Quality of Life of Patients with Chronic Osteomyelitis

[1]Hala A. Sheta

Lecturer of Medical Surgical Nursing, Faculty of Nursing, Benha University

[2] Samah E. Ghonaem

Lecturer of Medical Surgical Nursing, Faculty of Nursing, Benha University

[3]Nehal M. Abo El-Fadl

Lecturer of Medical Surgical Nursing, Faculty of Nursing, Benha University

Abstract

Background: Quality of life has an important status in patient management suffering from chronic osteomyelitis. Patient with chronic osteomyelitis suffer from fatigue, loss of self-esteem, inability to function at work, anxiety, depression and other emotional problem that profoundly decreases their quality of life and wellbeing. The QOL assessment provides valuable information regarding the specific areas of deficit, which require greater attention by the health care workers. The knowledge of the specific areas of deficit helps in setting goals for psycho-social therapies and rehabilitation. .**The aim of this study:** To assess the quality of life of patients with chronic osteomyelitis. **Subjects and Methods:** A descriptive design was conducted at orthopedic department in Zagazic University Hospitals. The study included 30 patients suffering from chronic osteomyelitis at the previously mentioned settings. Tools of the study involved a questionnaire Fact Ga tool (version-4), (David Cella et al) to assess the quality of life for chronic osteomyelitis patients. **Results:** The quality of life of chronic osteomyelitis patient was poor assessed on the parts of, social, emotional, functional wellbeing and other additional domains, where as QOL is more poor in physical, emotional and functional wellbeing, in comparison to social wellbeing. There was no any significant association between related demographical variables (like sex, domicile type of family, marital status) and chronic osteomyelitis disease. **Conclusion & Recommendations:** Health care personnel should be given an opportunity to update their knowledge regarding COD. Nurses need to be aware, that providing education or conducting health related teaching service are an important aspect of their nursing service.

Keywords: Chronic, osteomyelitis, Patients, quality of life, nursing.

Introduction

Chronic osteomyelitis is a severe, persistent, and sometimes incapacitating infection of bone and bone marrow. It is often a recurring condition because it is difficult to treat definitively. This disease may result from the following: Inadequate treatment of acute osteomyelitis, A hematogenous type of osteomyelitis, Trauma, Iatrogenic causes such as joint replacements and the internal fixation of fractures, Compound fractures, Infection with organisms, such as Mycobacterium tuberculosis and Treponema species (syphilis), Contiguous spread from soft tissues, as may occur with diabetic ulcers or ulcers associated with peripheral vascular disease **(Surendra, 2015).**

Chronic osteomyelitis affects males more than females, Adults are at a high risk of contracting Chronic Osteomyelitis, Intravenous drug abusers: Those who use intravenous drugs have a weak immune system and hence, carry a higher risk of Chronic Osteomyelitis, Individuals with chronic diseases, such as diabetes, peripheral arterial disease, and sickle cell disease, the condition is seen worldwide; no race or ethnicity is particularly preferred **(Walter et al., 2012)**. Patients with Chronic Osteomyelitis may complain of: Pain and tenderness in the affected area of the bone, affected area may look strange or deformed, instability, chronic fatigue, redness in the affected area, and possibility of drainage from an open wound near the area of infection, loss of movement in the affected area or limb and Irritability **(Obel, 2013)**

Chronic osteomyelitis is the major problem which affects the quality of Life of individual. The term "quality of life" has first been used after World War II, to describe the effect of material welfare on individuals' lives. However, QOL is often simplified in the medical field to a description of a person's health status، often referred to as health-related QOL. **(Jyoti , 2015)**.

Chronic osteomyelitis not only affects the patient's quality of life, but the family's as well. Chronic osteomyelitis that can adversely affect the quality of a patient's life **(Jyoti , 2015)**.

Health-related QOL focuses on the effects of a disease or health conditions on the daily functioning of individuals **(Wiklund, 2002),** with special attention for their physical and mental health **(Mooney, 2007).**

Recently quality of life (QOL) has become the principal goal of medical care because of the increasing emphasis on the patients as focal point of health care, patients functioning preservation and well being hence forth measurement of patients quality is receiving attention in medical research.Quality of life (QOL) is a subjective multidimensional concept which includes functional status, emotional and social well being as well as general health **(Om prakash، 2012).**

Quality of life (QOL) should not be confused with the concept of standard of living, which is based primarily on income. A healthy lifestyle leads to a better quality of life.Quality of life has an important status in patient management suffering from Chronic osteomyelitis **(Ferrari, 2014).** Recently health related quality of life has gained importance as an outcome measure in clinical and epidemiological studies and has become a key component in the evaluation of therapeutic interventions of bone diseases **(Winfried et al., 2004).** It is a broad concept incorporating an individual's physical health, psychological state, level of independence, social relationships, personal beliefs and relationship with the environmental conditions **(World Health Organization، 1998).**

Significance of the study

Chronic osteomyelitis is the major problem which affects the quality of Life of individual. The rationale behind undertaking this study topic is to combined use of generic and disease specific instrument to provide more accurate assessment both the global aspects and the specific features of quality of life of a specific condition. And secondly the demographic factors such as age, sex, marital status, educational status, socioeconomic condition, occupation, category, disease awareness and psychological status of patient suffering from chronic osteomyelitis. Lastly, because there are maximum number of people comes in Zagazic university hospitals are suffering from chronic osteomyelitis and having poor quality of life. There are no systematic studies from Zagazic university hospitals that have assessed the quality of life in chronic osteomyelitis and its relationship with other co morbid illness. So, it's crucial to study the quality of life for patients suffering from chronic osteomyelitis.

Aim of the study

The present study aimed to assess quality of life of patients with chronic osteomyelitis.

Research question:

1- What is the quality of life of patients with chronic osteomyelitis?

Subjects and Methods:

Research design

A descriptive design was used to meet the aim of this study.

Setting

The study was conducted at orthopedic department in Zagazic University Hospitals.

Sampling

The sample comprised of thirty male and female patients with chronic osteomyelitis was randomly being taken from the total patient population who admitted in the above mentioned setting. Purposive sampling technique was used to select the samples. It was according to power analysis using the program epi-info to estimate the sample size. The criteria of the study inclusion; who has diagnosed chronic osteomyelitis by the Consultant and admitted in orthopedic department in Zagazic University Hospitals. Patient age between 15 to 65 years, who are ready to participate in study and gave, informed consent, both male and female patient of chronic liver disease are included, those accompanied by a care giver, conscious patients. Patients and care givers were given a short orientation by the researcher to explain the aim and nature of the study. The studied patients and their care givers were informed that the study is harmless; all the gathered data were treated confidentially and used for research purpose only.

Research instrument (tools): two tools were used to collect study data:

Tool 1: Demographic variables

An interviewing Questionnaire: It was developed by the researchers to collect baseline data which consist of nine items namely, age, sex, domicile, categories, educational level, occupation, marital status, family type and income.

Tool 2: Structured interview schedule to Quality of life of chronic osteomyelitis disease

The FACT- Ga tool (version-4), (David Cella et al) tools consist of (45 items) to assess the Quality of Life of chronic osteomyelitis disease patients. The items were develop to cover 5 different areas namely: Physical well beings (7 items),(Social/family well beings (7 items), Emotional well beings (6 items), Functional well beings (7 items), Additional concern (18 items). Each items had score and it was under the heading (0 Not at all), (1 A little bit) (2 Some what), (3Quite a bit), (4very much). An extensive review of literature were carried out about Quality of Life and chronic osteomyelitis disease

Administrative design

An official permission for conducting the study at orthopedic department in Zagazic University Hospitals was obtained from the hospital administration by the submission of a formal letter from the Dean of the Faculty of Nursing. Meeting and discussion was held between the researcher and the nursing administration to make them aware about aims and objectives of the study, as well as, to get better cooperation during the implementation phase of the study.

Ethical Consideration

Human rights must be considered by explaining the aim of the study to each participant to be familiar with importance of his or her participation and assured that the information obtained will be confidential and used only for the purpose of the study. An oral approval to carry out the study was obtained from each Patients and his/her accompanying caregiver as well. The researcher will assure maintaining anonymity and confidentiality of objective data. Consent will be taken from the subject that they agree to be included in the study.

Pilot study:

A pilot study was conducted on 10% of patients recruited to test the clarity, applicability and validity of the tool. To determine the needed time for filling in application to tools. Necessary modifications have been considered. Patients involved in the pilot study will be excluded from the study.

Statistical analysis

The collected data were tabulated and analyzed using Statistical Package of Social Science (SPSS), version 16. A variety of statistical methods were used to analyze the data in this study as number and percentage distribution., , t-test, independent t-test chi square, correlation coefficient. Mean and standard deviation were used to estimate the statistical significance difference between variables of the study.

كلية معتمدة

The 4th Annual and 1st International Scientific Conference of The Faculty of Nursing Benha University In Collaboration with Psychological Intelligence Foundation (PIFCIC), Hertford, UK

Result

Table (1): Number and percentage distribution of the studied subjects according to their sociodemographic variables (N=30)

Variables	Patients with chronic osteomyelitis disease	
Age in years	Number (N)	Percentage (%)
15-25	02	06.7
26-35	04	13.3
36-45	08	26.7
46-55	11	36.6
56-65	05	16.3
Sex Male	22	73.3
Female	08	26.7
Educational level of patients Illiterate	7	23.3
Read ,write	2	06.7
Primary	3	10.0
Middle	4	13.3
High school	5	16.7
diploma	6	20.0
Graduation	3	10.0
Domicile (Living place) Urban	09	30.0
Rural	21	70.0
Marital status Married	27	90.0
Single	02	6.7
Widow	01	3.3
Occupation Not work (Retired)	7	23.3
worker	5	10.0
private	6	20.0
employer	8	26.7
farmer	4	13.3
Income 600-800 EP	02	6.7
800-1000 EP	12	40.0
1000-1500 EP	09	30.0
1500-2000 EP	02	6.7
>2000 EP	05	16.7

EP =Egyptian pound.

Table (1) shows that, number and percentage distribution of the studied patients according to demographic variable. It was found that, regarding to age the most frequency of the patients was in between (46-55) years (36.6%), related to sex the most frequency of the patients were males (73.3%). Regarding to educational level the most affected patients (23.3%) were illiterate, according to living place the majority of the patients from rural area (70.0%) subjects belongs to rural area. And as to marital status the majority of the affected patients (90.0%) were married. as to occupation the majority of participants (26.7%) were employed. Related to income the most frequency of the patients were in between (800-1000 EP) monthly (40.0%).

Table 2: Association between selected demographic variable and chronic osteomyelitis disease

Variable	Mean	Std. Deviation	t Value	p
Sex Male	82.40	10.63	-0.895	0.379 NS
Female	86.25	9.68	-0.895	0.379 NS
Domicile Urban	83.22	13.04	0.072	0.943 NS
Rural	83.52	9.36	0.072	0.943 NS
Marital status Married	82.29	9.55	-2.590	0.013 NS
Unmarried	1.01	10.61	-2.590	0.013 NS

NS= Non Significant

Table (2) reveals that there is no significant association between selected demographic variable like sex, domicile, and marital status with chronic osteomyelitis disease.

Table (3) number and percentage distribution of the studied subjects according to their history of the disease (n = 30)

		N	%	Chi-square	
				X^2	P-value
Duration	<1y	5	16.7	15.867	0.001
	1-5y	9	30.0		
	5-10y	12	40.0		
	>10y	4	13.3		
Admission (Frequency)	1	21	70.0	41.700	0.000
	2	2	6.7		
	3 or more	7	23.3		
Causative agents	Un known	9	30.0	31.833	0.000
	Iatrogenic causes & Infection	7	23.3		
	Inadequate treatment of acute osteomyelitis	11	36.6		
	diabetic ulcers	1	3.3		
	weak immune system	2	3.33		
Chronic diseases	No	22	73.3	52.267	0.000
	Yes	8	26.7		
Drugs	No	27	90.0	48.600	0.000
	Yes	3	10.0		

N.B. For all statistical tests done; P value > 0.05 insignificant, P value < 0.05 significant, P value < 0.01 highly significant and P value < 0.001 very highly significant.

This table reveals that; regarding to duration of the disease the most frequency of the patients had the disease from [5 to 10 years] (40%), related to admission's frequency the most frequency of the patients were admitted for the first time (70.0%) & the minority of the patients for the second times (6. 7%)., according to the causative agents of the disease the most frequency of the patients had Inadequate treatment of acute osteomyelitis (36.6 %) & the minority of the patients had diabetic ulcers (3.3%) as to Chronic diseases the most frequency of the patients were not had Chronic diseases (73.3 %)., regarding to drugs mis –use or abuse the majority of the patients were not drugs mis –use or abuse (90.0%) .And all the results is very highly statistical significant where p-value < 0.05.

Table (4) Assessment of quality of life of chronic osteomyelitis disease, N=30

Measure	Mean	Std. Deviation	Range
Physical wellbeing	15.77	04.75	19(6-25)
Social wellbeing	16.47	04.70	21(4-25)
Emotional wellbeing	10.83	04.09	13(4-17)
Functional wellbeing	10.87	02.98	14(5-19)
Additional wellbeing	29.50	05.04	25(17-42)
Total quality of life	83.43	10.36	43(65-108)

This table shows that quality of life is better in additional concerns than physical or social wellbeing and poor in emotional and functional wellbeing.

Table (5): Correlation between selected demographic variables and quality of life of chronic osteomyelitis disease patients. N=30

Variables	Quality of life FACT-G scale					
	Physical well being	Social	Emotional	Functional	Additional	Total quality of life
Age	-0.071	-0.096	-0.260	0.006	-0.324	-0.334
Educational status	-0.139	0.308	-0.241	0.130	-0.291	-0.123
Domicile	0.251	-0.160	-0.208	0.030	0.037	-0.014
Marital status	0.088	-0.116	0.254	-0.104	0.156	0.134
Cause of osteomyelitis disease	0.230	0.205	-0.003	-0.246	0.357	0.300

This table shows that there is no significant difference found in overall total quality of life in physical, social, emotional, functional domains and additional concerns.

Discussion:

The present study aims to assess quality of life of patients with chronic osteomyelitis disease and to achieve this aim one research question were formulated; what is the quality of life of patients with chronic osteomyelitis? This discussion of the results will be presented in four sections; First section will high light the socio-demographic characteristics , medical history and physical examination of the studied sample of the studied sample, the second section will conducted with the Association between the Quality of Life of Chronic osteomyelitis disease and demographic variables, Third section will conducted with the assessment of Quality of life in chronic osteomyelitis disease Patients and the final section will concerned with the Correlation between selected demographic variables and quality of life of chronic osteomyelitis disease patients.

I- A- Demographic characteristics of the sample:

Quality of life in chronic osteomyelitis disease is increasingly recognized as a clinically important health measure. Our study shows Majority of participants 36.6% were in age group of 46-55 years. This analysis is in agreement with **Jyoti et al., (2013**) who stated that the most affected persons were in between [46-55] years old, refers to gender the majority of Participants were male this analysis is in agreement with **Walter et al., (2012) and Jyoti et al., (2013**) their studies revealed that males are more affected than females and this finding in contrast with **Baur et al., (2015)** who found that females are more affected than males. As to marital status the most affected patients were married and regarding to education the most affected patients were illiterate. This analysis is in agreement with **Jyoti et al., (2013)**. Referring to occupation the most affected patients were not work and employer and regarding to income the most frequency of patients had 800-1000 EP monthly. This analysis is in agreement with **Farag (2006)** who stated that the most affected persons were not work & employer and had a weak income.

B- Medical history & physical examination of the sample:

The study revealed that, regarding to duration of the disease the most frequency of the patients had the disease from [5-10y years] 40.0%.This analysis is in agreement with **Farag (2006)** who stated that the majority of the patients had the disease from [5 to 10 years]., as to admission's frequency the most frequency of the patients admitted for the first time 70.0%. This analysis is in agreement with **Farag (2006)** who stated that the majority of the patients admitted form (1-3) time. As to the causative agents the Majority of participants73.3 %with no of the chronic diseases whiles other causes of patients with chronic osteomyelitis

disease have like 36.6 % is inadequate treatment of acute osteomyelitis. This findings supported by **Obel et al., (2013)** who is reported that, the highest rate of chronic osteomyelitis disease in participants were due to inadequate treatment of acute osteomyelitis 45.6% while this finding in contrast with **Madsen et al., (2008)** who stated that the most affected persons with chronic osteomyelitis disease were due to Iatrogenic causes & Infection71.3%. Regarding to drugs mis –use or abuse the majority of the patients were not drugs mis –use or abuse. This analysis is in agreement with **Farag (2006)** who stayed that the most the majority of participations were not drugs mis-use or abuse.

II) The Association between the Quality of Life of Chronic osteomyelitis Disease and demographic variables

The present study showed that no significant association between the quality of life of chronic osteomyelitis disease and selected demographic variables like age, sex، education, marital status, occupation, income monthly. This finding is supported by **Jyoti et al., (2013)** who reported that there was no significant difference between the group of healthy control and chronic osteomyelitis disease on age, gender, marital status and educational level.

III) Assessment of Quality of life in chronic osteomyelitis disease Patients

The study revealed that, there is no statistically significant difference was found in overall quality of life in physical wellbeing, social wellbeing, emotional wellbeing, functional wellbeing and items related to additional wellbeing. The study is showed that quality of life is poorer in the emotional and functional wellbeing in comparison to other physical, social and additional wellbeing. The above findings are supported by **Gritti et al., (2013) and Jyoti et al., (2013)** which reveal that, there is no significant difference between general health perceptions of subjects resulted significant lower than those of Chronic osteomyelitis Disease both at self and parental report. No other significant difference in other related quality of life domains (physical health, mental health, social functioning, and role functioning, general health perception) were found between groups. The above findings are also supported by **Om Prakash et al., (2012)** which reveals the frequency of poor health related quality of life determine by chronic osteomyelitis disease questionnaire score is high in patient with osteomyelitis disease.

IV) Correlation between selected demographic variables and quality of life of chronic osteomyelitis disease patients

The findings of the study showed that statistically significant difference was not found in overall quality of life social, emotional, functional, physical and additional well beings with demographic variables like age, sex, educational level, domicile, marital status and causes of osteomyelitis disease. This finding is y are also supported by **Winfried et al (2004) and Jyoti et al., (2013)** conducted a study determinants of health related Quality of life in patients with chronic osteomyelitis disease, which reveals that no significant correlation were noted between generic and disease specific health measures and socio-demographic variables (age, sex, social, class or life style.)

Conclusion

The study concluded that the quality of life of chronic osteomyelitis disease patient was poor assessed on the parts of physical, social, emotional, functional wellbeing and other additional domains, where as QOL is more poor in emotional and functional wellbeing, in comparison to physical and social wellbeing.

Recommendations

Recommendations based up on this study, this study recommended that emphasize the importance of assessing the quality of life of the chronic illness specially the patient with chronic osteomyelitis disease and their care givers& provide appropriate intervention to enhance quality of life of the chronic osteomyelitis

disease & their care givers according to their actual needs & problems. A similar study can be conducted on a larger sample. The findings of the present study have several implications in the field of the nursing education, nursing administration and nursing research. Health care personnel should be given an opportunity to update their knowledge regarding chronic osteomyelitis disease. Nurses should participate chronic osteomyelitis disease related seminars, group discussions، conferences and workshops so they can get the additional knowledge and skill about it. Initiation of studies (qualitative & quantitative) to identify and develop nursing strategies that improve quality of life among patients with chronic illness like osteomyelitis patients. Initiation of studies (qualitative & quantitative) to investigate and develop the family role as a caregiver for patients with chronic osteomyelitis disease. More psychological and financial support should be available to improve quality of life. Nurses have an important role in linking patients to community resources that provide services to enhance the economic status to develop better quality of life and enhance their self-esteem.

References

● **Baur, D.A, Altay, M.A, Flores-Hidalgo. A, Ort Y, Quereshy FA. (2015):** Chronic osteomyelitis of the mandible: diagnosis and management--an institution's experience over 7 years. J Oral Maxillofac Surg. 2015 Apr. 73 (4):655-65. (Medline).

● **Farag Khames Mastoura (2006):** the relationship between functional status, self esteem and hope level among patients undergoing paracentesis at AL Manial University Hospital, unpublished Master Thesis Cairo University.

● **Ferrari J, Pilkington C. (2014):** Chronic recurrent multifocal osteomyelitis the prevalence of lower limb and foot involvement. J Am Podiatr Med Assoc Nov; 104(6):583-7

● **Gritti. G, Zandi Mitra, Mohsen Adib-Hajbagheri, Robabeh Memarian, Anooshiravan Kazem Nejhad2 and Seyed Moayed Alavian3 (2013):** Effects of a self-care program on quality of life of cirrhotic patients referring to Tehran Hepatitis Center, available at http://www google.com, accessed in 19, 8, 2009, 12pm.

http://www.posna.org/education/StudyGuide/chronicOsteomyelitis.asp (accessed on 4/20/2015)

● **Jyoti, S., Hurtado-Nedelec M, Chollet-Martin S, Nicaise-Roland P, Grootenboer-Mignot S, Ruimy R, Meyer O.(2012):** Characterization of the immune response in the synovitis, acne, pustulosis, hyperostosis, osteitis (SAPHO) syndrome. Rheumatology (Oxford).

● **Medicine net .com (2009):** osteomyelitis, available at http://www. medicine net .com, accessed in 21, 2, 2009, 7pm.

● **Mooney,D., Meller J, Koster G, Liersch T.(2007):** Chronic bacterial osteomyelitis: prospective comparison of (18)F-FDG imaging with a dual-head coincidence camera and (111)In-labelled autologous leucocyte scintigraphy. Eur J Nucl Med Mol Imaging. 29(1):53-60. (Medline).

● **Obel, G., Krogdahl, A., Thygesen, T., &Godballe, C. (2013).** Juvenile mandibular chronic osteomyelitis: 3 cases and a literature review. J Oral MaxillofacSurg, 71(2), 305-309. doi: 10.1016/j.joms.2012.02.013

● **Om Prakash,A. Surendra G, Shetty U. (2012):** Chronic recurrent multifocal osteomyelitis: A rare entity. J Med Imaging Radiat Oncol.. 59 (4):436-44. [Medline].

● **Surendra .G, Shetty U.(2015):** Chronic recurrent multifocal osteomyelitis: A rare entity. J Med Imaging Radiat Oncol. 2015 Aug. 59 (4):436-44. (Medline).

● **Walter, G., Kemmerer, M., Kappler, C., & Hoffmann, R. (2012):.**Treatment algorithms for chronic osteomyelitis.DtschArzteblInt, 109(14), 257-264. doi: 10.3238/arztebl.2012.0257

● **Wiklund C Bajaj, J., Schubert, C., Sanyal, A.J. (2002):** Chronic recurrent multifocal osteomyelitis: A rare entity. J Med Imaging Radiat Oncol.. 59 (4):436-44. [Medline].

● **Winfried ,S.Tandon, P., Garcia-Tsao, G. (2004):** Bacterial infections, sepsis and multiorgan failure , Semin Liver, Dis; 28:26, available at http://www. google.com, accessed in 26, 7, 2004, 9pm.

● **World Health Organization (1998):** International classification of functioning, disability andhealth, ICF. Geneva، available at http://www .google.com, accessed in 11, 3, 2010, 10pm.