Quality of life and its determinants: A study among cancer patients in radiotherapy outpatient department of a tertiary care hospital of Kolkata

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Abstract

Introduction: Cancer patients suffer a lot physically, emotionally & practically. In some cancer disease quality of life has become an important end point for treatment. Thus quality of life assessment becomes an important issue among cancer patients.
Objective: To evaluate the quality of life of cancer patients attending Radiotherapy OPD in IPGMER, Kolkata and to find out, if any association of socio-demographic profile with the quality of life.
Materials and Methods: A descriptive type of observational study, with cross sectional study design was conducted among the patients attending Radiotherapy OPD of I.P.G.M.E.R. & S.S.K.M Hospital.
Results: The most negatively affected domain by cancer was the psychological domain which had the lowest mean score among all the domains (37.25±16.3). Mean scores in psychological (41.4) and environmental domain (54.3) were significantly (p<0.05) higher in persons suffering from cancer for more than 5 years. Mean scores were also higher in all the domains in patients who had undergone some form of surgical interventions for their cancer.
Conclusions: Most affected by cancer is psychological quality of life. But with longer duration of cancer patients seemed to get adjusted with the suffering. Undergoing surgery not only improved physical perception of health, but also acted as a psychological boost up.

Keywords: Quality of life, Domains, Duration of cancer, Cancer related surgery.

Introduction

Cancer is a disease of uncontrolled cellular proliferation. It is malignant and primary & characterized by local cell invasion & metastasis. Cancer can affect different systems or organs of the human body. The five most frequent cancers (ranking defined by total number of cases) in India in men and women are breast, cervical, oral cavity, lung and colorectal.[1] In children acute lymphoblastic leukemia, brain tumors are common. Possible signs and symptoms include a new lump, changes in mole on the skin, indigestion, abnormal bleeding, cachexia, prolonged cough or change in bowel movements

In India it is estimated that around 2.5 million people are living with the disease. Every year, over 7 lakh new cancer patients are registered. There are 5, 56,400 cancer-related deaths annually in the country.[2] Deaths occur mostly in the economically productive age group that is 30-69 years. 71% of all cancer related deaths occur in the age group between 30-69 years which totals to 3,95,400 deaths annually (Men: 2,00,100 and Women: 1,95,300).[3]

Cancers of oral cavity and lungs in males and cervix and breast in females account for over 50% of all cancer deaths in India.[4]

Though considered as a terminal disease by many people, chances of survival depend on the type of cancer and the extent of the disease at the start of treatment. In children less than 15 years at diagnosis, the 5 year survival rate in the developed world is on average 80 %.[5]

The cancer patients suffer a lot physically, emotionally & financially. After diagnosis with cancer, patients feel full range of emotions including fear, sadness, anxiety and depression. Patients often suffer from cognitive problems like thinking, memory, concentration & behavior. It becomes very upsetting for the patients to realize that they are suffering cancer and come to terms with the diagnosis.

Again treatment like chemotherapy, radiation, targeted therapies cause pain & discomfort. Having cancer also means earning less, working less. Cancer affects the personal finances of the patients – who spend most of their savings in treatment.

Thus cancer not only affects the person with the illness but also their family members & friends. The friends & family members also face cancer alongside a loved one. Lack of social care, improper adjustment reduces quality of life which should be studied well to support better treatment & psychotherapy should be encouraged.

Thus an increasingly important issue in oncology is to evaluate Quality of life (QoL) in cancer patients.[6] Quality of life is an individuals' perception of their aims, expectations, interests and ideas, satisfaction and happiness among their culture and values as a whole.[7]

World Health Organization (WHO) defines Quality of life (QoL) as "the individual's perception of their position in life in the context of the culture and value

systems in which they live and in relation to their goals." QoL is increasingly being used as a primary outcome measure in studies to evaluate the effectiveness of treatment. [8-11]

Studies have been more on the death due to cancer than those surviving after cancer, so life quality among them often remain unaddressed.

Thus this study was carried out to evaluate the quality of life of cancer patients attending radiotherapy OPD in IPGME&R and to elicit if any the relationship between the quality of life and socio-demographic profile of the patients.

Materials and Methods

A descriptive type of observational study, with cross sectional study design was conducted among the patients attending Radiotherapy OPD of I.P.G.M.E.R. & S.S.K.M Hospital, Kolkata, in March 2017 spanning a period of one month.

Non random purposive sampling technique was followed. The OPD was visited for 4 hours (from 9am to 12 noon) for 2 weeks. All the patients attending the OPD during the visit were interviewed after taking informed oral consent after their visit at the OPD. Any

medical report available with them was also examined for additional information.

Exclusion criteria included patients who were below 18 years of age and who were seriously ill. Thus a total sample size 275 was obtained.

The study tools included predesigned and pretested structured schedule and the WHO Quality of Life – BREF (WHOQOL-Bref) Questionnaire (Bengali Version)

The WHOQOL-100 quality of life assessment was developed by the WHOQOL Group with fifteen international field centers, simultaneously, in an attempt to develop a quality of life assessment that would be applicable cross-culturally. To provide a broad and comprehensive assessment, one item from each of the 24 facets contained in the WHOQOL-100 has been included QOL Bref Scale. In addition, two items from the Overall quality of Life and General Health facet have been included. The WHOQOL-BREF thus contains a total of 26 questions. The WHOQOL-BREF is therefore based on a four domain structure as mentioned below

Domain	Facets incorporated within domains
1. Physical health	Activities of daily living Dependence on medicinal substances and medical aids Energy and fatigue Mobility Pain and discomfort Sleep and rest Work Capacity
2. Psychological	Bodily image and appearance Negative feelings Positive feelings Self-esteem Spirituality / Religion / Personal beliefs Thinking, learning, memory and concentration
3. Social relationships	Personal relationships Social support Sexual activity
4. Environment	Financial resources Freedom, physical safety and security Health and social care: accessibility and quality Home environment Opportunities for acquiring new information and skills Participation in and opportunities for recreation / leisure activities Physical environment (pollution / noise / traffic / climate) Transport

Results and Analysis

Fig. 1 shows the distribution of the study population according to their age groups. It was seen from table no. 1 that nearly 30% of the study population were between 41 – 50 years of age.

Table 1 shows the distribution of the study population according to other socio-demographic variables. A little more than half (52.7%) of the study population were females and almost half were homemakers (49.8%). Majority of the study population were Hindus (71.3%), were currently married (90.2%) and belonged to nuclear families (61. 5%). Constituents of urban area were statutory towns, census towns and outgrowths + urban agglomeration. All places with a municipality, corporation, cantonment board or notified town area committee were considered as urban areas. All areas under Panchayat were considered as rural areas. About 2/3rd of study population lived in rural area.

Only 13% of the study population had completed education higher secondary and above. According to the modified BG Prasad Scale (2016), about 40% of the study population belonged to class 5 socio-economic status.

Breast cancer was the most common type of cancer (29.5%) accounting for about half of the cancers among female population, followed by lung cancer (11.6%) as evident from Fig. 2.

Nearly 1/3rd of the study population had scored below the 1st quartile in the physical and social relationship domain of WHO-Bref QOL scale (Table 2). In the psychological and environmental domain only 24% and 18.5% could score above the 3rd quartile respectively.

The mean score in the social relationship domain was the highest (52.26±17.7) and the lowest was in the psychological domain (37.25±16.3). So the most negatively affected domain by cancer was the psychological domain (Table 3)

Mean scores in psychological (41.4) and environmental domain (54.3) were higher in persons suffering from cancer for more than 5 years. This association was significant (p<0.05) in case of environmental domain (Table 4), suggesting the adjustment of patients to their physical environment with time.

Again mean scores were higher in all the domains in patients who had undergone some form of surgical interventions for their cancer. This was statistically significant (p<0.05) in physical and psychological domain.

Table 5 shows the relationship of the socio-demographic variable with score obtained in the different domains of quality of life. On regression it was found that duration of cancer was significantly (p<0.05) associated with psychological and environmental domain score whereas PCMI was significantly (p<0.05) associated with social relationship and environmental domain scores.
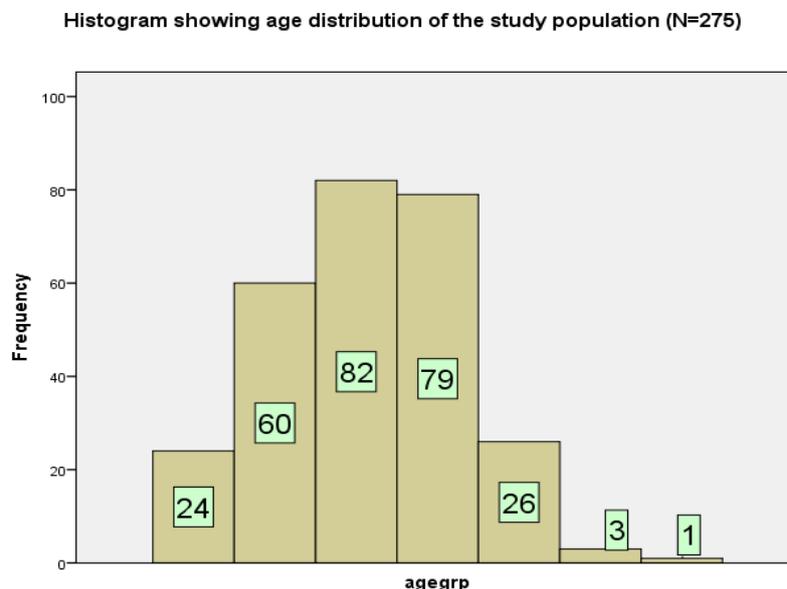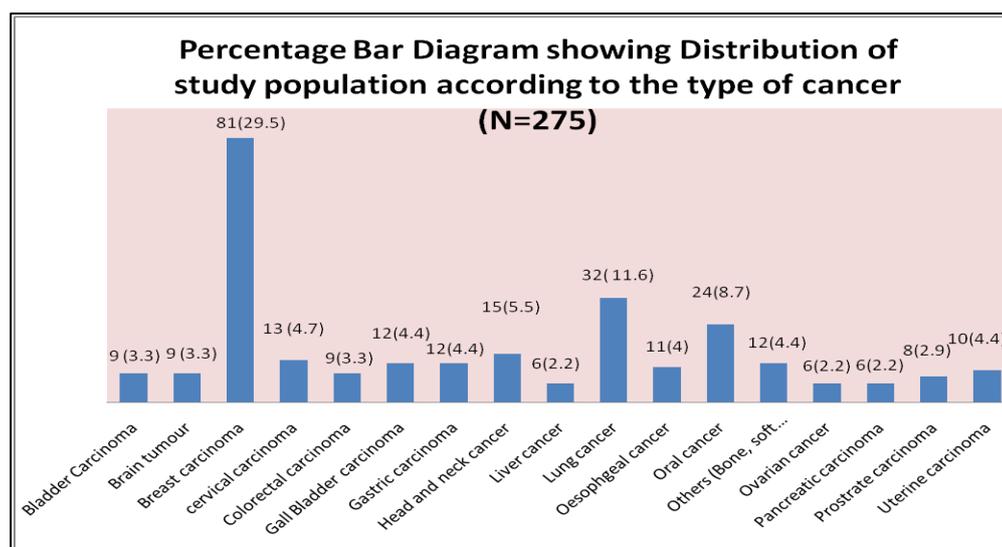
Histogram showing age distribution of the study population (N=275)

Fig. 1:

Fig. 2:

Table 1: Distribution of the study population according to their socio-demographic status (N=275)

Sex	Number	Percentage
Female	145	52.7
Male	130	47.3
Religion	**Number**	**Percentage**
Hindu	196	71.3
Muslim	76	26.9
Sikh	3	1.1
Residence	**Number**	**Percentage**
Rural	183	66.5
Urban	92	33.5
Marital status	**Number**	**Percentage**
Married	248	90.2
Unmarried	11	4.0
Others(widow/widower, divorced, separated)	16	5.8
Family type	**Number**	**Percentage**
Joint	106	38.5
Nuclear	169	61.5
Occupation	**Number**	**Percentage**
Businessman	26	9.5
Service	12	4.4
Farmer	49	17.8
Home maker	137	49.8
School teacher	11	4
Others (mason craftsman, priest, army, retired, driver, carpenter, laborer, rickshaw puller, student, tailor)	38	13.8
Unemployed	2	0.7
Socio-economic Class	**Number**	**Percentage**
Class 1	11	4.0
Class 2	20	7.3
Class 3	40	14.5
Class 4	92	33.5
Class 5	112	40.7
Education	**Number**	**Percentage**
Illiterate	84	30.5
Primary	89	32.4
Middle School	47	17.1
Secondary	20	7.3
Higher Secondary	12	4.4
Graduation and above	23	8.4

Table 2: Distribution of the study population according to the scores obtained in different domains (N=275)

Score obtained	Physical health Domain		Psychological Domain		Social relationship Domain		Environment Domain	
	Number	Percentage	Number	Percentage	Number	Percentage	Number	Percentage
Poor	93	33.8	76	27.6	90	32.7	77	28.0
Average	47	17.1	83	30.2	62	22.5	92	33.5
Good	68	24.7	50	18.2	78	28.4	55	20.0
Very good	67	24.4	66	24.0	45	16.4	51	18.5

Table 3: Comparison of the scores obtained by the study population in the four domains and overall perception of quality of life and health (N=275)

Domain	Mean Score	Std. Deviation	Minimum	Maximum
Physical	41.03	16.62	6	88
Psychological	37.25	16.3	0	81
Social	52.26	17.7	6	100
Environmental	48.34	13.32	6	88
Overall quality of life	2.44	0.81	1	4
Overall health	2.36	0.89	1	5

Table 4: Comparison of the scores obtained with duration of cancer and cancer related surgery (N=275)

	Physical domain Score (±SD)	Psychological domain Score (±SD)	Social relationship domain Score (±SD)	Environmental domain Score (±SD)	Overall perception of quality of life Score (±SD)	Overall perception of health Score (±SD)
Duration of cancer <5 years (n=262)	41.3 (±16.5)	37.0(±16.3)	52.3 (±17.9)	48.0 (±13.5)	2.4 (±0.8)	2.4(±0.9)
Duration of cancer ≥5 years (n=13)	36.5 (±18.1)	41.4(±17.5)	52.3(±12.4)	54.3 (±8.5)	2.5(±0.9)	2.5(±1.1)
	t=0.92 p=0.36	t=0.86 p=0.40	t=0.01 p=0.99	t=2.5 p=0.03	t=0.09 p=0.93	t=0.62 p=0.55
Did not undergo cancer related surgery (n=147)	38.9(±16.3)	35.2(±15.1)	51.9(±17.5)	47.5(±13.1)	2.4(±0.8)	2.3(±0.9)
Had cancer related surgery (n=128)	43.5(±16.7)	39.6(±17.3)	52.7(±18.0)	49.3(±13.6)	2.5(±0.8)	2.5(±0.9)
	t=2.3 p=0.02	t=2.2 p-0.03	t=0. 41 p=0.68	t=1.2 p=0.25	t=1.6 p=0.11	t=1.7 p=0.09

Table 5: Relationship of quality of life with different socio-demographic variables (N=275)

Independent variables	Physical domain			Psychological domain			Social relationship domain			Environmental domain		
	beta	t	p	beta	t	p	beta	t	p	beta	t	p
Age group	-.022	-.350	.727	.018	.287	.775	.031	.506	.614	.076	1.286	.200
PCMI	.054	.805	.422	.057	.855	.393	.210	3.198	.002	.265	4.096	.000
Duration	.011	.172	.863	.128	2.10	.037	.083	1.388	.166	.118	1.994	.047
Education	-.008	-.111	.912	.011	.164	.870	-.044	-.672	.502	-.087	-1.343	.181
Marital status	-.052	-.843	.400	.035	.575	.566	-.104	-1.739	.083	.031	.522	.602

Discussions

In our study over half of the study population was females (52.7%) and breast cancer was the most common type of cancer (29.5%), followed by lung cancer (11.6%). This reflects the national characteristic of the disease as breast cancer accounts for 27% of the total cancers in India. However lung cancer comprises of 6.9% of all cancers in both sexes but 11.3% of cancers among men nationally.[12]

In contrast to a study by Bayumi,[13] which found only 4% and 1% of the study population having non-favorable score in physical activities and social status our study showed nearly 1/3rd of the study population had scored below the 1st quartile in the physical and social relationship domain of WHO-Bref QOL scale (Table 2).

The study found that the most negatively affected domain by cancer was the psychological domain

However a study conducted by Mansano-Schlosser et al[14] found that the Social and Physical domains were the most affected and the best preserved was the Environment domain.

In our study the mean scores were higher in all the domains in patients who had undergone some form of surgical interventions for their cancer. This was statistically significant ($p<0.05$) in physical and psychological domain. Thus undergoing surgery not only improved physical perception of health, but also acted as a psychological boost up.

In a similar study [15] among patients affected by colorectal cancer, the most affected domain was the Environment, and the least affected was the Psychological, in patients without stomas. The same study found that in colostomy patients, the most affected was the Physical domain, and the least affected, the Social.

A study by Isikhan et al [16] found that loss of organ had no effect on patient's quality of life. On the other hand, Arslan and Bölükbaşı[17]reported that operated patients had better life qualities.

In our study mean scores in psychological (41.4) and environmental domain (54.3) were higher in persons suffering from cancer for more than 5 years. This association was significant ($p<0.05$) in case of environmental domain (Table 4). This might be possibly due to the adjustment of patients to their physical environment with time.

However Işıkhan et al[16] did not find any relationship between disease period and quality of life.

Our study found on regression PCMI was significantly ($p<0.05$) associated with social relationship and environmental domain scores. But age, education and marital status did not affect any of the 4 domains of quality of life

A study by Bayumi et al[13] showed that there was no correlation between quality of life and age, gender, social status, marriage, and job. Similarly a study by Schlosser et al[14] found that the overall Quality of Life scores did not differ according to socio-demographic characteristics. In various other studies by Lee et al,[18] Huguet et al[19] and Rabin et al[20] on quality of life among cancer patients, just like in the present study, no association was found between quality of life and age or education.

Again a study by Ustundag et al[21] also found Education did not affect the quality of life of the patients. This finding was corroborated by Lis et al [22] and Yıldız et al.[23]

In contrast Knight et al[24] found that lower education levels in urinary cancer patients had worse physical, social and role functions and experienced more side-effects. Can et al[25] observed that university graduates had higher life levels than others. Güner et al[26] similarly reported that the quality of life worsened when the education level was low.

Since the perception of quality of life is a highly subjective phenomenon some studies also indicate that factors such as age, female gender, low education level and not having a partner may be related to low quality of life.[27]

In our study marital status was not significantly associated with quality of life in any of the domains. But a study conducted by Üstündag˘et al [21] found that single patients had worse psychological and general well-being than married ones whereas marital status did not affect physical and social wellbeing. Some studies had indicated that married patients had higher quality of life and more family/friends.[28, 17] However similar to our study Armstrong et al[29] and Lis et al[22] indicated, that marital status did not influence quality of life.

Conclusion and Recommendation

From this cross-sectional study following essential points were concluded. Firstly the most negatively affected domain by cancer was psychological domain. Secondly longer the duration of cancer, higher were the mean scores in psychological environmental domain suggesting the adjustment of patients to their disease with time. Lastly apart from per capita monthly income none of the other socio-demographic variables affected the scores obtained in the 4 domains.

Quality of life is perceived differently by each person and it is therefore fundamental to treat each patient individually at both physical and psychological level to improve their quality of life.

Patients reporting poor physical quality of life complained of mostly of loss energy and fatigue, pain and discomfort, disrupted sleep and rest. Physiotherapy, yoga and exercise may increase their work capacity. Adequate treatment of pain and discomfort by medication needs to be ensured.

As having cancer is one of the most stressful conditions in one's life, so support groups of cancer survivors help them cope with the emotional aspect of cancer by organizing recreational activities and providing a safe place to share their feelings and challenge.

Patients' perception of environment domain of quality of life can be improved by providing suitable transport assistance as many of them (66.5%) come from remote and rural areas to this tertiary care institute for treatment. Availability of Follow up services near their homes would also improve quality of life in this aspect. Thus a holistic approach involving primary care givers, psychologists, survivor groups as well as physicians may go a long way to improve the quality of life of cancer patients.

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