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# Comprehensive and Evaluation of Health-related Life Quality Assessment Through Diverse Cancers

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**Abstract:** Health assessment data assistances well-being and patient care teams' progress care draw up a plan of and assistance comprehend the requirements of the patient people. Comprehensive and exact data about the Quality of Life of cancer patients play a significant part in the development and organization of cancer patients. Quality of Life has been used to mean variability of various things, such as health position, physical functioning, signs, psychosocial modification, well-being, life pleasure, and gladness. Chronic diseases such as cancer are among the disorders that severely affect people's health and consequently their Quality of Life. Cancer patients experience a range of symptoms, including pain and various physical and mental conditions that negatively affect their Quality of Life. In this article, we examined cancer and the impact that this disease can have on the Quality of Life of cancer patients. The cancers examined in this article include head and neck, prostate, breast, lung, and skin cancers. We also discussed health assessment and the importance and purpose of studying patients' Quality of Life, especially cancer patients; the various signs and symptoms of the disease that affect the Quality of Life of patients were reviewed. The results showed that multiple factors under the quality-of-life assessment could affect the Quality of Life by concentrating on physical, emotional, cognitive, and social.

**Keywords:** Life Quality, Cancer, Health Care, Assessment Tools

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## 1. Introduction

People's health is a purpose of communal, financial, conservational appearances, and personal appearances. Besides additional issues, health knowledge is one of the most significant causes of well-being. [1] A health assessment is usual of queries, replied by patients, that inquiries around individual performances, dangers, life-changing actions, well-being aims and imports, and general well-being. Health assessment data assistances well-being and patient care teams' progress care draw up a plan of and assistance comprehend the requirements of the patient people. [2] Collecting data to make valuable and essential variations to people's health is the chief resolution of well-being care requirements assessment. [3] Reviewing and researching the quality of life of patients can give us the essential information about patients' reply to cancer and cancer cure,

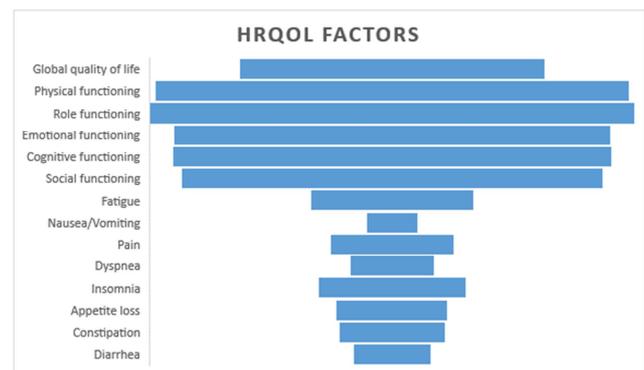
and in the communication of diverse responses and the general QOL, and the data gained can to affect the option of care. [4] QOL is a psychological understanding in that a somebody has her location [5]. The idiom quality of life is extensively used to evaluate the quality of life and well-being matters. [6] The determination of studying Quality of Life is to gain the essential data for political and health arrangements. [7] Cancer is the chief well-being matter in public all over the world. Cancer patients suffer from a variation of signs that can delay through everyday actions, besides sign organization is real in improving QOL. [8, 9] Emotional suffering in cancer patients is more profound than physical suffering. [10-12] Quality of Life has more profound meanings of various things, such as health position, physical functioning, psychosocial modification, well-being, life pleasure, and gladness. This idiom was intended to narrow the emphasis to the effects of well-being, disease, and cure on Quality of Life. [13] The emotional performance of

cancer patients has been widely studied due to its excessive influence on patients' Quality of Life. Nervousness and depression are disturbing and restricting Signs in Patients with Cancer. [14] Cognitive function is another area that is affected by cancers. Cognitive dysfunction includes reduced capacity, particularly in remembrance, that harms the patient's ability to function and focus. [15-17] The importance of diagnosing and treating depression has been known not only to progress Quality of Life but since it might harmfully affect compliance with cure, length of time in the hospital, and capacity for self-care. [14, 18] Cancer and treatment reason physical incapacities and psychological and social injury that can be diagnosed and identified to advance the Quality of Life-related to well-being. [19, 20] Health-related Quality of Life (HRQOL) mentions multidimensional valuation that contains at least the physical, emotional, and social areas and might contain different areas such as cognitive functioning, sexuality, and spirituality. Some instances are role Functioning, Social Functioning, sense of health, hurt, fatigue. [21] According to research, the side effects of treatment depend on the personality's condition, type of cancer, and its treatment affects the patient's QOL. [8, 22, 23] There are variances between HRQOL and QOL. QOL is a comprehensive idea covering all aspects of social life; however, HRQOL emphasizes the effects of disease and the influence of cure on QOL. HRQOL is occasionally confused with health position or functional position. [24] Imaging systems and their uses can evaluate all the identifiable characteristics of the cancers mentioned in this article. [25] In this article, we discuss the Quality of Life of patients with head and neck, prostate, breast, lung, and skin cancers that have been affected by their disease, mainly concentrating on numerous factors associated with QOL. These analyses were done by overall and comprehensive evaluation of contemporary studies in this era plus valuable data discussions and vital relativity.

## 2. Head and Neck Cancer

The Head and Neck are two of the most significant vital diagnostic parts of the body of their complex structure besides many physical procedures. [26] Head and neck cancer (HNC) references a group associated with tumors of the nasal cavity, oral cavity, throat, larynx, middle ear, and sinuses. [27] HNC's risk factors include poor health in the oral cavity, environmental pollutants; gastroesophageal reflux illness; nutritional issues besides the usage of marijuana. [28] One of the most important causes of HNC cancer is the use of chromium in different areas. [29] The signs of this cancer might contain a swelling or pain that does not cure, a sore throat that does not resolve, trouble in gobbling, and a variation or roughness in the voice. [30] Health-associated matters are among the several issues that might affect QOL. Subsequently, HNC influences bodily structures that are dangerous for usual actions like talking, deglutition and breathing, drinking, and cure might terminate abnormalities that harmfully affect psychosocial functioning. [31] There

was a confined fall of physical and role functioning and several heads and neck signs at the first months of the disease, with development subsequently. (figure 1) But after a long time of illness, only physical functioning, taste/smell, dry mouth, and sticky saliva were suggestively worse, contrasted with baseline. Lady sex developed cancer step, and combination cure was related to additional signs and worse functioning. [32] The functional cognitive, physical, and emotional scales were the maximum affected. Pain, fatigue, and sleep disorders were the most widespread signs. (figure 1) [33] Head and neck cancers change the appearance of patients because of their tumors, which in turn cause more emotional damage than other cancers. [34] HNC patients experience weight changes owing to the disease. (figure 2) [35] According to an article entitled head and Neck cancer patients' Quality of Life, health-related life quality factors have been included in figure 1 below. The patients studied in the report are patients who have been identified through HNC and are experiencing antineoplastic treatment to treat cancer. The cure is comprehensive for six months. These patients were employed by expediency in the section of dentistry of the Mato Grosso Cancer Hospital, Cuiabá, MT, Brazil. [36]



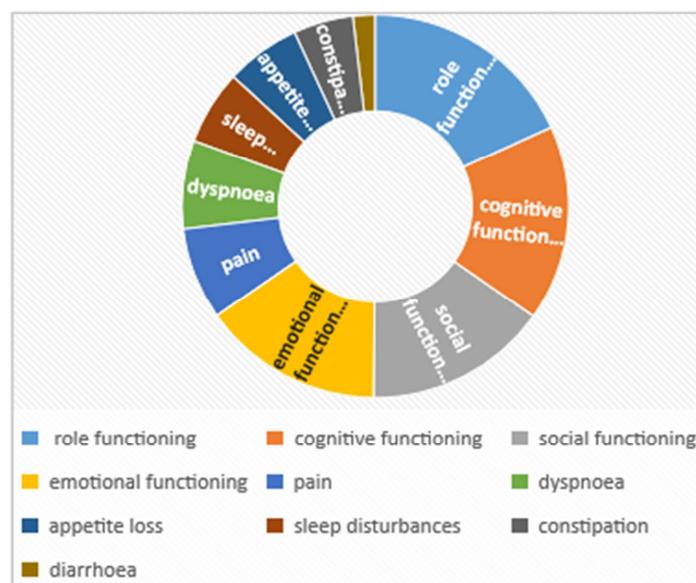
**Figure 1.** According to the information in an article entitled head and Neck Cancer Patients' Quality of Life, we understood that HR-QoL issues contain five functional scales (physical, role, cognitive, emotional, and social), three symptom scales (fatigue, pain, and nausea/vomiting) and six single-items (dyspnea, insomnia, appetite loss, constipation, diarrhea, and financial difficulties). Scaling based on article data entitled head and Neck Cancer Patients' Quality of Life. Quality of life analysis of patients with head and neck cancer using the UW-QOL, EORTC QLQ-C30/QLQ-H&N 35, and FACT-H&N instruments expressed by mean, median, and standard deviation. [36].

## 3. Prostate Cancer

Prostate cancer morbidity and fatality measure diverge universally. The second most public reason for cancer death in men is prostate cancer. [37] There are no primary signs for most reasons, and then late signs might contain exhaustion due to anemia, bone ache, paralysis from spinal metastases, and renal failure from the bilateral ureteral obstacle. [38] The danger of rising prostate cancer is related to advancing age, African American society, and positive family past, and maybe impressed by diet and other influences. [37] The risk factors that increase the advance of prostate cancer include

Family History, race, socioeconomic issues, occupation, infectious agents, sexual behavior, cadmium exposure, vasectomy, smoking. [39] Some kinds of prostate cancer rise slowly and might want very little or even without treatment; others are destructive and spread fast. [40] Prostate cancer (PC) is the sixth most public kind of cancer between men universal, realized as a communal healthiness issue universal. [41-43] QOL is important for patients with prostate cancer; besides, the progression of the disease is relatively slow, which has a long-life hope. [44] HRQOL coverage the entire range of the human experiment, containing daily Necessities, social relations, physical and psychological health, disease and job, and individual Pleasure. [45, 46] Prostate cancer influences the bowels, bladder, and sexual role that affects the QOL. [44] One of the fundamental problems in patients

with prostate cancer is impotence. Other side effects of invasive cure contain urinary and digestive dysfunction. Exhaustion, pain, hopelessness, marital disorders, nervousness, and worry around the progression of the illness affect the patient's Quality of Life. [47] Men have to live with their disease and the side effects of cure, which are primarily urinary, sexual, and gastral complications. [48-50] Prostate cancer affects the older public, and even deaths from cancer are seen in middle-aged and elderly public. [51] Patients with early prostate cancer need to comprehend the possible influence on their quality from other treatments so they can choose the right cure that fits their imports and favorites. [52] Incontinence and impotence increase after radiation therapy and radical prostatectomy, but radiation therapy rates are relatively lower. [51]



**Figure 2.** According to the figure above, there is a relationship between fatigue and Social Functioning. Loss of appetite is also associated with diarrhea. Scaling is based on article data entitled Experiences of daily Life and life quality in men with prostate cancer, and this chart is based on this article. Patients' scores of Health-related Quality of Life and sense of coherence (n=11) (MD). [53]

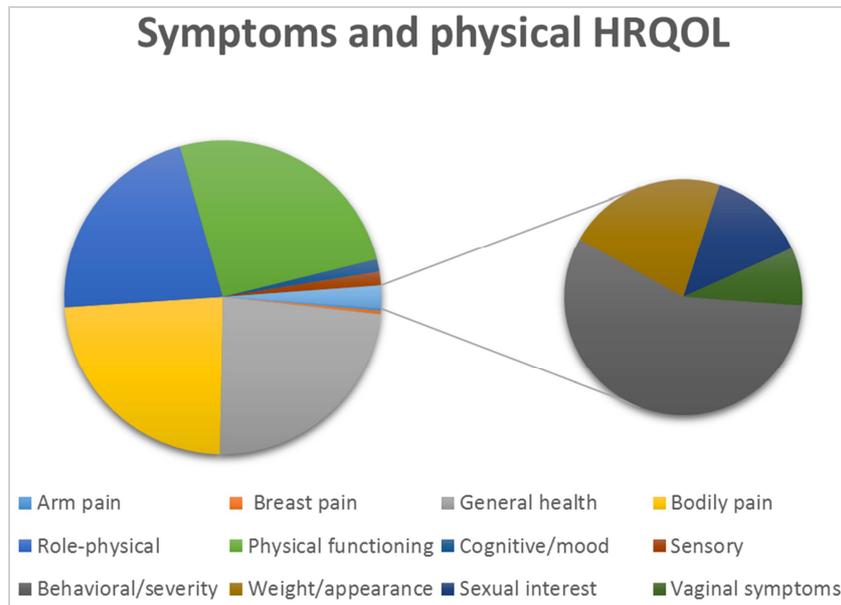
## 4. Breast Cancer

After skin cancer, breast cancer is the most public cancer among women and is another crucial reason for cancer passing in women, subsequently lung cancer. [54] Some kinds of tumors might advance inside diverse parts of the breast. Most tumors are the consequence of benign variations inside the breast. Breast cancer is much more public in females than males; the results are not good since the delay in diagnosis of the disease. [55] In breast cancer patients, the mortality rate increases with age. [56] Improved bodily action can decrease the danger of this cancer in females. [56] Probable biological mechanisms that happen below the effect of physical activity on body arrangement contain insulin resistance and circulating stages of sex steroid hormones. [56, 57] Breast cancer diagnosis ways have a physical check, imaging, particularly mammography, and tissue biopsy. Early diagnosis and timely initiation of treatment will help cancer

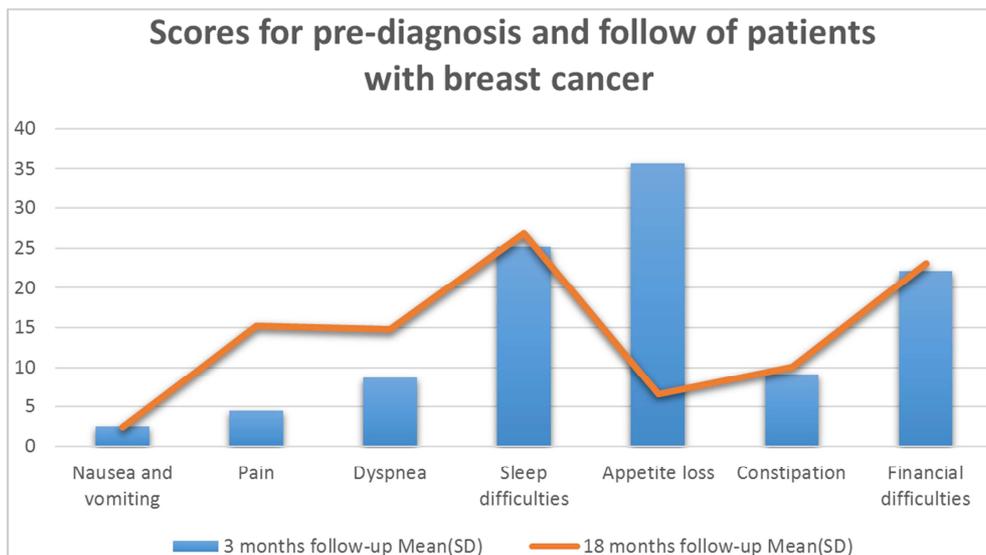
patients survive. [58] HRLQOL was described through way of breast cancer patients' understanding of their physical, emotional, and social well-being influenced by diagnosis, cure, post-treatment, and survivorship as evaluated using well-validated tools. (figure 3) [59] Psychosocial issues confuse the signs of physical symptoms and affect the QOL of breast cancer patients. (Figure 3) [60] Mental treatments can assist breast cancer patients in handling their feelings and pleasure the mental diseases they might reason, including depression, fear illnesses, and worry illnesses. [60, 61] Body deformity, sexual dysfunction, and syndromes that grow in advanced cancer patients after mastectomy affect QOL. [59] The conclusion of cure can remarkably worry females with breast cancer, particularly those who have received adjuvant chemotherapy or radiation cure. Signs such as hot flashes, oversleep, and exhaustion reduces the QOL in females through breast cancer. [62-67] Patients studied in an article by Ali Montazeri et al. were patients with a new theme with breast cancer who have been admitted to Imam Khomeini

Hospital in Tehran. Patients were evaluated in 2 stages; the introductory period was linked to 3 months after the early cure, besides the next period was made one year later (18 months subsequently the pre-diagnosis) (figure 4). [68]

Eventually, data highlights of previously mentioned research clearly and preciously show a linear relationship between the duration of follow-up of breast cancer patients, which has an indispensable role in evaluating QOL.



**Figure 3.** According to the above figure, we assessed some of the symptoms and some parts of HRQOL. Scaling this chart based on the data in the article entitled Physical activity, long-term symptoms, and physical health-related quality of life among breast cancer survivors: a prospective analysis and According to the article signs besides physical HRQOL consequences stated by 545 breast cancer survivors. [69]



**Figure 4.** The patients at 18 months follow-up described reduced QOL. QOL 3 months are the resulting cure for breast cancer patients exposed to which there was reasonable suffering due to the anxiety of cancer reappearance and restarting the average lifetime. There were raised levels of fatigue, pain, and dyspnea at 18 months follow valuation. The higher values indicate a greater degree of symptoms, min: 0, max: 100. [68]

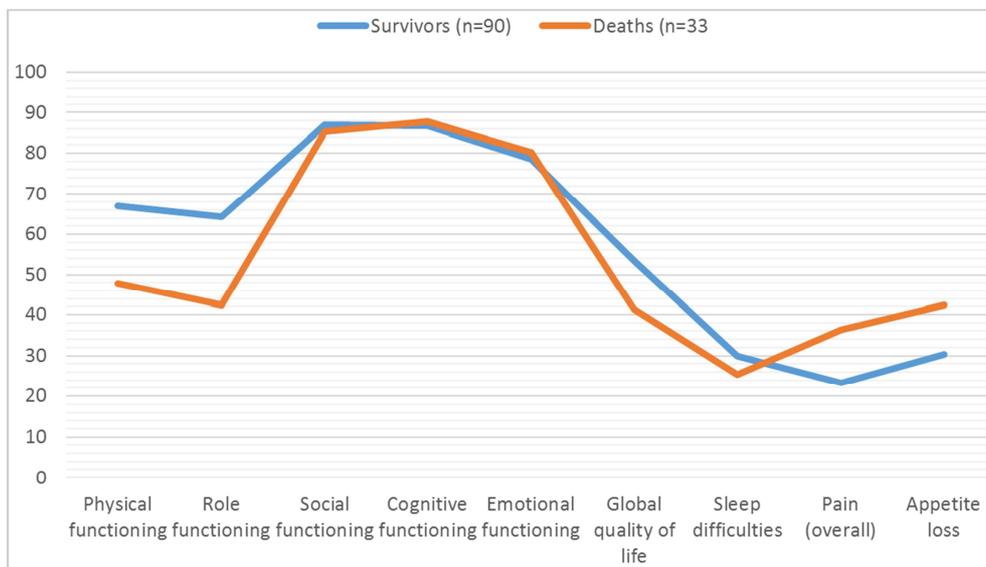
### 5. Lung Cancer

Lung cancer is the most mutual reason of main cancer Lung cancer is the most mutual reason for the primary cancer frequency and humanity in males, while in females, it is the 3rd most mutual reason for cancer frequency. [70] Although lung cancer is separated into many subgroups, there are two

primary sorts of lung cancer: non-small cell lung cancer and small cell lung cancer. Smoking increases the risk of lung cancer, but non-smokers can also get it. Comparing these two types of lung cancer, we concluded that small cell lung cancer grows besides spreads faster than non-small cell lung cancer. [71] Lung cancer was often undiagnosed in the early stages because its symptoms may be similar to those of the common cold [71] Lung cancer can be very heterogeneous

and can occur in different parts of the bronchial tree, so there are very variable signs and symptoms depending on its anatomical location. Lung cancers small cells are the most distinctive highly invasive cancers that spread rapidly to the lymph vessels beneath the mucosa and lymph nodes in the area. [72] Risk factors for lung cancer include smoking, family history, exposure to secondhand smoke, mineral and metal particles, or asbestos. Symptoms of NSCLC can include cough, chest pain, shortness of breath, blood in sputum, wheezing, hoarseness, recurrent chest infections, weight loss, missing appetite, besides fatigue. [73] One of the latest findings on lung cancer similar to head and neck cancer is chromium in industrial applications. [74] QOL in patients with lung cancer is one of the most critical factors in prognosis quality of life by way of a predictive aspect. The main parts of a patient's health may be harmfully influenced through the diagnosis of cancer or its cure. [59] Symptoms of lung cancer significantly affect the patient's QOL, which

significantly impacts physical, emotional, social, and spiritual health. (figure 5) [75] Increased exhaustion, shortness of breath, cough, and emotional hurt decrease the Quality of Life, while difficulties with night-time rest affect cognitive function. [76, 77] Worry and depression rise throughout chemotherapy, which affects the Quality of Life and the severity of symptoms. [76] Patients' physical function is severely reduced after surgery, affecting patients' Quality of Life. [78-84] According to research done by R Milroy et al. based on two patients' groups categorized into survivors and deaths. The survivors were those who lived the three-month consistency, and the dead were those who lost their lives. (Figure 5) [85] According to previously highlighted research, QoL assessment and comparison among survivors and deaths can depict valuable information to realize better assessment factors that transparently show a bit difference in their value allocation.



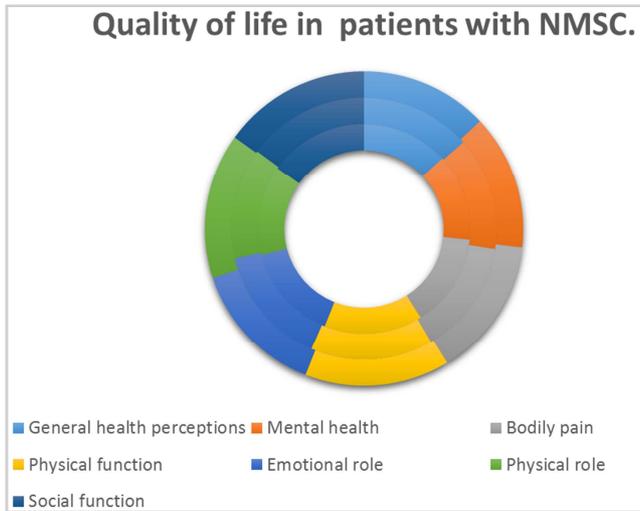
**Figure 5.** As shown in the table above, pre-diagnosis acts besides global QOL were assessed for lung cancer patients for survivors then patients who pass away in the first months of diagnosis. The higher standards show a higher step of functioning and QOL: min., 0; max., 100. S.E.M.=usual error of the mean. [85]

## 6. Skin Cancer

Skin cancer is the most public cancer, and its occurrence is growing. Early mature subjects themselves to vast quantities of ultraviolet radiance (UV) and involve minimal skin defense, which grows their danger. [86-93] Melanoma and no melanoma skin cancer (NMSC) are the maximum public kinds of cancer in white people nowadays. Equally, cancer things display a growing occurrence amount universal than a constant or reducing humanity amount. NMSC is an ever-increasing problem for healthiness attention services universal which reasons critical illness. The increasing occurrence charges of NMSC can be produced by a mixture of improved exposure to ultraviolet or sunlight, improved outside actions, variations in dress style, improved endurance, ozone reduction, and genetics besides in near suitcases,

protected appeasement. A concentrated UV show in infants and youth was causal for the advance of basilar cell carcinoma (BCC) but for the etiology of SCC, a lasting ultraviolet radiance show in the previous periods was suspect. [94] Skin cancer is one of the most common malignancies, affecting patients' quality of life through a speedily growing occurrence each year. The QOL of the patients through skin cancer is influenced by the complication's danger, operation, besides beauty and practical parts. The influences that affect the QOL in patients with skin cancer are the diagnosis of the illness, surgical interposition, and scars. It must be emphasized that most of the NMSC appear on sun-exposed parts, such as the face, Neck, then upper limbs. [95] Patients through poor Quality of Life displayed further threatening cognitive and emotional disease symbols, fewer perceived communal care, advanced mental complications, and advanced anxiety with body image. Body image mediated the

relationship among mental and understanding disease representations, family pressure, mental difficulties, and Quality of Life. [96]



**Figure 6.** These results offer which patients' emotional functioning better subsequently cure of NMSC. Patients' condition gradually improves during the treatment period. [97].

## 7. Discussion

We assess and compare the data in the figures of HNC and PC. According to the figures, head and neck cancer affects the role and cognitive function more than prostate cancer. Prostate cancer patients have less appetite than head and neck cancer patients, and according to the figures; dyspnea is more common in prostate cancer patients than in head and neck cancer patients. The social and emotional function is more affected in prostate cancer, and pain intensity is felt more in head and neck cancer patients than in prostate cancer patients. In both diseases, patients develop diarrhea, but in patients with head and neck cancer, there is more than in patients with prostate cancer.

Based on prostate and lung cancer figures, we compare the Quality of Life of prostate and lung cancer patients. The effect of prostate cancer on the social, cognitive, and emotional functioning of patients is more than prostate cancer, and in addition, the severity and amount of pain in lung cancer patients is higher than in prostate cancer patients. Sleep disturbance is seen in both diseases, but they are almost more elevated than in prostate cancer patients. Also, in both disorders, the appetite is decreased. Comparing the Quality of Life of patients with these two cancers, we concluded that the severity of pain that skin cancer patients suffer is much higher than that of head and neck cancer patients. However, skin cancer patients who have not yet had surgery have better mental health, but comparing the data, I concluded that physical function is almost the same in both diseases, but the social part of head and neck cancer patients is better than skin cancer. In patients with prostate cancer, gastrointestinal disorders such as constipation and diarrhea are observed, and even the patient's sleep is disturbed.

Prostate cancer has a more negligible effect on functional scales such as social and emotional than skin cancer. Comparing the Quality of Life of skin cancer with lung cancer, we found that the impact of lung cancer on the patient's physical, social, and emotional functioning is more significant than skin cancer. On the other hand, the severity of body pain in skin cancer patients is higher. Comparing breast cancer with other cancers, we found that the intensity of pain that breast cancer patients endure is lower than that of patients with head and neck and skin cancer. According to the data in the figures, nausea and vomiting are less in breast cancer patients than in head and neck cancer patients. The severity of dyspnea in breast cancer patients is less than that of head and neck cancer. Sleep difficulties experienced by lung cancer survivors and prostate cancer patients are greater than those experienced by breast cancer patients. Comparing the figures, it was concluded that appetites in breast cancer patients in the first three months of the disease were more reduced than in patients with head and neck, prostate, and lung cancer. According to the information in the tables, we examined the dimensions of physical functioning and role functioning, social functioning, and emotional functioning among the cancers mentioned in this article, namely head and neck cancer and prostate cancer, breast cancer, lung, and skin cancer, and came to this conclusion. We found that the physical functioning dimension in head and neck cancer is more favorable than other cancers and the physical functioning of head and neck cancer patients is better than other cancers, and this dimension is less affected in head and neck cancer patients. Role functioning among prostate cancer patients is better than other cancer patients in this article. Also, among cancers, Lung cancer has the most significant impact on physical functioning and role functioning. Examining the dimensions of emotional function and social function, it can be said that these two dimensions are more affected by head and neck cancer than other cancers, while the social role of lung cancer patients and the emotional function of skin cancer patients were better than the others.

## 8. Conclusion

Reviewing and researching the Quality of Life of patients can give us essential information about patients' replies to Cancer and Cancer cures, and in the communication of diverse responses and the general Quality of Life, the data gained can also affect the option of care. As a result, the most critical cancers encompassing breast, head, Neck, prostate, lung, and skin cancer were the in-thing parameters and must-have items discussed in this article. It can be found that side effects of treatment procedures affect the quality-of-life parameters efficiently. Symptoms of Cancer can significantly impact the quality of Life, which substantially impacts physical, emotional, social, and spiritual health. In general, emotional and physical anxiety and fear of cancer, changes in the patient's appearance, and loss of the patient's ability to perform daily tasks can significantly impact patients' Quality of Life.

## Statement Regarding Informed Consent

Informed consent is not applicable for this manuscript.

## Statement Regarding Ethical Approval

“For this type of study formal consent is not required.”

## Statement Regarding the Welfare of Animals (as Appropriate)

“This article does not contain any studies with human participants or animals performed by any of the authors.”

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## References

- [1] Liu, H., et al., *Assessment Tools for Health Literacy among the General Population: A Systematic Review*. International journal of environmental research and public health, 2018. 15 (8): p. 1711.
- [2] Rockville, M., *Health Assessments in Primary Care*. Health Assessments in Primary Care, 2020.
- [3] Stevens, A. and S. Gillam, *Needs assessment: from theory to practice*. BMJ (Clinical research ed.), 1998. 316 (7142): p. 1448-1452.
- [4] de Haes, J. C. J. M. and F. C. E. van Knippenberg, *The quality of life of cancer patients: A review of the literature*. Social Science & Medicine, 1985. 20 (8): p. 809-817.
- [5] Bahrami, M., *Patients' quality of life: A comparison of patient and nurse perceptions*. Contemporary Nurse, 2014.
- [6] Allen, P. F., *Assessment of oral health related quality of life*. Health and Quality of Life Outcomes, 2003. 1 (1): p. 40.
- [7] Guyatt, G. H., D. H. Feeny, and D. L. Patrick, *Measuring Health-Related Quality of Life*. Annals of Internal Medicine, 1993. 118 (8): p. 622-629.
- [8] Nayak, M. G., et al., *Quality of Life among Cancer Patients*. Indian journal of palliative care, 2017. 23 (4): p. 445-450.
- [9] Heidrich, S. M., et al., *An individualized representational intervention to improve symptom management (IRIS) in older breast cancer survivors: three pilot studies*. Oncology nursing forum, 2009. 36 (3): p. E133-E143.
- [10] Donovan, K., R. W. Sanson-Fisher, and S. Redman, *Measuring quality of life in cancer patients*. J Clin Oncol, 1989. 7 (7): p. 959-68.
- [11] Stehlin, J. S., Jr. and K. H. Beach, *Psychological Aspects of Cancer Therapy: A Surgeon's Viewpoint*. JAMA, 1966. 197 (2): p. 100-104.
- [12] Silberfarb, P. M., *Psychiatric problems in breast cancer*. 1984. 53 (S3): p. 820-824.
- [13] Calman, K. C., *Quality of life in cancer patients--an hypothesis*. Journal of Medical Ethics, 1984. 10 (3): p. 124.
- [14] Brown, L. F., et al., *The association of depression and anxiety with health-related quality of life in cancer patients with depression and/or pain*. Psycho-oncology, 2010. 19 (7): p. 734-741.
- [15] Iconomou, G., et al., *Prospective assessment of emotional distress, cognitive function, and quality of life in patients with cancer treated with chemotherapy*. 2004. 101 (2): p. 404-411.
- [16] Ahles, T. A., et al., *Neuropsychologic impact of standard-dose systemic chemotherapy in long-term survivors of breast cancer and lymphoma*. J Clin Oncol, 2002. 20 (2): p. 485-93.
- [17] Ahles, T. A. and A. Saykin, *Cognitive Effects of Standard-Dose Chemotherapy in Patients with Cancer*. Cancer Investigation, 2001. 19 (8): p. 812-820.
- [18] McDaniel, J. S., et al., *Depression in patients with cancer. Diagnosis, biology, and treatment*. Arch Gen Psychiatry, 1995. 52 (2): p. 89-99.
- [19] Baker, F., S. C. Haffer, and M. Denniston, *Health-related quality of life of cancer and noncancer patients in Medicare managed care*. 2003. 97 (3): p. 674-681.
- [20] Byers, T., et al., *The American Cancer Society challenge goals. How far can cancer rates decline in the U.S. by the year 2015?* Cancer, 1999. 86 (4): p. 715-27.
- [21] Osoba, D., *Health-related quality of life and cancer clinical trials*. Therapeutic advances in medical oncology, 2011. 3 (2): p. 57-71.
- [22] Maughan, T. S., et al., *Comparison of survival, palliation, and quality of life with three chemotherapy regimens in metastatic colorectal cancer: a multicentre randomised trial*. Lancet, 2002. 359 (9317): p. 1555-63.
- [23] de Jong, N., et al., *Prevalence and course of fatigue in breast cancer patients receiving adjuvant chemotherapy*. Ann Oncol, 2004. 15 (6): p. 896-905.
- [24] Lin, X.-J., I. M. Lin, and S.-Y. Fan, *Methodological issues in measuring health-related quality of life*. Tzu Chi Medical Journal, 2013. 25 (1): p. 8-12.
- [25] Khalilnejad, M., T. Mortezaadeh, and R. Ghasemi Shayan, *Application of Manganese Oxide (MnO) nanoparticles in multimodal molecular imaging and cancer therapy: A review* %J Nanomedicine Journal. 2021. 8 (3): p. 166-178.
- [26] Ghasemi Shayan, R., et al., *Image Quality and Dose Comparison of Single-Energy CT (SECT) and Dual-Energy CT (DECT)*. Radiology Research and Practice, 2020. 2020: p. 1403957.
- [27] Dunne, S., et al., *Psychological variables associated with quality of life following primary treatment for head and neck cancer: a systematic review of the literature from 2004 to 2015*. 2017. 26 (2): p. 149-160.
- [28] Mao, L., W. K. Hong, and V. A. Papadimitrakopoulou, *Focus on head and neck cancer*. Cancer Cell, 2004. 5 (4): p. 311-6.
- [29] Sabonian, M. and K. Mahanpoor, *Optimization of Photocatalytic Reduction of Cr(VI) in Water with Nano ZnO/Todorokite as a Catalyst: Using Taguchi Experimental Design* %J Iranian Journal of Chemistry and Chemical Engineering (IJCCE). 2019. 38 (6): p. 105-113.
- [30] Institute, N. C., *Head and Neck Cancers*. Natinal cancer institute, 2017.

- [31] Murphy, B. A., et al., *Quality of life research in head and neck cancer: A review of the current state of the science*. Critical Reviews in Oncology/Hematology, 2007. 62 (3): p. 251-267.
- [32] de Graeff, A., et al., *Long-Term Quality of Life of Patients With Head and Neck Cancer*. 2000. 110 (1): p. 98-106.
- [33] Rigoni, L., et al., *Quality of life impairment in patients with head and neck cancer and their caregivers: a comparative study*. Brazilian Journal of Otorhinolaryngology, 2016. 82 (6): p. 680-686.
- [34] Björklund, M., A. Sarvimäki, and A. Berg, *Living with head and neck cancer: a profile of captivity*. 2010. 2 (1): p. 22-31.
- [35] Hassan, S. J. and E. A. Weymuller, Jr., *Assessment of quality of life in head and neck cancer patients*. Head Neck, 1993. 15 (6): p. 485-96.
- [36] Gomes, E. P. A. d. A., et al., *Head and Neck Cancer Patients' Quality of Life: Analysis of Three Instruments*. Journal of dentistry (Shiraz, Iran), 2020. 21 (1): p. 31-41.
- [37] Haas, G. P. and W. A. Sakr, *Epidemiology of prostate cancer*. 1997. 47 (5): p. 273-287.
- [38] Leslie SW, S.-S. T., Sajjad H, et al, *Prostate Cancer*. StatPearls Publishing, 2021.
- [39] *Risk Factors for Prostate Cancer*. 1993. 118 (10): p. 793-803.
- [40] Staff, M. C., *prostate cancer*. Mayo Clinic 2020.
- [41] Maringá, J. P. E.v., *PROSTATE CANCER: QUALITY OF LIFE AND PHYSICAL ACTIVITY LEVEL OF PATIENTS*. Journal of Physical Education, 2018.
- [42] Abreu, A. S. A. S. A., et al., *STRATEGIES FOR THE PREVENTION OF PROSTATE CANCER*. 2013, 2013. 5 (2): p. 13%J Revista de Pesquisa: Cuidado é Fundamental Online.
- [43] Moscheta, M. d. S. and M. A. d. Santos, *Grupos de apoio para homens com câncer de próstata: revisão integrativa da literatura %J Ciência & Saúde Coletiva*. 2012. 17: p. 1225-1233.
- [44] McPherson, C. P., K. K. Swenson, and J. Kjellberg, *Quality of life in patients with prostate cancer*. Seminars in Oncology Nursing, 2001. 17 (2): p. 138-146.
- [45] Bergman, J. and A. Laviana, *Quality-of-life assessment tools for men with prostate cancer*. Nature Reviews Urology, 2014. 11 (6): p. 352-359.
- [46] Patrick, D. L. and P. Erickson, *Assessing health-related quality of life for clinical decision-making*, in *Quality of Life Assessment: Key Issues in the 1990s*, S. R. Walker and R. M. Rosser, Editors. 1993, Springer Netherlands: Dordrecht. p. 11-63.
- [47] Giesler, R. B., et al., *Improving the quality of life of patients with prostate carcinoma*. 2005. 104 (4): p. 752-762.
- [48] Schmidt, S., et al., *Assessing quality of life in patients with prostate cancer: a systematic and standardized comparison of available instruments*. Quality of Life Research, 2014. 23 (8): p. 2169-2181.
- [49] Sanda, M. G., et al., *Quality of life and satisfaction with outcome among prostate-cancer survivors*. N Engl J Med, 2008. 358 (12): p. 1250-61.
- [50] Miller, D. C., et al., *Long-term outcomes among localized prostate cancer survivors: health-related quality-of-life changes after radical prostatectomy, external radiation, and brachytherapy*. J Clin Oncol, 2005. 23 (12): p. 2772-80.
- [51] Herr, H. W., *Quality of life in prostate cancer patients*. 1997. 47 (4): p. 207-217.
- [52] Talcott, J. A., *Quality of life in prostate cancer*. European Journal of Cancer, 2005.
- [53] Jakobsson, L., I. R. Hallberg, and L. Lovén, *Experiences of daily life and life quality in men with prostate cancer. An explorative study. Part I*. Eur J Cancer Care (Engl), 1997. 6 (2): p. 108-16.
- [54] Ely, S. and A. N. Vioral, *Breast cancer overview*. Plast Surg Nurs, 2007. 27 (3): p. 128-33; quiz 134-5.
- [55] Sharma, G. N., et al., *Various types and management of breast cancer: an overview*. J Adv Pharm Technol Res, 2010. 1 (2): p. 109-26.
- [56] Coughlin, S. S., *Epidemiology of Breast Cancer in Women*. Adv Exp Med Biol, 2019. 1152: p. 9-29.
- [57] Farvid, M. S., et al., *Fruit and vegetable consumption in adolescence and early adulthood and risk of breast cancer: population based cohort study*. 2016. 353: p. i2343.
- [58] Alkabban, F. M. and T. Ferguson, *Breast Cancer*, in *StatPearls*. 2021, StatPearls Publishing Copyright © 2021, StatPearls Publishing LLC.: Treasure Island (FL).
- [59] Mokhatri-Hesari, P. and A. Montazeri, *Health-related quality of life in breast cancer patients: review of reviews from 2008 to 2018*. Health and Quality of Life Outcomes, 2020. 18 (1): p. 338.
- [60] Perry, S., T. L. Kowalski, and C.-H. Chang, *Quality of life assessment in women with breast cancer: benefits, acceptability and utilization*. Health and quality of life outcomes, 2007. 5: p. 24-24.
- [61] Hewitt M, H. R., Holland J, editors, *Meeting Psychosocial Needs of Women with Breast Cancer*. National Academies Press (US), 2004.
- [62] Paraskevi, T., *Quality of life outcomes in patients with breast cancer*. Oncology reviews, 2012. 6 (1): p. e2-e2.
- [63] Ward, S. E., et al., *Patients' reactions to completion of adjuvant breast cancer therapy*. Nurs Res, 1992. 41 (6): p. 362-6.
- [64] Fertig, D. L., *Depression in Patients with Breast Cancer: Prevalence, Diagnosis, and Treatment*. 1997. 3 (5): p. 292-302.
- [65] Holland, J. C., & Rowland, J. H. (Eds.), *Handbook of psychooncology: Psychological care of the patient with cancer*. Oxford University Press, 1989.
- [66] Beisecker, A., et al., *Side effects of adjuvant chemotherapy: perceptions of node-negative breast cancer patients*. Psychooncology, 1997. 6 (2): p. 85-93.
- [67] DeSantis, C., et al., *Breast cancer statistics, 2011*. CA Cancer J Clin, 2011. 61 (6): p. 409-18.
- [68] Montazeri, A., et al., *Quality of life in patients with breast cancer before and after diagnosis: an eighteen months follow-up study*. BMC cancer, 2008. 8: p. 330-330.

- [69] Alfano, C. M., et al., *Physical activity, long-term symptoms, and physical health-related quality of life among breast cancer survivors: a prospective analysis*. J Cancer Surviv, 2007. 1 (2): p. 116-28.
- [70] William D. Travis, M., *Pathology of Lung Cancer*. Clinics in Chest Medicine, 2011.
- [71] Pietrangelo, A., *Everything You Need to Know About Lung Cancer*. healthline, 2021.
- [72] Lemjabbar-Alaoui, H., et al., *Lung cancer: Biology and treatment options*. Biochimica et biophysica acta, 2015. 1856 (2): p. 189-210.
- [73] Sabbula BR, A. F., *Squamous Cell Lung Cancer*. StatPearls [Internet], 2020.
- [74] Sabonian, M. and M. Behnajady, *Specification of the Operational Parameters Contribution in the Efficiency of TiO<sub>2</sub>-P25 Nanoparticles in the Photocatalytic Removal of Cr(VI) by Taguchi Method*. Oriental Journal of Chemistry, 2014. 30: p. 1999-2003.
- [75] Akin, S., Can, G., Aydiner, A., Ozdilli, K., & Durna, Z., *Quality of life, symptom experience and distress of lung cancer patients undergoing chemotherapy*. European Journal of Oncology Nursing, 2010.
- [76] Polanski, J., et al., *Quality of life of patients with lung cancer*. OncoTargets and therapy, 2016. 9: p. 1023-1028.
- [77] Brown, D. J., D. C. McMillan, and R. Milroy, *The correlation between fatigue, physical function, the systemic inflammatory response, and psychological distress in patients with advanced lung cancer*. Cancer, 2005. 103 (2): p. 377-82.
- [78] Sarna, L., et al., *Quality of Life of Long-Term Survivors of Non-Small-Cell Lung Cancer*. 2002. 20 (13): p. 2920-2929.
- [79] Dales, R. E., et al., *Quality-of-life following thoracotomy for lung cancer*. Journal of Clinical Epidemiology, 1994. 47 (12): p. 1443-1449.
- [80] Nugent, A.-M., et al., *Effect of thoracotomy and lung resection on exercise capacity in patients with lung cancer*. 1999. 54 (4): p. 334-338.
- [81] *Quality of life after surgical therapy of bronchogenic carcinoma*. European Journal of Cardio-Thoracic Surgery, 1996. 10 (4): p. 233-237.
- [82] Pelletier, C., L. Lapointe, and P. LeBlanc, *Effects of lung resection on pulmonary function and exercise capacity*. 1990. 45 (7): p. 497-502.
- [83] Epstein, S. K., et al., *Inability to Perform Bicycle Ergometry Predicts Increased Morbidity and Mortality After Lung Resection*. Chest, 1995. 107 (2): p. 311-316.
- [84] Mangione, C. M., et al., *Health-related quality of life after elective surgery*. Journal of General Internal Medicine, 1997. 12 (11): p. 686-697.
- [85] Montazeri, A., et al., *Quality of life in lung cancer patients: as an important prognostic factor*. Lung Cancer, 2001. 31 (2-3): p. 233-40.
- [86] Carolyn J. Heckman, P., *Efficacy of an Intervention to Alter Skin Cancer Risk Behaviors in Young Adults*. American Journal of Preventive Medicine, 2016.
- [87] Donaldson, M. R. and B. M. Coldiron, *No end in sight: the skin cancer epidemic continues*. Semin Cutan Med Surg, 2011. 30 (1): p. 3-5.
- [88] Gordon, R., *Skin cancer: an overview of epidemiology and risk factors*. Semin Oncol Nurs, 2013. 29 (3): p. 160-9.
- [89] Nikolaou, V. and A. J. Stratigos, *Emerging trends in the epidemiology of melanoma*. Br J Dermatol, 2014. 170 (1): p. 11-9.
- [90] Health, U.S. D.o. and S. Human, *Reports of the Surgeon General, in The Surgeon General's Call to Action to Prevent Skin Cancer*. 2014, Office of the Surgeon General (US): Washington (DC).
- [91] Tuong, W., L. S. Cheng, and A. W. Armstrong, *Melanoma: epidemiology, diagnosis, treatment, and outcomes*. Dermatol Clin, 2012. 30 (1): p. 113-24, ix.
- [92] Stanton, W. R., et al., *Primary prevention of skin cancer: a review of sun protection in Australia and internationally*. Health Promot Int, 2004. 19 (3): p. 369-78.
- [93] MacNeal, R. J. and J. G. Dinulos, *Update on sun protection and tanning in children*. Curr Opin Pediatr, 2007. 19 (4): p. 425-9.
- [94] Leiter U., E. T., Garbe C, *Epidemiology of Skin Cancer*. SpringerLink, 2014.
- [95] Răducu, L., et al., *Quality of Life in Patients with Surgically Removed Skin Tumors*. Medicina (Kaunas, Lithuania), 2020. 56 (2): p. 66.
- [96] Pereira, M. G., et al., *Quality of life in patients with skin tumors: the mediator role of body image and social support*. Psychooncology, 2017. 26 (6): p. 815-821.
- [97] Rhee, J. S., et al., *Quality of Life and Sun-Protective Behavior in Patients with Skin Cancer*. Archives of Otolaryngology-Head & Neck Surgery, 2004. 130 (2): p. 141-146.