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Exploring the Impact of Self-compassion and the relationship of Perceived Stress and Quality of life among Cancer Patients

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ABSTRACT

Experiencing a cancer diagnosis and going through treatment can lead to turmoil potentially resulting in lasting negative effects. Self-compassion plays a role in helping individuals maintain or improve their quality (QOL) while managing stress related to challenging life circumstances and hardships. The current research aimed to examine how cancer patients perceive stress, QOL and self-compassion are correlated. It also investigated how self-compassion plays a mediating function in the relationship of perceived stress and QOL. The study involved 84 grown up cancer patients aged between 18 and 50 years. These individuals were selected from hospitals in Karachi, Pakistan using a purposive sampling method. The evaluation tools used included the Perceived Stress Scale, the Self-compassion Scale and The World Health Organization Quality of Life Brief Version (WHOQOL BREF). Statistical analysis was carried out using SPSS 25 software with Correlation and Process Macro techniques. Results displayed a positive link between self-compassion and QOL ($r=.683$; $p<.01$) as well as a significant negative connection between perceived stress and QOL ($r=-.690$; $p<.01$). Additionally, the mediation analysis discovered that self-compassion played a mediating part in the relationship between perceived stress and QOL. This study could be valuable in addressing psychological aspects related to cancer to enhance the QOL for patients. Implementing interventions/policies focusing on self-compassion in cancer care programs, initiating support systems for wellbeing and providing training, for healthcare providers and caregivers are steps forward.

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1. Introduction

Receiving a cancer diagnosis is profoundly distressing and impactful, affecting individuals physically, emotionally, and socially. It is a leading cause of mortality worldwide, according to the 2020 estimations of World Health Organization (WHO). Cancer ranks as either the one or second most significant factor (Ferlay, 2021). Extensive research is being conducted to understand the QOL experienced by cancer patients (Slezáčková, Geprtová, & Světlák, 2021). Emotionally, cancer diagnosis makes a patient feel depressed, stressed, angry, self-doubting, and isolated from others. It may lead to such behavior as treatment non-adherence and such a physical effect as compromised immunity. Therefore, getting diagnosed with cancer is a traumatizing experience that seriously affects a patient's QOL (Isfahani, Corani Bahador, Peirovy, & Afshari, 2022). QOL is a major preoccupation for cancer patients but also impacts on family and caregivers even after the treatment process (Huaiyu Zhang et al., 2019). When considered from a cancer perspective, QoL may be defined as an attitude of general wellness within the aspects of physical, psychological, social, and spiritual well-being. A change to one of the above dimensions of QoL could potentially change the perceptions of other dimensions (Jitender, Mahajan, Rathore, & Choudhary, 2017). It is not surprising, then, that the QOL is a complex and multi-dimensional construct and involves both measurable components and the person's own perception. The latter, in turn, is a multifaceted and multi-level psychophysical category, oriented

on the person's own questions about personal ideals, long-term criteria, sources of fears, experience of pastime and one's own culture, and value systems (Singh, Kaur, Banipal, Singh, & Bala, 2014). Thus, having faced the diagnosis of a lethal disease such as cancer, people get a serious stress factor that can seriously affect the quality of their lives (Galić, Glavić, & Cesarik, 2014). Of course, it is possible to say with absolute certainty that even if a person shows kindness, caring and comfort at the moments of terrible things in life, relative to the harshly criticizing or self-deprecating approach, proves helpful.

Emphasizing self-compassion as a crucial emotional regulation strategy has been highlighted for its potential to foster enhanced self-management, thereby fostering health, wellness, and adaptive behaviors to disease and illness (Terry & Leary, 2011). Self-compassion, a concept developed by psychologist K. Neff (2003) involves treating oneself with kindness and understanding during times of suffering or failure, rather than being critical or judgmental. Studies have suggested that more self-compassionate individuals tend to experience better mental health outcomes, lower levels of stress, and improved overall well-being. Facing a life-threatening disease can be an incredibly challenging and distressing experience. Self-compassion can contribute to psychological resilience, helping individuals cope with stress, maintain a positive outlook, and engage in adaptive behaviors (Pinto-Gouveia, Duarte, Matos, & Fráguas, 2014). Self-compassion involves confronting negative internal experiences without avoidance, aiming to alleviate suffering through warmth and kindness. K. Neff (2003); K. D. Neff (2009) defines self-compassion through three key components: kindness (as opposed to judgment), common humanity (as opposed to isolation), and mindfulness (as opposed to overidentification). Self-kindness needs being caring and comforting in the face of life's challenges and avoiding harsh self-criticism. Common humanity involves recognizing one's experiences within a broader human perspective, fostering a sense of connectedness. The mindfulness element encourages obvious and evaluated observation and approval of hurting thoughts and feelings, noticeably than avoidance or rumination. Research suggests that self-compassion correlates deeply with heightened psychological quality of life, reduced depression and anxiety, and enhanced coping skills (K. D. Neff, 2009). Self-compassion, identified as an integral factor positively influencing psychological well-being, is crucial aspect in promoting QoL according to research by Huiping Zhang, Yip, Chi, Chan, Cheung, and Zhang (2012).

In the realm of medical conditions such as cancer, practicing self-compassion involves nurturing and consoling oneself while also engaging in self-regulation to enhance both physical and psychological well-being. This includes adopting health-oriented behaviors, such as actively seeking and adhering to medical treatments, as well as managing negative emotions (Scheier & Carver, 2012). Stress has the potential to influence the initiation, advancement, and spread of cancerous tumors. The term "perceived stress" refers to how an individual views their current circumstances (such as their health) and how it affects their capacity to cope (Okwuosa, Onu, & Onyedibe, 2024). Inadequately addressing the stress levels in patients can significantly impact their overall well-being and health (Al-Ghabeesh, Al-Kalaldah, Rayan, Al-Rifai, & Al-Halaiqa, 2019). Perceived Stress has a substantial impact upon several elements of the lives of cancer patients, involving their overall QOL. The QOL of cancer patients deteriorates over time, with chronic patients experiencing particularly poor quality of life due to stress (Al-Ghabeesh et al., 2019). A significant decline was found in patients' quality of life three years with diagnosis, as associated to diagnostic time (Kwon, Ryu, Noh, & Sung, 2012). Cancer patients frequently experience stress levels, which can impact their QOL. Although the effects of stress are acknowledged there is a shortage of research on how self-compassion plays a role in influencing this connection. Previous studies have looked at each of these characteristics independently and their impact on cancer patients. However, this research studies them interconnectedly.

Furthermore, our research focuses on individuals undergoing cancer treatment as interventions, during this phase are backed by evidence and show outcomes. Study on the interaction between positive psychological factor such as self-compassion and perceived stress among cancer patients can provide insights for targeted interventions and support programs, enhancing patient-centered care, using self-compassion techniques for the improvement of QOL of cancer patients and addressing the complexities in treatment of cancer and survivorship. This research seeks to investigate how self-compassion can help in managing the relationship between perceived stress and QOL in cancer patients. By gaining insights into this interaction strategies can be developed to enhance the health of individuals, in this group. The objective of the study is to explore the relationship between Self-compassion, perceived stress and QOL among cancer

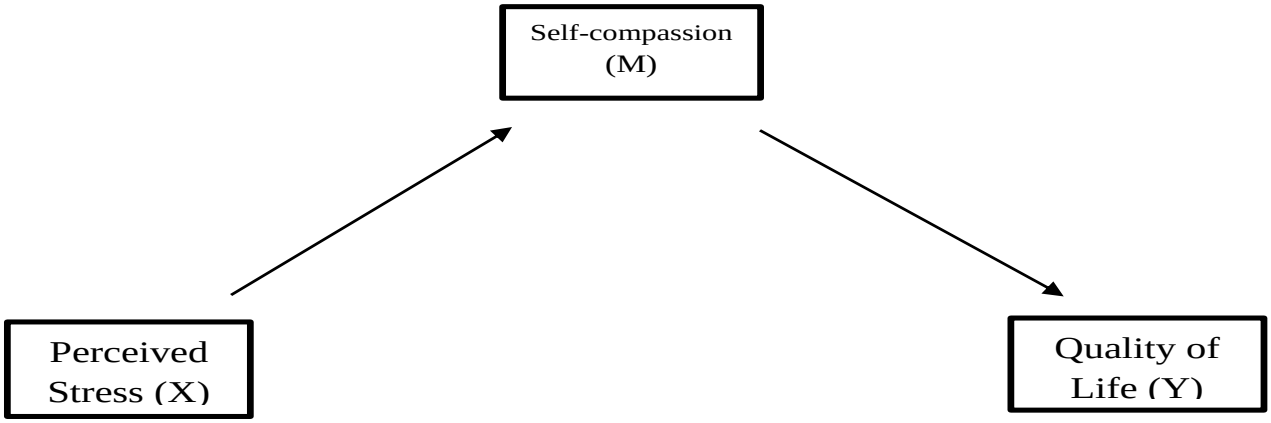
patients and to see the effect of Self-compassion as a mediator on perceived stress and QOL. Regarding organization of the study, exploring how self-compassion affects the stress levels and QOL of individuals battling cancer, researchers collected numerical data by administering standardized instruments and statistical analysis methods. These instruments/questionnaires are aimed to measure the level of self-compassion, perceived stress and QOL. Data analysis was carried out using certain mathematical and statistical methods such as correlation and mediation analysis.

2. Literature Review

The purpose of the study is to investigate the perception of stress in people with cancer and other factors influencing their well-being and QOL. Perceived stress is the concept under consideration; it refers to "the individual's assessment of a given situation as stressful and their perception of inadequate coping ability' (Okwuosa, Onu, & Onyedibe, 2024). The health of cancer patients is also negatively affected by the inability to manage stress levels. According to Al-Ghabeesh et al. (2019). The research shows that it can be stress in the dimensions of life in which people perceive, daily, or in terms of their overall QOL. The QOL declines progressively as cancer patients experience comorbidities and high stress. As Al-Ghabeesh et al. (2019), report that there is three years decline after diagnosis with cancer than at the time of diagnosis (Kwon et al., 2012). A study suggests that the negative influence of perceived stress on the QOL of cancer patients may be explained by the fact that stress weakens the body's immunity and hinders cancer patients from fast recovery and addressing all accompanying physical and emotional challenges of the illness. Furthermore, perceived stress may lead to the development of negative coping mechanisms, such as substance abuse or social withdrawal, which also can deteriorate the QOL of cancer patients (Kim et al., 2018). It is increasingly evident from a growing body of research that self-compassion might mediate the link between perceived stress and QOL in cancer patients. Exploring the association of self-compassion with perceived stress and QOL is vital in ascertaining interventions designed to enhance self-compassion as a coping mechanism to counter the menace of cancer (Scheier & Carver, 2012). Self-compassion has been associated with diminished stress and depressive indications, thus a path to wellness in patients with chronic diseases, including cancer (Pinto-Gouveia et al., 2014).

Previous studies found a relationship between self-compassion, mindfulness, and QOL (Garcia et al., 2021). In one study it has been shown that mindfulness reduces perceived stress and enhances the QOL of cancer patients (Dehghan et al., 2020). However, there is a scarcity of research which analyzes the relationship of self-compassion, perceived stress and QOL together. To bridge this gap, we conducted a study involving a cohort of cancer patients. The results of our research enhanced our comprehension of the connection between these variables. Offer suggestions for enhancing the wellbeing of individuals battling cancer.

Figure 1: Model of self-compassion as a mediator of the relationship between perceived stress and quality of life



3. Research Method

3.1. Research Design

A correlational cross-sectional design was utilized in this research. It examined the relationship between study variables at a single point in time.

3.2. Sample

Participants in our study consisted of 84 cancer patients. The research was conducted in oncological departments of cancer hospitals in Karachi, Pakistan, from July 2023 to September 2023. Purposive sampling was used to get more variation in the sample characteristics.

3.3. Inclusion and Exclusion Criteria

A cohort of individuals between the ages of 18 and 50 has been chosen for this study. The focus is on patients with various types of cancer, specifically those in the initial three stages of the disease. The inclusion criteria also specify that participants must be in a conscious state, capable of reading and comprehending the Urdu language. Additionally, individuals undergoing cancer treatment are eligible for inclusion, provided they willingly provide consent to participate in the research. The study excludes individuals with pre-existing psychiatric illnesses, those taking psychiatric medications, and those with physical comorbidities like diabetes and cardiovascular diseases to maintain data integrity. Participants exhibiting psychological or physiological instability and those in the fourth stage of cancer are also excluded to ensure data consistency and focus on cancer survivors six months post-surgery for accurate assessment.

3.4. Informed Consent Form

The participants' agreement to contribute to the research was obtained by administering a consent form. Participants were told that taking part in the study was entirely optional and they could choose to leave at any time. We also spoke about keeping things confidential.

3.5. Demographic characteristics

It includes age, gender, education, and SES. Clinical information in the Demographic form includes types of cancer, stage of cancer, and treatment of cancer.

3.6. Measures

3.6.1. Self-compassion Scale (SCS)

The Self-Compassion Scale (SCS), established by K. Neff (2003) and validated for use in Pakistan, comprises of 26 items grouped into 6 sub-scales, reflecting positive (self-kindness, common humanity, and mindfulness) and negative aspects (self-judgment, isolation, and over-identification). Respondents rate entries on a five-point Likert scale. Self-compassion score is obtained by averaging sub-scales after reverse coding negative items. Despite strong interrelations, Neff advises using only the total SCS score, affirming its validity and theoretical coherence in measuring self-compassion. Urdu version of this scale was used in this research.

3.6.2. Perceived Stress Scale

The Perceived Stress Scale (PSS) is a ten-item inventory assessing self-reported stress levels over the past month. It was created by Cohen, Kamarck, and Mermelstein (1983). It consists of negative emotion and coping questions, as well as positive emotion and stress management inquiries. Responses are evaluated on a level of 1, to 5 with 1 is the lowest and 5 the highest. To calculate the score the scores for the four aspects are reversed and then all scores are combined, resulting in a complete range starting 0 to 40. Greater scores suggest increased stress levels, with six items focusing on emotions and stress coping mechanisms and four items assessing emotions and successful stress handling. The research utilized the Urdu adaptation of this assessment tool.

3.6.3. WHO-QOL BREF Scale

The World Health Organization Quality of Life BREF (WHOQOL BREF) a condensed type of the WHOQOL 100, with 26 items was developed by Saxena, Orley, and Group (1997). This study will use the Urdu translation done by Waqas, Raza, Lodhi, Muhammad, Jamal, and Rehman (2015). The WHOQOL BREF is a version of the WHOQOL 100 focusing on evaluating individuals' QOL across four areas: physical health, mental wellbeing, social relationships, and environment. It comprises a total of 26 questions. The first question inquires about one's general impression of health, while the second probes one's general impression of quality of life. From 1 (not at all) to 5 (totally), there is a 5-point answer system for each item. On this scale, higher domain scores indicate a better QOL.

3.7. Procedure

The study began by obtaining approval from the Ethical Review Board at ICP, and then from the ASRB in University of Karachi. Permissions were secured from the heads of oncology

departments in cancer hospitals before approaching the sample. Questionnaires were distributed at outpatient departments, chemotherapy wards, and among inpatients, with the investigator assisting those who found it inconvenient to complete the questionnaire. Participants were given 20-30 minutes for completion, and upon finishing, their cooperation was appreciated.

3.8. Ethical considerations

The study placed ethical issues as a top priority by collecting informed consent, preserving anonymity, minimizing potential harm risks, and focusing on beneficence. Emphasis was placed on cultural sensitivity, continuous ethical review, and researcher competence. Debriefing sessions were offered, and results were responsibly disseminated to maximize benefits, provide valuable insights, and uphold the well-being and rights of participants, enhancing the ethical integrity of the research.

4. Data Analysis

Data analysis was accomplished using IBM SPSS-25.0. The relationship between self-compassion, perceived stress, and QOL was examined using Pearson product-moment correlation. Mediation was performed with Model 4 of the PROCESS macro-Hayes for SPSS.

4.1. Results

4.1.1. Demographics

of the study are demonstrated first. Predominantly, the participants fell within the 40 to 50-year age bracket, with a higher representation of females. A significant portion of the cohort possessed a graduate degree (28 participants; 33.3%) and belonged to the lower middle class (39 participants; 46.4%). Among the participants, breast cancer was prevalent, particularly among females (24 individuals, 28.6%), predominantly in the 2nd and 3rd stages (66 participants; 78.6%), and a substantial number of cancer patients were undergoing chemotherapy treatment (33 participants; 39.3%). These demographics provide a comprehensive overview of the study's participant characteristics.

4.1.2. Correlation analysis (Table 2)

discovered that perceived stress, resilience, and QOL were significantly correlated. Perceived stress was negatively correlated with self-compassion ($r = -.813$, $p < .01$). and it was also negatively correlated with quality of life ($r = -.690$, $p < .01$). Self-compassion was positively correlated with QOL ($r = .683$), $p < .01$).

4.1.3. Mediation analysis (Table 3)

was performed using the Mediation Model (Model 4) on the Process Macro to investigate the mediating impact of self-compassion on the relationship between perceived stress and QOL.

Table 1: Sociodemographic characteristics of Participants

Sample Characteristics	*F*	%	Sample Characteristics	*F*	%
Age			Types of Cancer		
18-28	11	13.1	Oral Cancer	15	17.9
29-38	32	38.1	Breast Cancer	24	28.6
40-50	41	48.8	Throat cancer	10	11.9
Gender			Brain tumor	3	3.6
Male	37	44.0	Intestinal cancer	10	11.9
Female	47	56.0	Prostate cancer	4	4.8
Education			Stage of Cancer		
Primary	13	15.5	1st	18	21.4
Matric	22	26.2	2nd	33	39.3
Intermediate	16	19.0	3rd	33	39.3
Graduate	28	33.3	Treatment of Cancer		
Postgraduate	5	6.0	Chemotherapy	33	39.3
SES			Surgery	25	29.8
Poor	19	22.6	Radiation	12	14.3
Lower middle	39	46.4	Medical	11	13.1
			Other	3	3.6
Middle	20	23.8			
Upper middle	6	6.2			

Note. N=84

The indirect effect of perceived social support on quality of life is significant; effect = -.617, bootstrapped SE = .246, 95% CI [-1.134 to -.159]. The direct effect of perceived stress on QOL in the presence of resilience is also significant. This model suggests that self-compassion partially mediates the relationship between perceived stress and QOL.

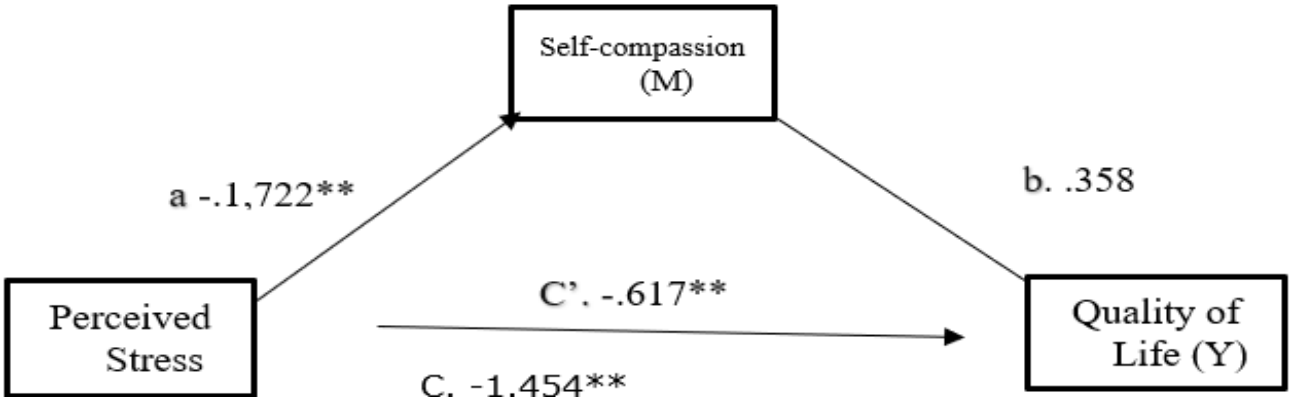
Table 2: Descriptive Statistics and Correlations for Perceived Stress, Quality of Life and Self-compassion (N=84)

Variable	N	M	SD	1	2	3
1. PSS	84	19.40	8.04	—		
2. QOL	84	83.40	16.95	−.690**	—	
3. SCS	84	83.43	17.03	−.813**	.683**	—

**p < .01. PSS = Perceived stress scale. QOL= Quality of life scale. SCS = Self-compassion Scale

The result of Table 2 indicates a significant positive relationship among Self-compassion and QOL, whereas a significant negative relationship with perceived stress.

Figure 1: Mediation effects of self-compassion on the relationship of perceived stress and QOL, and standardized Beta values Between Paths



Results from Figure 1: Simple mediation analysis suggested that self-compassion is ultimately connected to QOL through its correlation with perceived stress. As can be seen in Figure 1, self-compassion informed a high relationship with perceived stress (a =-.1,722, p = .000) as linked to a lower association between perceived stress and QOL (b = .358, p = .007). Total effect was (c= -1.45, p= .000). The direct effect was determined consuming 5000 bootstrap examples, and a 95% bias-modified confidence interval was obtained (c'= -1.454) is above zero (-1.39 to -.28) and indirect effect (ab = -.617) was also entirely above zero (-.525 to -.075). Moreover, self-compassion reported a higher QOL even after considering the indirect effect of perceived stress.

Table 3: Summary of Mediation affects self-compassion on the relationship among perceived stress and QOL

Path	Coeff	SE	CI	*P*
Path a (PSS-SCS)	-1.722	.136	-1.992 to -1.451	.000
Path b (SCS-QOL)	.358	.131	-.096 to .620	.007
Total effect (c: PSS→QOL	-1.454	.168	-1.789 to -1.119	.000
Direct effect, c'.(PSS→QOL)	-.837	.272	-1.392 to -.283	.003
Indirect effect: a*b (PSS→QOL)	-.617	.114	-.525 to -.075	

Note: N=84, Bootstrap sample=5000

5. Discussion

This research explored the association between perceived stress and QOL where self-compassion acts as a mediator. The results showed a significant positive relationship between self-compassion and QOL. A negative relationship between perceived stress and QOL. It further discovered that self-compassion partially mediates the relationship between perceived stress and QOL in cancer patients. It means that perception of stress can decrease the QOL of cancer patients and if they are self-compassioned then stress level is reduced increasing their life quality. The outcomes of this research align with the findings of study held by Pinto-Gouveia et al. (2014) that indicates a positive correlation of self-compassion and QOL in the explored populace. Cultivating self-compassion proves beneficial in clinical settings for enhancing physical, psychological, and social well-being (Germer & Neff, 2013). These results are coherent with

recent study that has realized self-compassion to be a strong predictor of improved emotional well-being in people with chronic medical illnesses (Wren et al., 2012). In a cross-sectional survey, in which the QOL of patients was predicted by self-compassion and mindfulness. It was concluded that self-compassion was linked positively with the QOL of cancer patients undergoing chemotherapy (Garcia et al., 2021). Self-compassion appears to be a significant asset in terms of quality of life and serves as an optimal response to hardship and damaged mental circumstances (Huaiyu Zhang et al., 2019). People who are often self-compassionate are likely to be kind to themselves. They grasp and strive for success when faced with difficulties and disagreeable events, maintaining a balanced manner that combines understanding and ambition while dealing with emotional barriers (Chen, 2018; Kemper, Mo, & Khayat, 2015).

Finally, it can be concluded that the perception of stress negatively affects the health of the people diagnosed with cancer. For example, the research by Xiong et al. (2017) showed that higher levels of perceived stress among the cancer patients lead to worse physical and emotional comfort and lower QOL. Also, significant decrease in the QOL due to the high levels of the patients' stress perception, among the other factors, was found by Kim et al. (2018). Hence, the perception of stress worsens the health condition of the cancer patients. Furthermore, as indicated by the study done by Ravindran, Dalvin, Pulido, and Brinjikji (2019), perception of stress has a negative effect on the overall QOL among individuals diagnosed with cancer. Among cancer patients, aspect of self-compassion known as the affiliation dimension was discovered to be a predictor of reduced depressed and stress symptoms, with improved QOL (Pinto-Gouveia et al., 2014). This holds significant relevance, particularly in the context of individuals grappling with cancer. Majority of cancer patients in a nation with a high cancer problem (WHO, 2020) and a severely underdeveloped healthcare system (Onwujekwe et al., 2020; The Global Cancer Observatory, 2019; WHO, 2019) every day, confront tremendous obstacles while trying to determine what kind of medical treatment is suitable. This kind of thing, on top of the stress from cancer and its treatments, may make perceived stress rise, which in turn lowers QoL. Positive heath behaviors including self-compassion assist breast cancer patients in coping with stress and enhancing their recovery during treatment, so improving their QOL (Li, Wang, Yin, Li, & Li, 2018; Markovitz, Schrooten, Arntz, & Peters, 2015).

6. Conclusions and Policy Recommendations

The latest findings from this study shed light on how self-compassion, perceived stress and QOL are interconnected for cancer patients. In essence the study indicates that self-compassion positively influences quality of life positively, while perceived stress has a negative impact. Moreover, self-compassion acts as a mediator between perceived stress and QOL in cancer patients. These results imply that enhancing self-compassion and reducing perceived stress can enhance the quality of life for individuals battling cancer. To enhance the QOL for individuals battling cancer it is essential, for policy efforts to include self-compassion initiatives in treatment plans implement stress relief methods such as practices educate on the significance of self-care provide support, for health services advocate for comprehensive cancer care policies and invest in research to understand how self-compassion influences long term patient wellbeing. It is recommended that the Pakistani government consider implementing these interventions based on the study's implications.

6.1. Practical Implications

Research on self-compassion, perceived stress, and QOL among cancer patients yields practical implications for healthcare stakeholders. Incorporating self-compassion interventions into cancer care programs, establishing psychosocial support initiatives, and providing educational training for healthcare professionals and caregivers are crucial steps. Holistic care approaches that consider both physical and psychological well-being, alongside policy development for mental health integration in cancer care, can significantly enhance patient outcomes. Educational programs for patients, long-term follow-up strategies, and continuous research are essential components. Collaboration among healthcare professionals and interdisciplinary approaches further strengthens the development and implementation of comprehensive interventions, contributing to improved overall well-being for individuals facing cancer.

References

Al-Ghabeesh, S. H., Al-Kalaldah, M., Rayan, A., Al-Rifai, A., & Al-Halaiqa, F. (2019). Psychological distress and quality of life among Jordanian women diagnosed with breast cancer: the role of trait mindfulness. *European journal of cancer care, 28*(5), e13082. doi:https://doi.org/10.1111/ecc.13082

Chen, S. (2018). Give yourself a break: the power of self-compassion. *Harv Bus Rev, 96*(5), 117-123.

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of health and social behavior*, 385-396. doi:https://doi.org/10.2307/2136404

Dehghan, M., Jazinizade, M., Malakoutikhah, A., Madadimahani, A., Iranmanesh, M. H., Oghabian, S., . . . Zakeri, M. A. (2020). Stress and quality of life of patients with cancer: the mediating role of mindfulness. *Journal of Oncology, 2020*. doi:https://doi.org/10.1155/2020/3289521

Ferlay, J., Ervik, M., Lam, F., Colombet, M., Mery, L., Piñeros, M., Znaor, A., Soerjomataram, I., & Bray, F. . (2021). *Global Cancer Observatory: Cancer Today. Lyon, France: International Agency for Research on Cancer*. Retrieved from https://gco.iarc.fr/today, accessed [29 09 2021]

Galić, S., Glavić, Ž., & Cesarik, M. (2014). Stress and quality of life in patients with gastrointestinal cancer. *Acta Clinica Croatica, 53*(3.), 279-290.

Garcia, A. C. M., Junior, J. B. C., Sarto, K. K., da Silva Marcelo, C. A., das Chagas Paiva, E. M., Nogueira, D. A., & Mills, J. (2021). Quality of life, self-compassion and mindfulness in cancer patients undergoing chemotherapy: A cross-sectional study. *European Journal of oncology nursing, 51*, 101924. doi:https://doi.org/10.1016/j.ejon.2021.101924

Germer, C. K., & Neff, K. D. (2013). Self-compassion in clinical practice. *Journal of clinical psychology, 69*(8), 856-867. doi:https://doi.org/10.1002/jclp.22021

Isfahani, P., Corani Bahador, R., Peirovy, S., & Afshari, M. (2022). Quality of life among cancer patients in Iran. *Health Education and Health Promotion, 10*(1), 23-31.

Jitender, S., Mahajan, R., Rathore, V., & Choudhary, R. (2017). Quality of life of cancer patients. *Journal of experimental therapeutics & oncology, 12*(3).

Kemper, K. J., Mo, X., & Khayat, R. (2015). Are mindfulness and self-compassion associated with sleep and resilience in health professionals? *The Journal of Alternative and Complementary Medicine, 21*(8), 496-503. doi:https://doi.org/10.1089/acm.2014.0281

Kim, M. K., Lee, S. M., Bae, S.-H., Kim, H. J., Lim, N. G., Yoon, S.-J., . . . Jo, M.-W. (2018). Socioeconomic status can affect pregnancy outcomes and complications, even with a universal healthcare system. *International journal for equity in health, 17*, 1-8. doi:https://doi.org/10.1186/s12939-017-0715-7

Kwon, I. G., Ryu, E., Noh, G. O., & Sung, Y. H. (2012). Health-related quality of life in cancer patients between baseline and a three-year follow-up. *European Journal of oncology nursing, 16*(2), 131-136. doi:https://doi.org/10.1016/j.ejon.2011.05.004

Li, Y., Wang, K., Yin, Y., Li, Y., & Li, S. (2018). Relationships between family resilience, breast cancer survivors' individual resilience, and caregiver burden: A cross-sectional study. *International journal of nursing studies, 88*, 79-84. doi:https://doi.org/10.1016/j.ijnurstu.2018.08.011

Markovitz, S. E., Schrooten, W., Arntz, A., & Peters, M. L. (2015). Resilience as a predictor for emotional response to the diagnosis and surgery in breast cancer patients. *Psycho-oncology, 24*(12), 1639-1645. doi:https://doi.org/10.1002/pon.3834

Neff, K. (2003). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and identity, 2*(2), 85-101. doi:https://doi.org/10.1080/15298860309032

Neff, K. D. (2009). The role of self-compassion in development: A healthier way to relate to oneself. *Human development, 52*(4), 211-214. doi:https://doi.org/10.1159/000215071

Okwuosa, L. N., Onu, D. U., & Onyedibe, M.-C. C. (2024). Perceived stress and health-related quality of life in cancer patients: the mediating role of religious coping. *Current Psychology, 43*(4), 3166-3174. doi:https://doi.org/10.1007/s12144-023-04510-7

Onwujekwe, O., Orjiakor, C. T., Hutchinson, E., McKee, M., Agwu, P., Mbachu, C., . . . Ichoku, H. (2020). Where do we start? Building consensus on drivers of health sector corruption in Nigeria and ways to address it. *International Journal of Health Policy and Management, 9*(7), 286.

Pinto-Gouveia, J., Duarte, C., Matos, M., & Fráguas, S. (2014). The protective role of self-compassion in relation to psychopathology symptoms and quality of life in chronic and in cancer patients. *Clinical psychology & psychotherapy, 21*(4), 311-323. doi:https://doi.org/10.1002/cpp.1838

Ravindran, K., Dalvin, L. A., Pulido, J. S., & Brinjikji, W. (2019). Intra-arterial chemotherapy for retinoblastoma: an updated systematic review and meta-analysis. *Journal of neurointerventional surgery, 11*(12), 1266-1272. doi:https://doi.org/10.1136/neurintsurg-2019-014909

Saxena, S., Orley, J., & Group, W. (1997). Quality of life assessment: the World Health Organization perspective. *European psychiatry, 12*, 263s-266s. doi:https://doi.org/10.1016/S0924-9338(97)89095-5

Scheier, M. F., & Carver, C. S. (2012). Goals and confidence as self-regulatory elements underlying health and illness behavior. In *The self-regulation of health and illness behaviour* (pp. 18-42): Routledge.

Singh, H., Kaur, K., Banipal, R. P. S., Singh, S., & Bala, R. (2014). Quality of life in cancer patients undergoing chemotherapy in a tertiary care center in Malwa Region of Punjab. *Indian journal of palliative care, 20*(2), 116.

Slezáčková, A., Geprtová, A., & Světlák, M. (2021). Protective factors of perceived stress in patients with multiple myeloma. *Klinicka Onkologie*, 2S111-112S113.

Terry, M. L., & Leary, M. R. (2011). Self-compassion, self-regulation, and health. *Self and identity, 10*(3), 352-362. doi:https://doi.org/10.1080/15298868.2011.558404

The Global Cancer Observatory, G. (2019). *Cancer fact sheet*. Retrieved from https://gco.iarc.fr

Waqas, A., Raza, N., Lodhi, H. W., Muhammad, Z., Jamal, M., & Rehman, A. (2015). Psychosocial factors of antenatal anxiety and depression in Pakistan: is social support a mediator? *PloS one, 10*(1), e0116510. doi:https://doi.org/10.1371/journal.pone.0116510

WHO. (2019). *World health statistics 2019*. Retrieved from https://www.who.int/publications-detail-redirect/9789241565707

Wren, A. A., Somers, T. J., Wright, M. A., Goetz, M. C., Leary, M. R., Fras, A. M., . . . Keefe, F. J. (2012). Self-compassion in patients with persistent musculoskeletal pain: relationship of self-compassion to adjustment to persistent pain. *Journal of pain and symptom management, 43*(4), 759-770. doi:https://doi.org/10.1016/j.jpainsymman.2011.04.014

Xiong, W., Ai, Y.-Q., Li, Y.-F., Ye, Q., Chen, Z.-T., Qin, J.-Y., . . . Li, W.-H. (2017). Microarray analysis of circular RNA expression profile associated with 5-fluorouracil-based chemoradiation resistance in colorectal cancer cells. *BioMed research international, 2017*. doi:https://doi.org/10.1155/2017/8421614

Zhang, H., Watson-Singleton, N. N., Pollard, S. E., Pittman, D. M., Lamis, D. A., Fischer, N. L., . . . Kaslow, N. J. (2019). Self-criticism and depressive symptoms: Mediating role of self-compassion. *OMEGA-Journal of Death and Dying, 80*(2), 202-223. doi:https://doi.org/10.1177/0030222817729609

Zhang, H., Yip, P. S., Chi, P., Chan, K., Cheung, Y. T., & Zhang, X. (2012). Factor structure and psychometric properties of the Work-Family Balance Scale in an urban Chinese sample. *Social Indicators Research, 105*, 409-418. doi:https://doi.org/10.1007/s11205-010-9776-3