RESEARCH ARTICLE

Factors Affecting Quality of Life of Cancer Patients in North India

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Abstract

Introduction: Cancer is the second leading reason of death in many countries, and its burden and prognosis are highly dependent on disease stage at diagnosis. Lack of perception of the population about cancer and its related risk factors usually sequel in defer/delayed presentation and increased treatment morbidity and decrease survival chances. Quality of life (QOL) is defined as Individual view of life, merits, intentions, standards and interests in the framework of culture. **Aims and objectives:** To study the socio-demographic profile and factors affecting quality of life of cancer patients. **Material and Method:** Using a cross-sectional study, between 1 January 2021 to 31 December 2021, 192 cancer confirmed patients at cancer registry centre at District civil hospital, Ambala cantt. were interviewed using a pre tested semi-structured questionnaire along with EORTC QLQ-C30 (version 3) questionnaire scale for QOL. The data was entered into an excel sheet and was analysed using IBM SPSS version 28. **Results:** Out of 192 patients, 95 were male and 97 were female. Results shows that female (60.05±19.167) had better mean score of QL2 than male (58.68±18.906) with P value=0.619. Overweight (BMI25.0-29.9) had better mean QL2 score (65.50±18.147) than obese (BMI>30.0) mean QL2 score (61.67±14.803), normal weight (BMI 18.0-24.9) mean QL2 score (59.57±18.575) and underweight (BMI<18.0) mean QL2 score (49.46±19.595) with P value of 0.004. **Conclusion:** Present study found that QOL had significant association with BMI, type of cancer, history of smoking, lost income after cancer diagnosis and stage of cancer at the time of diagnosis. While gender, occupation, age group, religion, residence, marital status, type of family, income, tobacco alcohol and physical activity showed no significance association with QOL.

Keywords: Quality of life- Cancer- Eortc qlq-c30 questionnaire

Introduction

Cancer is the second leading reason of death in many countries, and its burden and prognosis are highly dependent on disease stage at diagnosis (De Angelis et al., 2014).

Lack of perception of the population about cancer and its related risk factors usually sequel in defer/delayed presentation and increased treatment morbidity and decrease survival chances (Eltayeb et al., 2017). Quality of life is defined as Individual view of life, merits, intentions, standards and interests in the framework of culture. Biopsy/histopathological examination can make exact histological grading and the type of proliferating cell and by getting this knowledge, the prognosis and best cure modalities are selected. Palliative care is given to improve health related quality of life in late stages of cancer (Damodar et al., 2013). Various researches reported that level of education, type of treatment, marital status, monthly income, age at cancer diagnosis, cancer type, cycle of cancer treatment, anxiety, and depression are related with quality of life among cancer patient survivors (Akhtari-Zavare et al., 2018). As the diseases progress, patient and his/her family relatives experience suffering due to medical treatment and social concern. The misinterpretation of the illness can lead to unsuitable self-observation of one's forecast and a choice of inappropriate medical therapy. At the same time, patients receive too much medical treatment even though they have an untreatable illness. In that case, palliative care could be suitable for better quality to live. Improving soothing care can help tolerant to find appropriate medical care that can make better quality of life. yet, the specific requirement of cancer patients is not taken into much consideration

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by the medical management system because of a lack of proper soothing care (Frick et al., 2019).

Productive patient-doctor correspondence is a main factor in decreasing stress and anxiety as well as better quality of life of cancer tolerant which is related to distinct feature of patient-doctor correspondence such as; togetherness, participation in care, managerial and patient gratification. Trust in doctor is a main part in managing cancer like chronic illness (Dehghan et al., 2018).

The person's physical, mental and psychological state deteriorated seriously by the cancer disease and his/her quality of life is also reduced for many years after recognition of cancer. Chemotherapy effects of some cancer treatment/therapy etc. such as loss of hair, erectile dysfunction, reduce fertility and putting of weight can also leads to shame/disgrace and differentiation and sometimes can be the reason for partner refusal. The general well-being of person and communities is set on by standard of living and well-being which outlines the fortunate and unfortunate features of life. It includes well-being including physical health, teaching, household, religious faith, employment, prosperity, money matters and surrounding. Health workers such as doctor, nurse and pharmacist notices quality of life from the point of curative end result (Wajid et al., 2021).

For all cancer patient, many suffers retard in obtaining a detection of cancer, whereas others experienced detain in initiation or maintaining care. Patient acceptance toward organised but postpone visits also allegedly put up to these totals (Rashid et al., 2021).

So, aim of this study was to identify various socio-demographic factors that determine quality of life of cancer patients and better outcomes of illness.

Materials and Methods

This was a cross sectional study design. It was conducted at outpatient department/in patient department of Atal cancer care clinic of the district hospital which is a cancer registry centre in District Ambala Haryana. (Facility based study).

Study subjects- study population included cancer patients coming in cancer out patient department for seeking treatment/opinion and follow up for any type of cancer/malignancy who were diagnosed within last 2 years of study period. Inclusion criteria- Cancer patients more than 18 years of age and who gave consent were covered under inclusion criteria. Exclusion criteria- cancer patients below 18 years of age and those were not in condition to give information or who did not give any consent.

Study period -The study was carried out over a period of one year i.e., January 2021 to December 2021. Sample size- Sample size was estimated on the basis of number of cancer patients present in District Ambala. Data was provided by cancer registry centre in civil hospital Ambala cantt. and district non communicable disease (NCD) cell of District Civil surgeon office of District Ambala with the permission of civil surgeon Ambala. Study intended to include 200 cancer patients who were coming to cancer registry centre for treatment and follow up. however, 192 patients completed the questionnaire giving a response

rate of 96%.

Study tools

The study was conducted using a pre-tested semi structured questionnaire with two sections

Section 1

It contains the socio-demographic profile, clinical and treatment related parameters of study subjects.

Sub Section A

Socio-demographic profile of the patient.

Age and gender of each cancer patient was noted along with area of residence. Religion to which each patient belonged to were noted under Hindu, Muslim and Sikh. The educational status of each patient was sub categorized into Illiterate, below higher secondary level and higher secondary and above. Marital status of each patient was further divided into single, married and widow/widower/divorced. Occupational status of each patient was divided into unemployed, businessman/job/daily-wager/farmer, housewife and retired/pensioner/senior citizen. Each patient's family type was further divided under joint family, nuclear family and three generation family. Each patient's number of family members were noted. The patient family income was noted. Each family was further categorized on the basis of per capita income according to modified BG Prasad Socio-economic scale updated 2021

Sub Section B
Anthropometric details of the patient

Weight of each study patient was noted in Kilograms and height in centi-meter' s (rounded off to the nearest number). The Body Mass Index for each patient was calculated using the height and weight using excel BMI group calculator(metric).

Sub Section C

All clinical details of the patients and factors affecting investigation, treatment and follow up.

It includes any past history of smoking, history of oral tobacco /guthkha intake, history of alcohol intake, history of any physical activity was included along with type and place of cancer, its stage, symptoms during the disease, awareness regarding cancer staging (TNM staging) at the time of investigation and diagnosis, functional status of patient, date of diagnosis, date of starting treatment etc.

Section 2
Sub Section A

It assessed the quality of life of cancer patients. It is a standardized and validated questionnaire. Due permission for the use of questionnaire was obtained from the competent authority for academic purpose only.

EORTC QLQ-C30 (version 3) (Aaronson et al., 1993), The EORTC quality of life questionnaire (QLQ) is an integrated system for assessing the health-related quality of life (QoL) of cancer patients participating in clinical researches. The QLQ-C30 is composed of both multi-item scales and single-item measures. These include

five functional scales, three symptom scales, a global health status / QoL scale, and six single items. There are various valid tools available to measure quality of life, the current study assessed the QOL using the one of the most accepted tools EORTC QLQ-C-30 questionnaire module which contained a functional scale that included physical, role, emotional, cognitive and social functioning and a symptomatic scale that included symptoms such as nausea and vomiting, fatigue, dyspnoea, pain, insomnia, anorexia, constipation and diarrhoea and global status measure. As EORTC QLQ uses Likert scale, for the purpose of analysis and interpretation Likert scale data was later converted to continuous data whose score ranged from 0 to 100 for all components of QOL. This conversion was done according to standard guidelines given in EORTC scoring manual (Fayers et al., 1995).

A high scale score represents a higher response level. Thus, a high score for a functional scale represents a high / healthy level of functioning. A high score for the global health status / QoL represents a high QoL, but a high score for a symptom scale / item represents a high level of symptomatology / problems. The principle for scoring these scales is the same in all cases: 1. Estimate the average of the items that contribute to the scale; this is the raw score. 2. Use a linear transformation to standardize the raw score, so that scores range from 0 to 100; A higher score represents a higher ("better") level of functioning, or a higher ("worse") level of symptoms (Mercieca-Bebber et al., 2019).

$$\text{Functional scales: } S = \left\{1 - \frac{(RS-1)}{Range}\right\} X100$$

$$\text{Symptom scales / items: } S = \{(RS-1)/Range\}X100$$

$$\text{Global health status / QoL: } S = \{(RS-1)/Range\}X100$$

Range is the difference between the maximum possible value of RS and the minimum possible value. The QLQ-C30 has been designed so that all items in any scale take the same range of values. Therefore, the range of RS equals the range of the item values. Most items are scored 1 to 4, giving range = 3. The exceptions are the items contributing to the global health status / QoL, which are 7-point questions with range = 6, and the initial yes/no items on the earlier versions of the QLQ-C30 which have range = 1.

Strategy- Personal face to face in depth interview was conducted. Patients were explained about the purpose of study. Written informed consent was taken and complete confidentiality of the person was ensured. To confirm the clinical picture and treatment schedule patient's records available with him/her also was referred. On an average 15-20 minutes were spent for completion of the interview.

Statistical analysis-The data was entered into an excel sheet and analysed using IBM SPSS version 28.0. Qualitative variables had been expressed as proportions and percentages. Quantitative variables were expressed as mean and standard deviation. Finally, Chi-square test was used to establish association (if any) among qualitative variables. Association between the various quantitative variables was established using t-test or ANOVA as per

data required. P< 0.05 was considered significant at 95% confidence interval.

Ethical consideration- Approval from the Institutional Ethics Committee was taken. The study didn't impose any financial burden on the patients. Written informed consent was obtained from each participant in their vernacular language. Confidentiality for each patient was maintained throughout the study.

Results

Out of 192 patients, 95 were male and 97 were female. Majority (63.54%) of patients were in age group 31-60 years. Majority of cancer patients (82.3%) were Hindu by religion, Majority (63.0%) belonged to Rural area, Maximum were married (84.8%), (40.1%) were educated up to below higher secondary level. Majority (56.2%) were with in Normal weight (BMI between 18.0-24.9). Majority (62.0%) never smoked during their life time, while (87%) never took oral tobacco/guthkha (Table 1). Head and neck cancer were reported by maximum no. of patients followed by breast cancer. Majority (73.4%) were mobile patients (20.8%) were those who need assistance, (5.7%) were bed ridden patient at the time of interview.

Female (60.05±19.167) had better mean score of QL2 than male (58.68±18.906) with P value=0.619. (Table 3) Overweight (BMI25.0-29.9) had better mean QL2 score (65.50±18.147) than obese (BMI>30.0) mean QL2 score (61.67±14.803), normal weight (BMI 18.0-24.9) mean QL2 score (59.57±18.575) and underweight (BMI<18.0) mean QL2 score (49.46±19.595) with P value of 0.004. (Table 2)

Majority (62%) prefer allopathic treatment followed by ayurvedic (24%) and homeopathy (5%) and others (9%) for cancer treatment. Majority (75%) prefer private hospital followed by (64%) also go to tertiary care centres like PGI, (60%) go for government health institutions for cancer treatment and follow ups.

Discussion

In present study the global health status considers the overall health and QOL. Female cancer patients reported better mean score of functional scale as compare to male. Male cancer patients have reported more average score of functional scale than female cancer patients.

In our study, Female cancer patients reported better mean score of QL2 scale than male cancer patients. The results were not statistically significant. Similar results were obtained from study conducted in Australia in 201911. They studied quality of life of cancer patients in 899(49.3%) men and 924(50.7%) women and found mean quality score for male and female were 66.9 and 70.0 respectively. In our study, mean score QL2 scale was higher in unemployed and retired person/pensioners/senior citizen though the association was not significant.

In present study, mean score of QL2 scale was reported maximum in 18-30 years age group (Mercieca-Bebber et al., 2019) found that younger age/<30 years age was associated with higher level of fatigue, nausea, vomiting, appetite, pain and diarrhoea. While mean quality score was

Table 1. Mean of EORTC QLQ-C30 Scale Score as Per Socio-Demographic Indicators

Socio-Demographic Category	N=192	Mean score of functional scale	Mean score of Symptom scale	Mean score of QL2 scale
Gender				
Male	95 (49.4%)	73.18±18.417	26.13±16.796	58.68±18.906
Female	97 (50.4%)	75.14±18.508	24.97±17.165	60.05±19.167
P value		0.463	0.638	0.619
Age groups				
18-30 years	12 (6.2%)	74.89±17.134	28.86±17.442	61.11±18.577
31-60 years	122 (63.5%)	75.71±18.224	23.92±16.472	60.45±19.002
>60 years	58 (30.2%)	70.8±19.004	28.28±17.666	56.75±19.147
P value		0.247	0.214	0.453
Religion				
Hindu	158 (82.3%)	74.50±18.843	25.17±16.898	59.18±19.049
Muslim	23 (11.9%)	70.45±18.147	31.56±17.644	57.61±20.244
Sikh	11 (5.7%)	77.24±12.338	18.29±13.194	65.91±15.570
P value		0.526	0.082	0.471
Residence				
Urban	71 (37%)	73.19±19.434	25.73±17.407	58.80±20.887
Rural	121 (63%)	74.75±17.89	25.44±16.743	59.71±17.884
P value		0.574	0.909	0.75
Marital status				
Married	163 (84.8%)	73.63±18.931	25.65±17.108	59.15±19.228
Single	16 (8.3%)	76.23±16.088	24.58±17.388	60.94±18.186
Widowed/divorced	13 (6.7%)	78.51±14.867	25.40±15.512	60.26±18.369
P value		0.59	0.971	0.924
Educational status				
Illiterate	68 (40.1%)	73.71±18.215	26.40±16.694	58.46±19.556
Below higher secondary level	77 (35.4%)	73.89±19.061	25.79±17.485	59.20±18.317
Above higher secondary level	47 (24.5%)	75.32±18.075	23.90±16.659	60.99±19.590
P value		0.886	0.732	0.778
Type of family				
Joint Family	81 (44.8%)	71.93±19.629	27.25±17.790	57.41±18.680
Nuclear family	86 (42.2%)	77.15±17.412	23.01±15.827	61.72±18.847
Third generation family	25 (13%)	71.21±17.041	28.72±17.324	57.67±20.401
P value		0.129	0.164	0.305
Modified BG prasad per capita income scale				
Upper class I	27 (14%)	75.72±23.579	22.50±19.980	64.20±22.624
Upper middle class II	59 (30.7%)	73.92±17.189	26.07±17.338	57.20±17.539
Middle class III	44 (23%)	76.08±16.836	23.50±14.441	60.23±16.750
Lower middle class IV	39 (20.3%)	71.70±20.477	28.03±18.557	58.33±22.549
Lower class V	23 (12%)	73.58±14.716	27.46±13.834	59.42±15.951
P value		0.848	0.613	0.611
BMI				
Underweight (BMI <18)	31 (16.1%)	69.14±22.010	31.66±20.109	49.46±19.595
Normal weight (BMI 18.0-24.9)	108 (56.3%)	73.98±18.490	25.54±16.040	59.57±18.575
Overweight (BMI 25.0-29.9)	43 (22.4%)	76.84±15.771	22.31±16.448	65.50±18.147
Obesity (BMI >30)	10 (5.2%)	80.37±14.583	20.56±14.804	61.67±14.803
P value		0.227	0.09	0.004
Occupation type				
Unemployed/student	26 (13.5%)	75.16±19.408	28.46±18.367	60.89±16.628
Housewife	77 (40.1%)	75.63±18.626	24.22±16.927	60.06±16.628
Job/dailywager/farmer/employed	78 (40.6%)	71.97±18.527	26.06±16.764	57.58±19.332
Retired/pensioner/senior citizen	11 (5.7%)	77.18±14.401	24.13±16.143	63.63±13.577
P value		0.463	0.638	0.619

(* P value<0.05 Significant, P value<0.001 Highly Significant)

Table 2. Distribution of Cancer Patients According to Cancer Related Risk Factors

	N=192	Mean score of functional scale	Mean score of Symptom scale	Mean score of QL2 scale
Type of cancer				
Head and neck cancer	57 (29.6%)	72.80±20.118	26.80±17.432	59.80±18.906
Breast cancer	49 (25.5%)	79.95±17.238	20.50±16.618	63.78±18.754
Genitourinary cancer	34 (17.7%)	74.75±17.927	23.44±16.608	61.52±18.804
Gastrointestinal tract cancer	26 (13.5%)	64.59±18.918	34.00±17.194	48.08±19.337
Blood cancer	11 (5.7%)	79.73±15.155	21.16±13.681	62.88±17.225
Lung cancer	10 (5.2%)	71.47±11.512	31.17±18.092	53.33±14.272
Other cancer	5 (2.6%)	72.33±10.149	29.38±20.476	60.00±18.066
P value		0.034	0.03	0.031
Treatment delay				
Treatment delay present	54 (28.1%)	72.33±20.228	29.28±18.242	55.09±17.240
Treatment delay absent	138 (71.8%)	74.89±17.719	24.08±16.248	61.05±19.450
P value		0.388	0.056	0.051
History of smoking				
Never taken	119 (62.0%)	76.01±18.442	24.13±17.103	62.32±18.246
Taken in past	63 (32.8%)	72.02±18.870	27.13±17.129	56.08±19.527
Currently taking	10 (5.2%)	65.90±12.306	32.41±11.903	45.00±15.811
P value		0.131	0.221	0.005
Tobacco/guthkha eating history				
Never taken	167 (87.0%)	74.72±18.785	25.06±17.075	59.38±19.038
Taken in past	5 (2.6%)	65.25±26.069	31.17±15.685	58.33±15.215
Currently taking	20 (10.4%)	71.54±13.827	28.34±16.413	59.52±20.119
P value		0.472	0.565	0.993
History of Alcohol intake				
Never taken	120 (62.5%)	75.42±19.130	24.77±17.435	60.63±19.615
Taken in past	59 (30.3%)	72.48±17.881	26.29±16.025	56.94±17.302
Currently taking	13 (6.7%)	71.48±15.351	28.36±17.349	59.38±20.833
P value		0.505	0.674	0.477
History of any physical activity				
Never	60 (31.2%)	79.54±16.498	22.27±15.816	60.69±19.046
Daily	126 (65.7%)	71.52±18.648	27.23±17.242	59.19±18.374
Irregular	6 (3.1%)	76.22±23.583	22.74±19.416	50±30.732
P value		0.02	0.161	0.417
Stage of cancer at the time of diagnosis				
Stage 1	35 (18.2%)	77.55±17.310	22.86±17.442	70.95±13.763
Stage 2	35 (18.2%)	78.62±19.140	21.69±17.738	60.48±21.422
Stage 3	42 (21.8%)	77.52±15.272	21.08±13.663	61.51±15.934
Stage 4	54 (28.1%)	67.96±20.467	31.79±16.303	49.07±17.485
Not known	26 (13.5%)	71.15±16.322	28.58±18.016	60.26±19.623
P value		0.021	0.007	<0.001
Lost Income /job After cancer diagnosis				
Yes	48	69.73±20.245	27.12±16.742	51.90±18.771
No	144	75.56±17.654	25.08±17.080	61.82±18.539
P value		0.122	0.647	0.006

(* P value<0.05 Significant, P value<0.001 Highly Significant)

66.8 for 18-29 years age group and 70.8 for above 60 age group. Results of mean quality score were opposite of our study as mean quality score increases with increase in age. Differences may be due to different region and different life style of different continents. (P value=0.453)

In present study, mean score of QL2 scale was reported maximum in Sikh religion. Mean score of QL2 scale was reported maximum for rural area (59.71±17.884) though the association was not significant. Mean score of QL2 scale was reported maximum for single (60.94±18.186) (P value=0.924). Musarezaie et al., (2012) conducted study on quality of life of breast cancer patients in Iran by using SF=36 questionnaire found quality of life of cancer patients was not significantly associated with marital status

Table 3. Scale Wise Distribution of Scores of EORTC QLQ-C30

	Eortc scale item wise	Mean score and standard deviation of Male n=95	Mean score and standard deviation of Female n=97	Significance (P value)
Functional scale of EORTC QLQ-C30	PF2 SCORE (0-100)	71.09±23.69	71.68±24.55	0.864
	RF2 Score (0-100)	73.86±22.63	75.77±21.38	0.548
	EF2 Score (0-100)	69.74±24.01	73.11±22.96	0.321
	CF score (0-100)	80.88±19.6	83.33±20.97	0.503
	SF score (0-100)	70.35±20.51	71.82±18.06	0.598
Symptom scale of EORTC QLQ-C30	DY Score (0-100)	25.96±23.91	26.46±24.03	0.886
	PA score (0-100)	34.04±26.29	29.73±23.35	0.231
	FA Score (0-100)	37.25±21.58	34.36±22.46	0.365
	SL Score (0-100)	24.56±28.02	24.4±30.24	0.969
	AP Score (0-100)	35.44±26.99	29.55±25.85	0.124
	NV score (0-100)	16.14±21.81	12.89±17.26	0.253
	CO Score (0-100)	14.04±24.59	15.81±26.83	0.634
	DI Score (0-100)	9.47±15.88	13.06±21.28	0.188
	FI Score (0-100)	38.25±24.78	38.49±21.70	0.943
QL2 scale of EORTC QLQ-C30	Mean score of QL2 Score (0-100)	58.68±18.91	60.05±19.17	0.619

(* P value<0.05 Significant, P value<0.001 Highly Significant)

(F=0.21, P=0.92).

In present study, mean score of QL2 scale was reported maximum for higher secondary level and above (60.99±19.590) although the results were not significant. While in a previous study on quality of life in cancer patients in Iran found that quality of life is associated with educational status. (P value= 0.02) as increase rate of educational level also increases mean score of Quality of life yet P value=0.778 was not statistically significant (Musarezaie et al., 2012).

Mean score of QL2 scale was reported maximum for nuclear family (61.72±18.847). The results were not statistically significant. Mean score of functional scale was maximum for middle class III (76.08±16.836). Mean score of symptom scale was reported maximum for Lower middle class IV (28.03±18.557). Mean score of QL2 scale was reported maximum for upper class I (64.20±22.624). QOL was higher in high socioeconomic class as compare to low socio-economic class (P value=0.611). Roick et al., (2019) conducted a study in Europe found that Income is a predictive factor of QOL. Patients living in households that have a monthly income of less than 1,000 euros per person had lower physical, emotional, and role functioning as well as reduced global QoL compared to patients with incomes above that threshold. There is indeed evidence that low-income patients are more likely to be diagnosed with more advanced disease stages compared to high-income patients. This may be due to delayed presentation in people with lower socioeconomic status (Roick et al., 2019). Additionally, longer waiting times until first treatment for free of charge access could also influence QoL at time of diagnosis. At the same time, impairments in QoL due to income were also found in long-term cancer patients. Because income remained a significant predictor after controlling for tumour stage, type of cancer, and therapy, there must be further factors, which influence the association between income and QoL. The mediating role of health behaviour is a second possible explanation. Socioeconomic status also had influence on quality of life. QOL was better among higher socioeconomic status group compared to lower socioeconomic group (Roick et al., 2019).

In our study, Mean score of functional scale was maximum for Obesity BMI>30 (80.37±14.583). Mean score of symptom scale was reported maximum for underweight BMI <18 (31.66±18.557). Mean score of QL2 scale was reported maximum for obesity BMI>30 (61.67±14.803) and the association was significant (P value=0.004).

Mean score of functional scale was highest for breast cancer (79.95±17.238) and lowest for gastrointestinal tract cancer (64.59±18.918). Mean score of symptom scale was reported highest for gastrointestinal track (34.00±17.194) and lowest for breast cancer (20.50±16.618). Mean score of QL2 scale was reported highest for breast cancer (63.78±18.754) and lowest for gastrointestinal track (48.08±19.337). The difference was significant statistically in all three scales. Mean score of functional scale was higher for those cancer patients who did not report treatment delay. Mean score of symptom scale was higher for those cancer patients who reported treatment delay. Mean score of QL2 scale was higher for those cancer patients who did not report treatment delay. QOL is better when cancer is detected at early stages and treatment starts as soon as possible before the delay. And prognosis and survival is better than those who had treatment delay. Similar results were observed in a previous study on quality of life in cancer patients in Iran and found that Treatment delay is not significantly associated with mean score of quality of life (P value=0.68) (Musarezaie et al., 2012).

Mean score of QL2 scale was higher for those cancer

patients who never did any physical activity in their life. The results were statistically significant for mean score of functional scales. There is evidence in previous studies that regular bouts of physical activity (3–5 h of moderate-intensity walking per week) lead to a 30–50% reduction in the risk of cancer-specific mortality and an all-cause mortality compared with patients who were physically inactive (Van Blarigan et al., 2015).

In our study, Majority 54(28.12%) cancer patients diagnose at the stage 4 followed by 39(20.31%) by stage 2, 36(18.75%) at stage 3 and 23(11.97%) at stage 1. 40(20.83%) patients' stage of cancer not known at the time of diagnosis.

Mostly patients 90(46.87%) were diagnosed in stage 3 and 4 (late stage) at the time of diagnosis while 62(39.1%) were diagnosed in stage 1 and 2 (early stage). (Chaukar et al., 2009) studied with head and neck type cancer in which 65% were in advanced stage of cancer (III and IV) & 35% in early stage (I, II). (Shavi et al., 2015) conducted a study among oral cancer patients found 54.2% were in stage II, 34% in stage III, 12% in stage IV and 3.9% in stage I. These study findings are notable that in spite of various available health care services provided by government focusing on early detection of cancer many cancer patients were diagnosed at late stage of cancer (Shavi et al., 2015) .

Considering the QOL with respect to stage of cancer, global health scale score was significantly higher in early stage of cancer (stage I and II) compared to advanced stage 4 of cancer with p value of 0.001. All functioning score was least in stage 4 cancer and statistically significant difference was seen for physical functioning scale with p value of 0.021 and 0.007 for symptom scale. This shows that QOL was good at the early stage of cancer compared to advanced stage which emphasizes on the importance of early detection of cancer in early stages in preventing the degrade of overall quality of life at later stage and progression of symptoms by giving appropriate treatment at appropriate time and halting the progression of disease. Similar findings were found in study in which patients of cancer in early stage (I, II,) showed the significantly better QOL compared to advanced stage of cancer (III, IV) (Chaukar et al., 2009; Shavi et al., 2015).

Zaker et al., (2019) found that various affecting factors like exercise, increasing spiritual health can also have a positive effect on the disease and the patient's compliance with the complications of the disease and the treatments. Nural et al., (2019) found that among the environmental factors that influence levels of hope are the location of residence, fear of death, and feelings of hopelessness and despair also affect quality of life of cancer patient in advanced life.

Amarsheda et al., (2021) found in their study that the support provided by the family also influences emotional well-being of the patients. In that study, fatigue was strongly correlated with emotional wellbeing. If the patients fatigue level will be high, emotional well-being will be negatively affected. there is a strong association between fatigue and quality of life and moderate association between fatigue and functional capacity

in breast cancer patients receiving adjuvant therapy (Velarasan, 2022). Thakur et al., (2019) studied that early palliative care when integrated into standard oncological treatment in advance stage cancer patients can prolong patient's survival.

In conclusion, present study found that QOL found significant association with BMI, type of cancer, history of smoking, lost income after cancer diagnosis and stage of cancer at the time of diagnosis. While gender, occupation, age group, religion, residence, marital status, type of family, income, tobacco alcohol and physical activity shows no significance with QOL. Even though performance of marital role or duties, relationship with spouse, looking after the family are important regarding the QOL for Indian cancer patients, but the present study did not find any influence of marital status on quality of life.

Author Contribution Statement

Acknowledgements

Limitations
Sample size was relatively small due to time constraints, so, significant association could not be established.

Conflict of interest
Nil.

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