for palliative cancer care in Sub-Saharan Africa. Eur J Surg Oncol 46: 1373-1376.

- 6. Amberbir A, Lin SH, Berman J, Muula A, Jacoby D, et al. (2019) Systematic review of hypertension and diabetes burden, risk factors, and interventions for prevention and control in Malawi: The NCD BRITE Consortium. Glob Heart 14: 109-118.
- Downing J, Simon ST, Mwangi-Powell FN, Benalia H, Daveson BA, et al. (2012) Outcomes' out of africa': the selection and implementation of outcome measures for palliative care in Africa. BMC Palliat Care 11: 1-7.
- Drenth C, Sithole Z, Pudule E, Wüst S, GunnClark N, et al. (2018) Palliative care in South Africa. J Pain Symptom Manage 55: S170-177.
- Harding R, Selman L, Simms VM, Penfold S, Agupio G, et al. (2013) How to analyze palliative care outcome data for patients in Sub-Saharan Africa: an international, multicenter, factor analytic examination of the APCA African POS. J Pain Symptom Manage 45: 746-752.
- Harding R, Selman L, Agupio G, Dinat N, Downing J, et al. (2012) Prevalence, burden, and correlates of physical and psychological symptoms among HIV palliative care patients in sub-Saharan Africa: an international multicenter study. J Pain Symptom Manage 44: 1-9.
- O'Brien V, Jenkins LS, Munnings M, Grey H, North Z, et al. (2019) Palliative care made visible: Developing a rural model for the Western Cape Province, South Africa. Afr J Prim Health Care Fam Med 11: 1-11.
- Rhee JY, Garralda E, Namisango E, Luyirika E, de Lima L, et al. (2018) Factors affecting palliative care development in Africa: In-Country experts' perceptions in seven countries. J Pain Symptom Manage 55: 1313-1320.
- van der Plas WY, Benjamens S, Kruijff S (2020) The increased need for palliative cancer care in Sub-Saharan Africa. Eur J Surg Oncol 46: 1373-1376.
- Harding R, Selman L, Agupio G, Dinat N, Downing J, et al. (2011) The prevalence and burden of symptoms amongst cancer patients attending palliative care in two African countries. Eur J Cancer 47: 51-56.
- 15. Hughes RE, Holland LR, Zanino D, Link E, Michael N, et al. (2015) Prevalence and intensity of pain and other physical and psychological symptoms in adolescents and young adults diagnosed with cancer on referral to a palliative care service. J Adolesc Young Adult Oncol 4: 70-75.
- Nuhu FT, Odejide OA, Adebayo KO, Yusuf AJ (2009) Psychological and physical effects of pain on cancer patients in Ibadan, Nigeria. Afr J Psychiatry (Johannesbg) 12: 64-70.
- Alayande B, Chu KM, Jumbam DT, Kimto OE, Danladi GM, et al. (2022) Disparities in Access to Trauma Care in Sub-Saharan Africa: a Narrative.
- Alzghoul BI, Abdullah NA (2016) Pain management practices by nurses: an application of the knowledge, attitude and practices (KAP) model. Glob J Health Sci 8: 154.
- Grzelak S, Berube M, Gagnon MA, Cote C, Turcotte V, et al. (2022) Pain management strategies after orthopaedic trauma: a mixed-methods study with a view to optimizing practices. J Pain Res 15: 385-402.
- Hudson PL, Hayman-White K (2006) Measuring the psychosocial characteristics of family caregivers of palliative care patients: psychometric properties of nine self-report instruments. J Pain Symptom Manage 31: 215-228.