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Investigation of pain among oncology patients and the effect of satisfaction and clinical features

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Abstract

Measuring patients' pain in the last decades is an important tool for assessing the impact on their quality of life and mental health. The purpose of this study is to assess the level of pain among oncology patients by providing health services outpatient pain in a General Hospital as well as the satisfaction and clinical factors affecting this level. In the context of gathering research data, Greek brief Pain Inventory was used. The study included 156 patients (74 males και 82 females). A correlation was found between satisfaction level and pain in the patients of the study ($p < 0.05$). No relation was found between clinical factors and pain level ($p > 0.05$). Pain level of these patients is influenced by their satisfaction.

Keywords: oncology; patients; pain; satisfaction

Introduction

Almost half of patients living with poorly managed pain experience significant costs to their daily lives (Cousins et al., 2004). Unmanageable pain can have long-term physiological and psychological consequences, such as increased susceptibility to depression, lower quality of life, reduced independence, and reduced functioning in activities of daily living (Coker et al., 2010; Lapane, Quilliam, Chow, & Kim, 2012). Chronic pain is also associated with enormous financial, physical, and psychological costs (Kohr & Sawhney, 2005). It is estimated that the annual cost of pain management in Canada exceeds $10 billion (Reltsma et al., 2011). Persistent pain can lead to reduced productivity at work, resulting in financial costs to the economy and the individual (Lynch, 2011). Pain can limit activities and negatively affect mental health and interpersonal relationships, thus reducing quality of life (McCarberg et al., 2008).

Effective pain management includes pain control, assessment (continuous assessment and reassessment), diagnosis, documentation (timely and appropriate), treatment (pharmacological and non-pharmacological interventions), and continuous assessment of care (Registered Nurses' Association of Ontario [RNAO], 2007). Pain management should also include ongoing education and training of staff, patients, and patients' families about pain experiences and related primary and secondary interventions (Health Care Association of New Jersey, 2006, RNAO, 2007). Primary interventions would be preventive - for example, education for patients with chronic pain that includes pain management techniques. Secondary interventions refer to the immediate treatment of pain at the time of onset, such as medication for patients complaining of pain from a broken bone. Nurses play a key role in effective pain management (Ferrell, 2005; RNAO, 2007) and factors influencing effective pain management among healthcare professionals are well documented (Brown, 2004; Prkachin, Solomon & Ross, 2007). However, despite decades of extensive research, ineffective pain management is still ubiquitous in health care in Canada and many other countries, such as the United Kingdom (Maier et al., 2010; Wadensten, Fröjd, Swenne, Gordh & Gunningberg, 2011) and the United States (Carr, Reines, Schaffer, Polomano, & Lande, 2005).

Many studies have used multidisciplinary interventions as pain management strategies for people with chronic pain and have reported effective pain relief. For example, education for people with chronic pain was used in conjunction with pain relief strategies such as pharmacological treatment, relaxation and exercise often delivered by a multidisciplinary team. Because chronic pain is excruciating, persistent and has physical and psychosocial effects, interprofessional teamwork approaches have been extremely important (AGS Panel on Persistent Pain in Older Persons, 2002). The long-term efficacy of pain relief was not satisfactory and needs to be further investigated in research.

According to qualitative studies, people with chronic pain perceive that social support has been effective in managing their pain. For example, talking with their family or friends and participating in patient groups were effective in managing pain (Kengen Traska et al., 2012; West et al., 2012). However, the effectiveness of social supports has not been examined in trials. Social resources that remain close to people with chronic pain can function for long periods of time at minimal cost. In contrast, Dysvik, Natvig, Eikeland, and Lindstrøm (2005) found that the most important stressors in people with chronic pain were family life and social activities. Social interactions with family members or friends for people experiencing pain, as well as the effects of these interactions, are complex. However, supporting families to help them cope with pain and protect them from future crises could be a worthwhile approach for nurses (Lewandowski, Morris, Draucker & Risko, 2007; West et al., 2011). This area should be looked into further.

Although high pain intensity has been reported in people living in nursing facilities (Takai, Yamamoto-Mitani, Okamoto, Koyama, & Honda, 2010), there has been a lack of extensive research focusing on people living in nursing facilities or people with dementia or mental illness. Pain often has psychological consequences, such as depression, anxiety, or the behavioral and psychological symptoms of dementia (Husebo, Ballard, & Aarsland, 2011; Smalbrugge, Jongenelis, Pot, Beekman, & Eefsting, 2007). A systematic review described only three studies that supported the idea that pain management reduced the disorder (Husebo et al., 2011). However, intervention for vulnerable people should be explored. Further studies are important.

The purpose of this study is to assess the level of pain among oncology patients by providing health services outpatient pain in a General Hospital as well as the clinical factors and satisfaction affecting this level.

Method

In this research, the following tools were used to collect the data:

1.Greek Brief Pain Inventory (Mystakidou et al., 2001). It includes 9 questions about the pain someone feels in the last 24 hours. Respondents use an 11-point Likert-type scale (0 = no pain, 10 = the worst pain imaginable) to rate the intensity of their pain as "worst", "minimum" or "moderate" during the last 24 hours, as well as the moment of calibration (4 questions). Also, patients indicate the location of their pain on a schematic diagram of the anterior and posterior surface of the body. Other questions (3) concern the experience of pain beyond the usual, taking analgesic drugs or other treatment and the extent to which, these relieve the pain. It includes two main components, one of which expresses the average severity of pain in the last 24 hours (average of 4 questions) and the other the degree to which the pain affects daily life (general activity, walking, work, mood, enjoyment of life, interpersonal relationships, sleep) of the individual. The range for the former is 0-40 and for the latter 0-70 (mean of 7 responses based on an 11-point Likert-type scale, 0 = does not interfere, 10 = completely interferes), with higher scores reflecting greater mean severity and impact of pain respectively.

2.The Patient Satisfaction Questionnaire - Short Form (PSQ-18) was also used to extract the data of the present study. This questionnaire is a widely used research tool for the quantitative assessment of patient satisfaction. It has been in use since 1976 and consists of 18 research topics related to medical care, technical service quality, interpersonal relationships, communication, financial aspects of care, time with the doctor, accessibility, and care provided (Ware, Snyder, Wright, 1976). Answers are given on a 5-point Likert scale and range from "strongly agree" (1) to "strongly disagree" (5) (Partheniadis et al., 2022).

3.In addition to the aforementioned questionnaire, there were questions related to the demographic and clinical characteristics of the sample, e.g., gender, age, type of cancer, coexisting diseases, etc.

This is a cross-sectional study. The research population was all patients of the pain department of a General Hospital. The sample for the research was the patients who would visit the clinic for the second time. This particular sample is a sample of convenience. Patients were selected based on the inclusion criteria for the study, which are as follows:

- The patient's consent
- Age over eighteen years
- Diagnosed with cancer
- Ability to communicate in the Greek language
- His (patient's) general state of health allows him to take part in the study

All research participants were informed in writing and verbally and signed a consent form. The collection of the sample was preceded by written approval from the Scientific Committee of the Hospital, following a relevant request of the researcher.

The data were collected with the help of special questionnaires. The researcher was responsible for the data collection, informed the patients orally about the aims of the study and then completed the questionnaires by interview, which were accompanied by a letter stating information about the purpose of the study, anonymity and data confidentiality, as well as the voluntary nature of participation. Completing the questionnaires meant acceptance of participation and informed consent, while their completion time did not exceed 15 minutes. The response rate was 100%.

For the presentation of the results related to the responses of the patients to the questionnaires, who participated in the research, a frequency analysis was carried out. Additionally, the descriptives command was run to examine the averages. Quantitative variables are presented as mean (± standard deviation) while qualitative variables are presented as frequency (%). Also, a test of normality of the sample was performed using the Kolmogorov Smirnov test. In order to investigate possible associations between pain and clinical factors, non-parametric and parametric tests were performed (Spearman/Pearson correlation analysis, Mann-Whitney test/Independent samples t test, Kruskal Wallis test/One-Way anova). Both instruments used in this research showed very good reliability (Cronbach a), ranging from 0.85 for the satisfaction questionnaire and 0.78 for the pain questionnaire. Statistical analysis was performed with the IBM SPSS Statistics 23 statistical program. A p value <0.05 was considered to indicate statistical significance.

Results

One hundred and fifty-six patients (74 men and 82 women) with an average age of 58.73±13.47 years participated in the research. The majority of them were married (47.4%), 24.4% widowed, 16.0% single while 9.0% were divorced. Eighty patients stated that they do not live alone and 74 patients stated that they do live alone.

Regarding their educational level, 31 patients were elementary school graduates (19.9%), 33 patients were high school graduates (21.2%), 32 patients declared that they were high school graduates (20.5%) while 49 had a university degree/ TEI (higher education) (31.5%). Only 11 patients had master's/doctoral degrees (7.1%).

Regarding the professional status of the patients, the majority (65 patients) declared that they are retired (41.7%), 31 private employees (19.9%), 6 public employees (3.8%), 43 patients were engaged in household (27.6%) and 11 also declared themselves unemployed (7.1%). The majority of patients resided in an urban area (58.3%), 22 patients (14.1%) in a rural area and 40 patients (25.6%) in a semi-urban area.

Regarding the insurance status of the sample, 77 patients (49.4%) had public insurance, 67 patients (42.9%) had private insurance and 12 patients (7.7%) declared uninsured.

In detail, all socio-demographic characteristics are presented in table 1.

n	**156**	
gender		
(male) n (%)	74	47,4
(female) n (%)	82	52,6
education		
Municipal n (%)	31	19,9
gymnasium n (%)	33	21,2
lyceum n (%)	32	20,5
Technological Educational Institute n (%)	11	7,1
University n (%)	38	24,4
Master n (%)	9	5,8
PhD n (%)	2	1,3
marital status		
single n (%)	25	16,0
married n (%)	74	47,4
divorced n (%)	14	9,0
widower n (%)	38	24,4
in symbiosis n (%)	5	3,2
Live		
alonen (%)	74	47,4
not alonen (%)	80	51,3
Place of permanent residence		
Urban n (%)	91	58,3
semi-urban n (%)	40	25,6
Rural n (%)	22	14,1
insurance status		
uninsuredn (%)	12	7,7
publicly n (%)	77	49,4
ιδιωτική n (%)	67	42,9
professional status		
άνεργος n (%)	11	7,1
housework n (%)	43	27,6
civil servantn (%)	6	3,8
private employeen (%)	31	19,9
Pensioner n (%)	65	41,7

Table 1: *Sociodemographic characteristics of the study patients*

Table 2. Type of cancer			
		Frequency	**Percentage (%)**
	Breast cancer	30	19,2
	Lung cancer	33	21,2
	Colon cancer	15	9,6
	Pancreatic cancer	8	5,1
	Hepatocellular carcinoma	10	6,4
	Prostate Cancer	10	6,4
	Kidney cancer	6	3,8
	Stomach cancer	8	5,1
	Lymphoma	9	5,8
	Leukemias	5	3,2
	Head-neck cancer	2	1,3
	Bladder cancer	9	5,8
	Melanoma	7	4,5
	Other	1	,6
	Total	153	98,1
Missing values		3	1,9
Total		156	100,0

Table 2: *Type of cancer*

In table 2, the results of the cancer types are presented. The majority of patients (21.2%) had lung cancer, 19.2% (30 patients) had breast cancer, while 15 patients (9.6%) had colon cancer

Table 3. Co-morbidities

		Frequency	Percentage (%)
	yes	64	41,0
	no	89	57,1
	Total	153	98,1
Missing values		3	1,9
Total		156	100,0

Table 3:*Co-morbidities*

Based on the results in table 3, 64 patients (41.0%) had comorbidities and 89 patients (57.1%) had no comorbidities.

Table 4. Categories of co-morbidities

		Frequency	**Percentage (%)**
	Hypertension	36	23,1
	Diabetes mellitus	15	9,6
	Heart failure	3	1,9
	Respiratory disease	2	1,3
	Autoimmune disease	5	3,2
	Total	61	39,1
Missing values		95	60,9
Total		156	100,0

Table 4: *Categories of co-morbidities*

Based on the results of Table 4, the majority of patients (23.1%) also suffered from hypertension in addition to cancer while 15 patients (9.6%) suffered from diabetes mellitus.

Table 5. Descriptive elements of the questionnaire

	N	**Lowest value**	**Higher value**	**Mean**	**Standard deviation**
Severity of pain in the last 24 hours	156	2,75	9,25	5,4471	1,34224
Pain effect on everyday life	155	,43	10,00	5,6700	2,87746

Table 5. *Descriptive elements of the questionnaire*

In table 5, the results of the descriptive elements of the questionnaire are presented. The effect of pain on everyday life reached 5.67±2.87, while the severity of pain in the last 24 hours reached 5.44±1.34.

Table 6. Normality of the sample

	Kolmogorov-Smirnov test		
	Statistic	df	p-value
Severity of pain in the last 24 hours	,070	155	,062
Pain effect on everyday life	,094	155	,002

Table 6. *Normality of the sample*

In the table above, the values of the Kolmogorov-Smirnov test regarding the normality of the sample are displayed. There was no normality in any of the dimensions ($p<0.05$) except pain severity in the last 24 hours ($p>0.05$).

	N	Mean	Std. Deviation	Maximum	p-value
Breast cancer	30	4,8583	1,28935	8,00	0,212
Lung cancer	33	5,7273	1,40918	8,00	
Colon cancer	15	5,1833	1,21548	7,25	
Pancreatic cancer	8	6,3438	1,70575	9,25	

Hepatocellular carcinoma	10	5,4500	1,50370	8,00	
Prostate Cancer	10	6,0750	,81692	7,25	
Kidney cancer	6	5,6667	1,72240	7,50	
Stomach cancer	8	4,9375	1,35456	6,25	
Lymphoma	9	5,2778	,89656	6,50	
Leukemias	5	5,3000	,67082	6,00	
Head-neck cancer	2	5,7500	,35355	6,00	
Bladder cancer	9	6,0000	1,17925	7,25	
Melanoma	7	5,2500	1,92570	7,75	
Other	1	5,0000	.	5,00	
Total	153	5,4461	1,35510	9,25	

Table 7: *Differences between types of cancer in terms of pain severity in the last 24 hours*

The results of table 7 did not show that there was a statistically significant difference (p=>0.05) between types of cancer regarding the severity of pain in the last 24 hours.

	cancer type	N	Mean Rank	p-value
Effect of pain on everyday life	Breast cancer	30	58,45	0,127
	Lung cancer	33	77,35	
	Colon cancer	15	63,43	
	Pancreatic cancer	8	113,88	
	Hepatocellular carcinoma	10	89,30	
	Prostate Cancer	10	104,75	
	Kidney cancer	6	93,00	
	Stomach cancer	8	63,81	
	Lymphoma	9	76,28	
	Leukemias	5	79,00	
	Head-neck cancer	2	75,00	
	Bladder cancer	8	78,44	
	Melanoma	7	76,57	
	Other	1	55,50	
	Total	152		

Table 8: *Differences between types of cancer in terms of the effect of pain on everyday life*

The results of table 8 did not show that there was a statistically significant difference (p=>0.05) between types of cancer regarding satisfaction and the effect of pain on everyday life**.**

	Co-morbidities	N	Mean	p-value
Severity of pain in the last 24 hours	yes	64	5,4375	0,877
	no	89	5,4719	

Table 9: *Differences between co-morbidities and non-co-comorbidities diseases in terms of pain in the last 24 hours*

The results of table 9 did not show that there was a statistically significant difference (p=>0.05) between coexisting diseases and those without regarding the severity of pain in the last 24 hours.

	Co-morbidities	N	Mean Rank	Sum of Ranks	p-value
Effect of pain on everyday life	yes	64	79,08	5061,00	0,538
	no	88	74,63	6567,00	
	Total	152			

***Table 10:**. Differences between co-morbidities and non-co-comorbidities diseases in terms of the effect of pain on everyday life*

The results of table 10 did not show that there was a statistically significant difference (p=<0.05) between coexisting diseases and those without in terms of the effect of pain on everyday life.

Severity of pain in the last 24 hours

	N	Mean	Std. Deviation	p-value
Hypertension	36	5,2778	1,17074	0,094
Diabetes mellitus	15	5,3500	,89043	
Heart failure	3	6,5000	,90139	
Respiratory disease	2	7,1250	1,23744	
Autoimmune disease	5	5,3500	1,18057	
Total	61	5,4221	1,13976	

Table 11: *Differences between co-morbidities in terms of pain in the last 24 hours*

The results of table 11 did not show that there was a statistically significant difference (p=>0.05) between coexisting diseases regarding the severity of pain in the last 24 hours.

	if so which of the following	N	Mean Rank	p-value
Effect of pain on everyday life	Hypertension	36	30,57	0,616
	Diabetes mellitus	15	28,83	
	Heart failure	3	46,83	
	Respiratory disease	2	32,75	
	Autoimmune disease	5	30,40	
	Total	61		

Table 12: *Differences between co-morbidities in terms of the effect of pain on everyday life*

The results of table 12 did not show that there was a statistically significant difference (p=>0.05) between coexisting diseases regarding the effect of pain on everyday life.

			Severity of pain in the last 24 hours	Effect of pain on everyday life
Spearman's rho	General satisfaction	Correlation Coefficient	-,082	-,178*
		Sig. (2-tailed)	,308	,026
		N	156	155
	Quality of technical services	Correlation Coefficient	-,353**	-,420**
		Sig. (2-tailed)	,000	,000
		N	156	155
	Interpersonal relationships	Correlation Coefficient	-,156	-,177*
		Sig. (2-tailed)	,051	,027
		N	156	155
	Communication	Correlation Coefficient	-,211**	-,311**
		Sig. (2-tailed)	,008	,000
		N	156	155
	Economic aspects of care	Correlation Coefficient	-,196*	-,203*
		Sig. (2-tailed)	,014	,011
		N	156	155
	Time with the doctor	Correlation Coefficient	,007	-,073
		Sig. (2-tailed)	,933	,365
		N	156	155
	Accessibility	Correlation Coefficient	-,115	-,178*
		Sig. (2-tailed)	,151	,026
		N	156	155

Table 13: *Correlation between satisfaction and pain*

Regarding the correlation between satisfaction and pain (table 13), there was a statistically significant (p<0.05) and negative correlation of all satisfaction variables both with the severity of pain and with its (pain) impact on daily life in addition of time with the doctor.

There was also no statistically significant correlation between age and pain severity in the last 24 hours (p=0.958, r=0.004).

On the contrary, a statistically significant and negative correlation of age with general patient satisfaction (p= -0.241, r=0.002), interpersonal relationships (p= -0.281, r=0.000), communication (p= -0.335, r =0.000), time with doctor (p= -0.231, r=0.004) and accessibility (p= -0.207, r=0.010).

Discussion

The findings from the said research study are significant and can be summarized as follows:

A correlation is observed between the level of satisfaction and pain in the patients who participated in the research with those who show higher satisfaction having less pain severity and less impact on their daily activity.

Much of the literature dealing with pain and patient satisfaction has focused on satisfaction with pain management, not satisfaction with pain level. A large proportion of patients with cancer pain, e.g., 80% (Beauregard, Pomp & Choiniere, 1998) to 99% (Panteli & Patistea, 2007) and postoperative pain, e.g., 75% reported a high level of satisfaction with pain management rather than pain intensity. Similar study results have been found in other countries, such as the Netherlands, Sweden and China (Beauregard et al., 1998; de Wit, van Dam, Vielvoye-Kerkmeer, Mattern & Abu-Saad, 1999; Hurwitz, Morgenstern & Yu, 2005; Jensen, Mendoza, Hanna, Chen, & Cleeland, 2004). Possible explanations for this asymmetry are varied.

A comprehensive framework such as the biopsychosocial model of health care will be based on a single guiding principle: that the goal of addressing the physical, social, and psychological aspects of chronic disease is to help patients with chronic conditions and the entire population, regardless of from a person's chronic illness or current state of health.

Regarding the limitations of the present research, it is noted that the results obtained from the said study can be further investigated in samples from other hospital contexts, private or even public, giving the possibility to control the variables under study, to compare the results, so that more general conclusions can be drawn. However, it should be noted that this study was conducted in only one hospital and therefore, because the sample is small, the results cannot be generalized.

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