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RESEARCH ARTICLE

HEALTH RELATED QUALITY OF LIFE AMONG ADULTS AFTER SURGERY FOR ESOPHAGEAL CANCER: A CROSS SECTIONAL STUDY IN HARARE, ZIMBABWE

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ABSTRACT

Esophageal cancer is a common cancer responsible many cancer deaths among adults worldwide. Esophageal cancer surgery is a common treatment option to improve functioning.Health related quality of life is the key functional concepts that serves to measure individuals health improvements after any treatment.This cross-sectional study was conducted at Parirenyatwa Group of hospital in Harare in Zimbabwe.Participants were selected using convenience non-probability sampling technique. A questionnaire used had 2 sections; the demographic questions and the health-related quality of life, which were adapted from the cancer-specific European Organization for Research and Treatment of Cancer of quality of life questionnaire. Data was analyzed using Statistical Package for Social sciences version 16.0. A total of 40 adults participated in this study, including 24 (60%) males and 16 (40%) females. Thirty- two (80%) of the participants had deteriorated health-related quality of life on the functions with all these participants having a mean score lower than 76, 4. Four (10%) had a stable health-related quality of life whilst 4(10%) had a much-improved health related quality of life.Health related quality of life of majority of patients could be deteriorating following surgery for esophageal cancer.

INTRODUCTION

Esophageal cancer occurs when abnormal cells are formed or when genetic mutation occurs resulting in overgrowth of tissue and formation of masses or tumors on the esophagus (National Cancer Institute (NCI), 2016; Wedro 2017). The esophagus in adults is a hollow muscular tube that extends from the mouth to the stomach (Wedro, 2017). There has been an increase in cases of esophageal cancer since the 1970s (Masab, 2017). Esophageal cancer is now the eighth common cancer accounting for 462 000 new cases and the sixth commonest cause of cancer deaths among adults worldwide (NCI, 2016; Wedro 2017). Esophageal cancer exact cause is unknown but all factors causing injury and inflammation on the wall of the esophagus are risk factors (Wedro 2017; Zhang *et al.,* 2013). These include age, sex, excessive alcohol intake, smoking, diet poor in fruits and vegetables, acid reflux from gastric esophageal reflux disease, a history of mediastinal irradiation, and obesity (Wedro 2017, Zhang *et al.,* 2013). The symptoms of esophageal cancer include progressive dysphagia, weight loss, fatigue, disturbed sleeping pattern, dysphonia, fluid and electrolytes imbalance, chest pain, heart burn and some may be depressed (Wedro, 2017). Treatment modalities of esophageal cancer may include surgery, radiation, chemotherapy and endoscopic treatment, depending solely on the stage of the disease (Wedro, 2017).

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Localized esophageal cancer is commonly resected with either transthoracic or trans- hiatal approach Enzinger *et al.,* 2003). Esophageal cancer surgeries include esophagectomy, esophageal dilation and esophageal stent insertion. Esophagectomy is the preferred surgery to treat esophageal cancer; it is the removal of all or part of the esophagus (Masab, 2017; Enzinger *et al.,* 2003). Palliative care surgery is a minor surgery which can be done for late stage cancer where a feeding tube is directly put into the stomach or the small intestine (Masab, 2017). The resection, often increases 2 year survival by 42% and 10 year survival by 24% (Zhang *et al.,* 2013; Enzinger *et al.,* 2003). This treatment approach also improves and restores physical function which includes eating well reduced to no nausea and vomiting reduced pain and fatigue, no trouble when sleeping and increased level of independence (Masab, 2017). Esophageal cancer surgery improves and restores physical function which includes eating well reduced to no nausea and vomiting reduced pain and fatigue, no trouble when sleeping and increased level of independence (NCI, 2016; Enzinger *et al.,* 2003). Health related quality of life is the key functional concepts that serves to measure individuals health improvements after any treatment has been implement for a given disease (Wedro, 2017). Centers for Control and Prevention, (2016), defines health related quality of life an individual's or group's perceived physical and mental health over time. Measuring of health related quality of life can help determine the burden of preventable diseases, injuries and disabilities and can provide

valuable new insights into the relationships between health related quality of life and complications (Centers for Control and Prevention, 2016). Health related of quality of life measures makes it possible to demonstrate scientifically the impact of quality of life, going well beyond. After any treatment, patients and health professional expect a wide improvement on the physical function, psychological, social factors and increased level independence (Zhang *et al.,* 2013). In this study, the health related quality of life; the physical function measured the ability to eat solid foods again, improved appetite levels, no constipation or vomiting including diarrhoea, improved energy levels and no pain, whilst the psychological factors include concentration levels, memory loss and depression (Masab, 2017).

In Zimbabwe several patients are being diagnosed with esophageal cancer at Parirenyatwa Group of Hospitals and are having esophageal cancer surgery done, but it is not well understood if the quality of life in relation to physical and psychological functioning among the patients is enhanced post operatively. There is no available literature which describes the health-related quality of life of patients in Zimbabwe after esophageal cancer surgeryhence; the study helped to establish the body of knowledge. Nurses can impact a patient's life with every interaction and intervention. Through a holistic approach, nursing provides an empathetic ear, educational information, medication administration and spiritual support to improve health-related quality of life for all patients. The aim of this study was to determine health-related quality of life of patients after surgery for esophageal cancer attending the outpatient clinic at Parirenyatwa Group of Hospitals in Harare.

METHODS

A descriptive cross-sectional design was used in this study.The study was carried out at the Cardiothoracic Clinic at the Outpatients' department at Parirenyatwa Hospital.A sample size of 40 participants were recruited to participate in this study. Non-probability convenient sampling method was implemented in this study since it is resourceful in terms of money, time as well as the type of sensitivity and the nature of the study. Interviews were conducted using structured questionnaires. A signed informed consent was required before participation was initiated.Included in this study were adults aged between 18 to 75 years who had esophageal cancer surgery done, who were familiar with English or Shona.Excluded from participating in this study wereseverely ill or mentally disturbed adults who could not communicate in English or Shona. Excluded also were adults who did not provide a signed informed consent.Ethical approval for conduction of this study was obtained from the Joint Research Ethics Committee for Parirenyatwa and University of Zimbabwe.

The questionnaire used in this study was adapted from the cancer-specific European Organization for Research and Treatment of Cancer of quality of life questionnaire C30 (EORT QLQ-C30) and EORT QLQ_OES18 module. The questionnaire comprises of four functioning scales that is physical level of independence, psychological and the social, global quality of life scale. Individual items that measure the health-related quality of life are rated on a 4 point Likert scale where 1 represent low negative HRQOL and 4 indicates high positive HRQOL. In this study, the patient's HRQOwas categorized as improved, stable, or deteriorated for each measure. Descriptive statistics was used to describe and summarize demographic data and health-related quality of life using the computerized Statistical Package for Social Sciences (SPSS) 16 and Microsoft Excel to yield means, medians and modes. The questionnaire had two sections, demographic data and health related sections which are sub divided into physical, psychological factors, level of independence and the social including the environmental factors.

RESULTS

The demographic details of the study are presented in Table 1 below. The highest cases of esophageal cancer was among the 35 to less than 55 years age group. In relation to gender, more males were affected than females with a ratio of 3:2. Fifteen of the participants had gastrostomy and jejunostomy feeding tubes done, which is palliative minor surgery. Most of the participant presented to hospital at advanced stage of esophagus cancer.

Table 1. Demographic data and the clinic presentation of the sample (N=40)

Variable	Frequency	Percentage%
Age		
18 to <35years	2	5
35 to <55years	23	57.5
55 to 75 years	15	37.5
Gender		
Male	24	60
Female	16	40
Esophageal cancer surgery done		
Esophagectomy	7	17.5
Antegrade insertion	4	10
Retrograde dilation	3	7.5
Esophageal dilation	11	27.5
Feeding gastrostomy/jejunostomy	15	37.5
Admission in intensive care unit		
Not admitted	34	85
Admitted	6	15

Health-related quality of life factors

Health related quality of life was the key variable in the study which was measuring the four main functional of health and general perception of an individual after received esophageal cancer surgery. Table 2, shows mean scores of the function scale, general symptoms and the quality of life scale and how participant health related quality of life was categorized in this study. The health-related quality of life questions responses was transformed into a linear score which ranged from 0 to 100. Patients' HRQL was also categorized as improved, stable, or deteriorated for each HRQL measure. Table 2 below indicated that, physical scale about 30(75%) of the participants scored less than the mean scores with the majority scoring 54 which means most of them were deteriorating instead of improving and 6(15%) of the participants scored above the mean score by less than 10 from 90 to 100 a range of improvement while on 4(10%) of the participants had improved. Therefore, most of the participants were having problems with eating, sleeping, chest pain and fatigue. In relation to psychological scale most of the participants scored less than the mean score of 69 with 28(70%) had high scores of depression and loss of memory. Other function scales show, a much-improved state, which means that level of independence

Table 2. Health related quality of life of patients using mean scores and categories n=40

	Deteriorate Frequency %	Stable Frequency %	Improved Frequency %
Functional scales			
Physical function	30 7.0	4 10.0	6 15.0
Psychological	7 17.5	28 70.0	512.5
Level of independence	410.0	15 37.5	21 52.5
Social factors	3 7.5	29 72.5	4 10.0
Quality of life	820.0	14 35.0	18 45.0
General symptoms scales			
Fatigue	1640.0	10 15.0	14 35.0
Nausea and vomiting	20 50.0	18 45.0	2 5.0
Chest Pain	21 52.5	14 35.0	5 12.5
Trouble when sleeping	18 45.0	22 55.0	0 0.0
Appetite loss	2460.0	13 32.5	3 7.5
Constipation	32 80.0	6 15.0	2 5.0
Diarrhea	25 62.5	15 32,5	0 0.0
Financial difficulties	39 97.5	1 2.5	0 0.0

Table 3. Health related quality of life on physical and psychological problems (n=40)

	Not at all	A little	Quite a bit	Very much
Physical problem				
	Frequency %	Frequency %	Frequency %	Frequency %
Eating	1435.0	2050.06	15.0	00.0
Lack of appetite	615.01127.5	10	25.0	1332.5
Nauseated	1640.0	15 37.5	615.0	37.5
Vomited	3 7.5	37.5	4 10.0	3075.0
Constipated	00.0	7 17.5	1	2.5 3280.0
Diarrhea	2562.57	17.5	6	15.0 25.0
Trouble in sleeping	6 15.0	12 30.0	18 45.0410.0	
Fatigue	26 65.0	922.5	5 12.5 0	0.0
Chest pain	21 52.5 14	35.04	10.01 2.5	
Pain when eating	31 77.5	8 20.01	2.5 0	0.0
Psychological factors				
Difficulty concentrate	2972.5	615.04 10.0 1	2.5	
Feeling of depression	37.5	615.01742.51435.0		
Memory loss	3075.025.000.0	8 20.0		

Table 4. Health related quality of life on level of independence and social factors

Variables	Frequency	Percentage %
Level of independence (Total score 6)		
Trouble walking long and short distance		30
Yes	12	70
No	28	
Assistance to perform activities of daily activities		42.5
Yes	17	57.5
No	23	
Pain interfering with daily activities after surgery		82.5
Yes	33	17.5
No	7	
Social factors		
Physical condition or medical treatment interfered with family life		72.5
Yes	29	27.5
No	11	
Social relationships		65
Yes	26	35
No	14	
Financial difficulties		97.5
Yes	39	2.5
No	1	

Table 5. Global health status of participants

Global health status	Frequency	Percentage %
Perceived global physical health status by patient		
Excellent		7.5
Best	3	20
Better	8	40
Good	16	20
Very poor	8	12.5
Perceived overall quality of life status	5	
Excellent	0	0
Best	0	0
Better	12	30
Good	13	32,5
Very poor	2	5

and social factors were improved after esophageal cancer surgery. For symptoms, the classification into improved and deteriorated HRQL groups was in the reverse direction since the scoring for symptoms is the opposite of that for function scale scoring. However, postoperative for esophageal cancer the participants in this study scored high in fatigue, diarrhoea, having trouble when sleeping, appetite loss, nausea and vomiting which indicated that their health-related quality of life was deteriorating. Table 3 below shows the results of the raw scores which were obtained from participants on physical and psychological factors after esophageal cancer surgery individual question on the questionnaire. Key measurers of the health-related quality of life on the table below include eating, loss of appetite, fatigue, chest pain, trouble when sleeping, depression and memory loss. The table 4 below shows results of the scoring of patients on their level of independence and social factors around the patient including the individual's perceived global health status. The level of independence had a total score of six with a minimum score an individual could score of 1. Social factors had a total score of 6. The following are the frequency and percentages of the participants.Level of independence, considered individual performing maximum activities without help and pain.

Participant's perceived global health status

The global health status results show that, 16(40%) of the participants viewed their physical health status as better while 3(7.5%) viewed their physical health as excellent. In relation to the quality of life, 13(32.5%) of the participants viewed their health life as good.

DISCUSSION

Demographic characteristics

In this study 40 participants who were attending the outpatient cardiothoracic clinic at Parirenyatwa during the March/April period were examined. The median age of participants in this study was 60 years, which was the same as was similar to that reported in a separate study where the median age was 61 years (American Cancer Society (ACS), 2016). In regards, to the gender the results of this study showed that more males have esophageal cancer surgery than female. Literature available shows that males have esophageal cancer surgery done than female. In a separate study 95 (87.2%) were males and only 14 (13.8%) were females (ACS, 2016). There was no literature available which links the health-related quality of life with other social demographics. However, all the social demographics such as religion, income status and employment status, level of education and marital status. These social demographics variables help some of the patients to have stable and improved social and level of independence after surgery if they have support. Level of education helped to educated the research to health educate were there was need and helps nursing plans effective if someone is learned.

Health related quality of life factors

Mostof the participants 29(72, 5%) scored less than the mean scores with the majority scoring 54 which means most of them were deteriorating instead of improving. Only 7(17.5%) of the participants scored above the mean score from 90 to 100, a range of improvement while only 4(10%) of the participants had improved. Therefore, most of the participants were having problems with eating, sleeping, chest pain and fatigue. Contradicting results showed health-related quality of life improves at five years (Cavallian *et al.,* 2015). Eight- six percent of the participants showed improvements after esophageal cancer with a mean score of 87 which was the same as the background population (88) surgery whilst 14% were deteriorating which was an achievement of the surgery (Derogar and Lagergren, 2012). An assessment of health-related quality of life of patients with esophageal squamous cell carcinoma following esophagectomy used the EORTC quality of life questionnaires (Derogar and Lagergren, 2012). They studied 62 consecutive patients and the study they concluded that patients with comorbidities and advanced tumor stage III to IV exhibited increased risk of poor health life, while gender, age, body mass index and anastomosis location were not associated with health-related quality of life after surgery (Derogar and Lagergren, 2012). All patients had worse functional, symptoms and global score within 6 months after surgery.

In relation to psychological scale most of the participants in the study scored less than the mean score of 69 with 31(77.5%) had high scores of depression and loss of memory. The literature addressing HRQL among long term survivors after surgery for esophageal cancer is limited (Shen *et al.,* 2014). Some cross-sectional studies, using validated HRQL measures, indicated that patients who survive between 2 years and 5 years after esophagectomy report HRQL like that reported in this study and other previous studies showed persistent problems with reflux, dyspnea, pain, and appetite loss were identified and depression and memory loss (Shen *et al.,* 2014). The physical health problems present before esophageal cancer surgery is done are commonly occurring. More research is required to establish preventable approaches and to have an understanding of events leading to the reoccurrence.

Significance of the study

This study laid a foundation for future research on esophageal cancer in Zimbabwe. It has provided knowledge gaps in line with surgery treatment effect and generated more research questions. It is hoped that the findings from the study have expanded the body of knowledge of medical-surgical nursing in esophageal cancer.

Conclusion

In conclusion, the study showed that health-related quality of life of majority of participants deteriorated after esophageal cancer surgery was done. Only a few had a stable health-related quality of life and a much-improved health related quality of life.Physical problems with esophageal cancer are commonly occurring even after esophageal surgery is done.

Conflict of interest: None declared

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