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Research Article

Quality of Life in Cancer Survivors

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Abstract

Introduction: The number of cancer patients and cancer diagnoses increased dramatically over the preceding few years. Treatment strategies are also being improved in the same manner. Additionally, there are more cancer survivors today. So this study is being done to check for the problems and issues affecting the QOL of cancer survivors.

Methodology: Systematic review has done from the database of Pakmedi.net and PubMed.

Results: We screened 80 articles and out of those only 3 were selected for the systematic review, collectively including 282 participants. A review was carried out and showed that the overall QoL score was 5.43 with a standard deviation of 1.2.

Conclusion: To enhance cancer survivors' quality of life, more study is required. Financial difficulties, dietary changes, and physical activity are just a few of the many variables that can be changed to improve the QOL of cancer survivors. Better QOL for the survivors will be achieved by addressing these variables.

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INTRODUCTION:

One of the leading causes of death is cancer (1). No age or gender has protection against it. In 2020, the incidence of cancer cases was 19.3 million, and casualties recorded from cancer were 10 million (17). Cancer not only puts a strain on a patient's physical health but also on mental and emotional health and financial resources. With the advancements in medical technology, there is early diagnosis and prompt treatment which results in an increased number of Cancer Survivors. Over 16.9 million cancer patients in America, which makes up 5% of the US population, were alive in 2019 (2). It is estimated that cancer survivors will increase by the year 2040 to 26.1 million (5). It is therefore important to study the physical, emotional, mental, and financial well-being of Cancer Survivors. Assessing cancer effects and its treatment along with medical decision-making requires knowledge of the quality of life (QOL) across age groups and cultures (8). Cancer patients may be lethargic, depressed, anxious, have sleep problems, and decreased QOL (17). Cancer therapy causes multiple side effects along with causing harm to all body systems (17). Older cancer patients encounter a distinct collection of age-related changes, comorbidities, and conditions that impair their QoL in various ways than younger survivors. (6)

The mental anguish that accompanies physical trauma may manifest as anxiety, and fear of recurrence (7). The majority of cancer survivors adapt successfully to life after cancer, but some continue to feel depressed, anxious or have post-traumatic stress disorder (15). In particular, women, children, and young adults are at risk for mental disorders (15). In the early stages of survivorship, fear of cancer recurrence is a prevalent psychological problem among breast cancer (BC) patients (13). Survivors' physical and mental well-being is negatively impacted by illness uncertainty; illness uncertainty is positively associated with avoidant coping strategies (4).

According to a study, psychosocial group therapy may enhance the quality of life and mental health of Asian American breast cancer survivors (14).

Whereas lengthy periods of inactivity are significantly associated with lower HRQOL in cancer survivors (CSs) with three or more comorbid conditions, high levels of physical exercise are positively correlated with HRQOL in CSs with two or fewer comorbid diseases. (12). Another study done in Karachi found that in oral and oropharyngeal cancer survivors' quality of life deteriorates and this may lead to many limitations that include physiological as well as somatic (9). A study shows that depression appears to harm the overall quality of life of breast cancer survivors (10). Most of the literature is focused on establishing factors/programs that increase QOL in survivors of cancer. According to recent studies on the subject, these programs should focus on healthy lifestyle changes for CRC survivors, including things like physical activity and a balanced diet. (11)

Exercise is linked to large drops in the death and recurrence rates of several prevalent malignancies (10). A review revealed that coping and emotional management play a variety of roles in the well-being and health management of breast cancer survivors, influencing vitality and general adjustment to cancer positivity and promoting positive findings related to the cancer experience. Rarely, however, negative results have been reported in the literature (16). This is not only the case with breast cancer survivors but emotional management promotes positivity and general adjustment in others cancers survivors also.

A lot of studies have been done on the QOL of cancer survivors and psychosocial life aspects of the disease on patients however, no systematic review has been published that focuses on the socioeconomic and psychological effects of the disease on patients and their families. No systematic review covers mental, social, emotional, and financial aspects of life cumulatively. The objective of this systematic review is to summarize the existing body of literature that serves to identify the psychosocial, physical, mental, and financial problems faced by cancer patients and their families so that better and more effective programs would be aimed to provide psychosocial support to these cancer patients from an early stage of disease management. The aggregate findings will provide a comprehensive resource of current evidence which will prove useful.

METHOD:

Database Scrutiny and Search Terms:

An in-depth scrutinization of original research articles published in the English language from 2012 to 2022 from PubMed was conducted with the following search terms: (Quality of life) OR (Life Quality) OR (Health-Related Quality of Life) OR (Health-Related Quality of Life) OR (HRQOL) AND (Cancer survivors) OR (Long-term cancer survivors) AND (5 years) searching the electronic databases, 479 articles were shortlisted. After transferring shortlisted research articles to the EndNote reference management system, no duplicate was found, leading to a total of 479 articles under study. To ensure data is relevant to the study, Ayesha Faheem and Ayesha Mehboob then performed a screening of the titles and abstracts of the remaining papers. This process reduced the number of publications to 20. Accordingly, studies that included data on the QoL of patients with cancer or its determinants were considered for further review. Abstracts were also searched and the references of said studies were examined for inclusion as additional reference sources. The inclusion and exclusion criteria were applied resulting in six studies being included in the research.

Inclusion Criteria:

Studies featuring appropriate and sufficient data about the rate of quality of life of cancer survivors or factors contributing to it in any way were included in the review. A myriad of studies, including case series, cohort studies, prospective and case studies, with accessible complete text in English and published between 2012 and 2022 were also scrutinized.

Exclusion Criteria:

Other original article types including RCTs, case reports, Editorials, and book chapters were excluded.

Original studies that reported spiritual effects were also excluded. All studies that were not in the English language were excluded.

Data collection tools:

Based on the initial reviews, the QoL survey tools used in the articles include SF -36, GPH, and GMH subscales of PROMIS Global Health 10, BREAST-Q, QLQ-c30, QLQ-HN35, and EORTC-ANL27. The SF-36 assesses eight scales, including mental health, physical functioning (PF), role physical (RP), bodily pain (BP), general health (GH), vitality (VT), social functioning (SF), and role emotional (RE) and mental health (MH). GPH and GMH are two 4-item summary scores. The GPH and GMH scores can be used to create a "bottom-line" evaluation of one's physical and mental health. QLQ-c3 evaluates important functioning domains and common cancer symptoms. QLQ-H&N35 is used to evaluate the HR-QoL of people with head and neck cancer. It has seven multiple-item scales for measuring seven different symptoms, including pain, difficulty swallowing, taste and smell perception, speech, social eating, social interaction, and sexuality. Four areas of HRQOL concern are covered by the EORTC QLQ-ANL27: pain, bowel, sexual, and stoma care difficulties, as well as five single items (frequent urination, keeping clean, proximity to the toilet, lower limb edema, and planning activities).

Data Extraction:

To extract the data we used excel sheets. A data extraction excel sheet was made through which we got data such as authors' names, date of publication in the journal, country in which the study was performed, data collection tools used, study design, study population under scrutinization, and outcomes including the prevalence of QoL betterment or harm and its associated risk factors.

Quality Assessment:

Newcastle-Ottawa Scale (NOS) was used to check the candidacy profile of the added articles as shown in Table no. 1.

		Selection			Comparability		Outcome		
Sr. No.	**Author**	**Representative**	**Sample size**	**Nonrespondents**	**Ascertainment**	**Statistical analysis**	**Assessment of outcome**	**Statistical test**	**Quality score**
1.	Zsila S. Sadighi	*	*	*	**	*	**	*	9
2.	Laura Dominici	*	*	*	**	*	*	*	8
3.	Xuesong Han	*	*	*	**		**	*	8
4.	Seung Soo Lee	*	*		**	*	**	*	8
5.	Edvard Abel, MD	*	*	*	**	*	**	*	9
6.	Anna Axelsson	*	*	*	*	*	**	*	8

RESULTS

Study selection and characteristics:

The research screened 479 articles, 475 were from PubMed, and four were from Pakmedi.net. After the screening of records, 236 were excluded. 243 were there with full text, out of them 157 articles had the irrelevant title,25 had irrelevant abstracts, one was excluded based on language,27 were excluded based on insufficient details,18 were based on study designs and 21 were having time less than five years. Thus, six studies were selected which fulfilled the inclusion criteria.

The table shows the characteristics of the included articles. Among the six included articles; two were cohort studies (19;23), two were cross-sectional (20;18), one was case-control(21)and one was a longitudinal follow-up study(22).

Three studies were done in the US (18-20), two in Sweden (22-23), and one in Korea (21).

Participants Characteristics:

All the included studies consisted of a total of 2057 participants. Among these 585 were male, 1325 were female and 147 were children.

QoL assessment tools and results:

In total, seven different assessment tools were used. These were Short Form-36 health survey (SF-36), PROMIS Global Health 10, BREAST-Q, QLQ-c30, QLQ-HN-35, EORTC QLQ-STO22, and EORTC-ANL27.

Sadighi ZS et al.,2014. studied QOL in Childhood Acute Lymphocytic Leukemia (ALL) survivors: After 5.2 years of ALL diagnosis, 54% of females and 41% of males reported experiencing various types of headaches. Most of them were young youngsters, around 10 years old. People with migraines frequently complained of fatigue, while most people with tension headaches complained of hypertension. The majority of these people were female. Overall, the headache-related impairment was minimal. The patients' physical component scores were lower as a result of their headaches. A variety of headaches reduced test results for the mental component, which had an impact on students' ability to think critically.

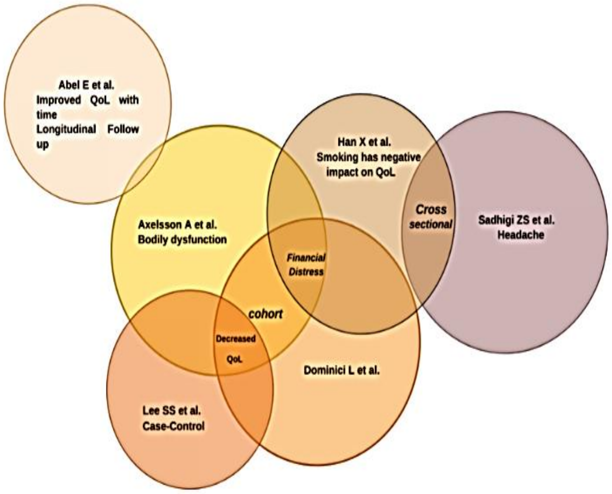
Dominici L et al.,2021 studied QOL in Young Women With Breast Cancer undergoing local therapy: Young breast cancer survivors who underwent local therapy reported lower quality of life across a variety of areas. Patients with reduced socioeconomic status demonstrated lower QOL.

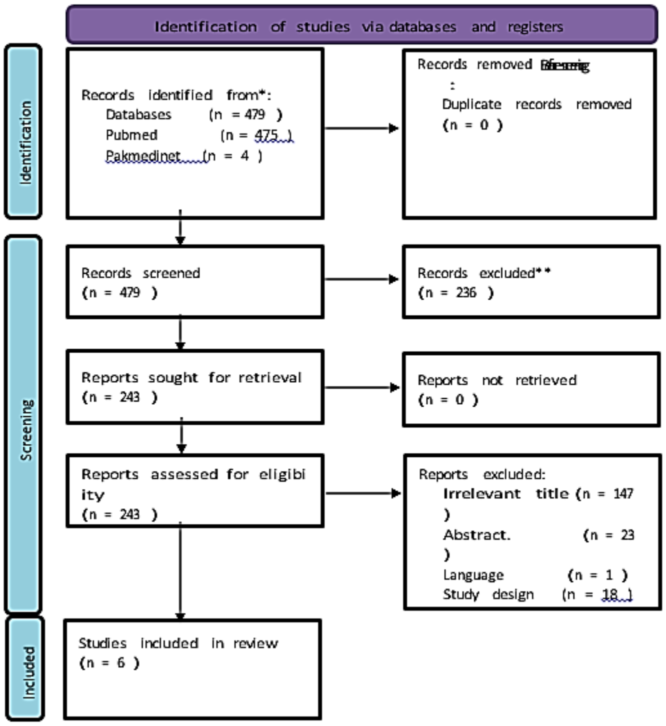
Han X et al., 2021 studied QOL among cancer survivors in the United States. The General Physical Health (GPH) test was used to assess the physical health of cancer survivors. The results were similar to those of healthy individuals and were 49.28 (mean GPH), SD=8.79. Compared to patients who were diagnosed recently, survivors who received treatment five years ago or perhaps much earlier had considerably improved GPH. According to a General mental health (GMH) test, mental health is equivalent to that of healthy people (51.6 7, SD= 8.38). It was discovered that smoking harmed mental health. Compared to nonsmokers, smokers had worse GMH. Patients who came from households with stable finances had considerably better GPH and GMH than patients from homes with unstable finances.

Lee SS et al 2014 stated that compared to the control group, 5-year post-diagnosis survivors had lower QOL: Role and social functioning, task, eating limits, appetite loss, nausea, and vomiting all deteriorated. Body perception was also affected. Cognitive and emotional functioning scales were better but there was a clear decline in QOL. Surgery had negative effects on symptoms, finances, and behavior.

Abel et al., 2021 stated QOL in head and neck cancer survivors: Sticky saliva, dry mouth, sensations, dental issues, and mouth opening. These signs were noticeably worse. At 5 years, Ander Son's dysphagia inventory scores of >80 indicated that swallowing was good. Dry mouth and sensations were significantly better in patients receiving chemotherapy in all group analyses. Compared to the control group, there was a significant improvement in head and neck pain, general pain, and feeling unwell. Emotional functioning also improved.

Axelsson A et al., 2022 stated that only 60% of patients reported having low QOL at both 3 and 6 years: Patients with significant discomfort were more likely to have impaired QOL due to bowel dysfunction and urine incontinence. The likelihood of having a lower quality of life was inversely correlated with the number of bodily processes that bothered a person. It also had an impact on sexual life. The lashing therapy had a significant effect on the ability to make decisions. It was reported that there was financial distress. Results are summarized in the Venn diagram below:





CHARACTERISTICS OF STUDY

Sr no.	First author, Year of publication , Country	Study design	Sample size	Age at study	Time since diagnosis	QOL instrument	Findings of study
1	Zsila S . Sadighi. MD, 2014, USA	Prospective cross-sectional study	162	<19 years	>5 years	Short form-36 health survey	Headaches are common in ALL but only a minority have impairment of QOL
2	Xuesong Han. Ph.D., 2021, US	Cross-sectional study	877	18-54y= 186 55-64y=170 65-74y=252 ≥75y=269	>5 years	GPH and GMH subscales of PROMIS Global Health 10	Hight GPH and GMH in families with high income. Smokers had worse GMH than non-smokers.
3	Laura Dominici. MD, 2 021, US	Multicentre, prospective cohort study	560	Median age=36	5.8 years	BREAST-Q	Young breast cancer survivors who received local therapy frequently had lower QOL ratings across a variety of categories. Social and economic variables also come into play.
4	Seung Soo Lee, 2014, Korea	Case-control study	155	45-70 years	>5 years	SF-36	Most of the patients after gastrectomy suffered from poorer eating habits.
5	Edward Abel, 2019, Sweden	Longitudinal follow up	35	60 years	>5 years	QLQ-c30 , QLQ-H N-35	An increase in overall QOL compared to baseline values and a decrease in pain and illness-related symptoms.
6	Anna Axelson , 2022, Sweden	Prospective cohort	The original cohort of 464, 195 patients after 3 years and 152 patients after 6 years.	Median age:63	3 years and 6 years after treatment	EORTC-A NL27	60% of the patients stated that low QOL was more common in those who had severe bowel dysfunction.

DISCUSSION:-

This systematic review explains the existing body of evidence in favor of our research hypothesis i.e. cancer survivors have a poor health-related quality of life when compared to the general population. The determinants of QoL included physical, mental, and emotional health, and social behavior. Either cancer itself, or its treatment (mostly surgery) has been documented to have an impact on at least one of the documented to have an impact on at least one of the QoL determinants. There was more research found on physical cancer effects and/or cancer treatment on survivors, but a fair number of articles also included the mental and emotional aspects. There were not many articles that included the social factor.

Cancer survivors experience a variety of physical symptoms like headaches, dry mouth, nausea, joint pain, and bowel dysfunction along with mental symptoms of anxiety and depression due to the memory of cancer. Cancer treatment may also leave some patients with physical and mental challenges and lower self-esteem in mastectomy patients. In patients undergoing radiotherapy for head and neck cancers, dysphagia is a common complaint. There is also evidence of financial strain on cancer survivors not only because of the money they had spent on cancer treatment but also for regular follow-ups to ensure cancer does not cur. Cancer patients often have to leave their jobs while they are undergoing treatment so this leads to a further burden on them financially and also affects their mental health. Cancer is also found to affect the personal relationships of the patient. So, to conclude we interpret that cancer not only causes physical symptoms but also worsens a patient's mental health.

The articles included in our review point out that cancer survivors generally have a good QoL which improves with time, however, when compared to the general population, there are some marked differences in physical and mental health. This makes the QoL relatively poorer. Patients' physical and mental well-being is affected by cancer.

The strengths of this review are that it includes studies with good sample sizes, a range of age groups, well-tested QoL measures, and different study designs (only 2 are cross-sectional, and the rest are cohort or case-control). The articles focus on a variety of cancers (ALL, breast cancer, anal cancer, gastric cancer, head and neck cancers, and some other types) which makes the generalization of these findings to all cancers possible.

There are some limitations to this review. We included 2 cross-sectional studies, which provide evidence only in a single time frame. There is also some gender disparity in the selected studies, with 3 of the study samples having a greater number of females, and 2 study samples having a significantly large male-to-female ratio, which slightly reduces the review's external validity from a gender point of view.

As this is a systematic review, we don't have a study of our own. So this review supports the findings in previous literature and is consistent with the fact that cancer affects the quality of life of patients. Several gaps within the current literature were also identified. Some studies say that cancer patients generally have a good quality of life which is not the case considering the findings of this review. So, more research should be done on this topic.

The meager number of research we could retrieve indicates that this field of research requires more work. Only then will it be possible to improve the health-related quality of life in cancer survivors? And we should also focus on aspects of the quality of life that are non-health related, and need to do more research to see how much that aspect affects the quality of life in cancer patients. As of right now, not much work is done in this field and it requires more work to improve patients' quality of life.

CONCLUSION:

The systematic review found that although the QOL of cancer survivors has improved over time, it is still lower than that of the general population. Headache is a frequent presenting complaint in ALL survivors. QOL is reduced in those who smoke, have co-morbidities, have unhealthy lifestyles, and have obesity. Financially stable survivors, who have good dietary control, engage in more physical activity, have more insurance coverage, and have better support systems have higher QOL scores. From an emotional and cognitive viewpoint, overall QOL is better. Several variables affect cancer survivors' QOL, and addressing those factors will raise their QOL.

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