Volume 4, Issue 2, 2026

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

PERCEIVED STRESS, RESILIENCE, AND LONELINESS AMONG CANCER PATIENTS

Noor Yaseen[*1], Ayman Naeem[2], Maham Muzaffar[3], Nimra Aftab[4], Isra Ghani[5], Sabeen Naz[6], Wajeeha Tehreem[7]

[*1,3]*Lahore Leads University*
[2]*University of the Punjab*
[4,5,6,7]*University of Lahore*

[*1]noor.yaseen114@gmail.com ,[2]ayman.naeem19@gmail.com, [3]mahammuzaffar04@gmail.com, [4]nimrabuttar4949@gmail.com, [5]isra13633@gmail.com, [6]nsabi934@gmail.com, [7]mh7246053@gmail.com

DOI: https://doi.org/10.5281/zenodo.18504235

Keywords
Perceived Stress, Loneliness, Resilience, Cancer

Article History
Received: 07 December 2025
Accepted: 22 January 2026
Published: 06 February 2026

Corresponding Author: *
Noor Yaseen

Abstract

Objective: *Diagnosis and treatment of cancer present significant psychological issues that can affect the level of stress, resilience, and loneliness in patients. The objectives of the current study were to test connections between perceived stress, resilience, and loneliness in cancer patients, as well as to find out the differences depending on the residence area.*

Method: *The correlational research design was used. A total of 100 cancer patients who were recruited (40% male, 60% female) with the age range 20-80 years were included in the sample using purposive sampling in healthcare facilities in Pakistan. The participants were to complete a Demographic Information Performa, Perceived Stress Scale-10 (PSS-10), Resilience Scale (RS), and UCLA Loneliness Scale (Urdu versions).*

Results: *Perceived stress had significant positive relations with overall resilience and its subscales, personal competence and self-acceptance. Perceived stress had weak and non-significant association with loneliness. There was a poor negative correlation between resilience and loneliness. There was a significant difference in resilience and self-acceptance in rural participants over urban ones, but no significant differences at perceived stress and loneliness.*

Conclusion: *The results demonstrate the ability of perceived stress and resilience to interact complexly in cancer patients and emphasize resilience as an important psychosocial resource. Loneliness may be prevented by high levels of stress by management by cultural and contextual factors like having a good family support system. The findings facilitate the use of culturally sensitive psychosocial interventions based on resilience in oncology care to support psychological well-being and quality of life.*

Introduction

Cancer and its uncontrolled cell growth and an extremely high rate of reported mortality and cases of diagnosis is a significant public health issue. It is projected that by 2040, more than 28.4 million cancer cases will be recorded across the world. Globally, approximately 19.3 million new cancer diagnoses were made in the year 2020,

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

18.1 million being non-melanoma skin cancer only. Cancer claimed the lives of approximately 10.0 million individuals the same year. Increases of 2.26 million, 2.21 million, 1.089 million, and 0.96 million and 1.93 million cases have been registered in cancer of the breast, lung, stomach, liver and colon respectively. Cancer is increasingly becoming common in Pakistan with an estimated 19 million new cases in 2020 alone. Food contamination, the use of gutkhas, paan chewing, and lack of diets are major risk factors that in combination with the emergence of cancerous conditions, can be used in this country (Ali et al., 2022).

The process of cancer diagnosis and treatment is life-altering to cancer patients, which makes it demoralizing (Grassi et al., 2017). Recent discoveries in the treatment of cancer are the leading frontiers to biomedical therapy and they include chemotherapy, immunotherapy, targeted therapy and radiotherapy. These methods are the important steps towards the enhancement of the quality of life of patients and their prolonged survival rates (Falzone et al., 2018; Correia et al., 2021). Besides the physical difficulties that come with cancer and its interventions, diagnosis of cancer is a very stressful experience and can be life altering to the cancer patient. This diagnosis has psychological effect that may result in a variety of severe health outcomes, such as psychiatric disorders (Vin-Raviv et al., 2013).

The perceived stress is an international and overall stress framework comprising the interaction between people and the environment when the stressors exist (Cohen et al., 1983). The perceived stress may be described as the level of how people evaluate situations in their lives as stressful (Phillips et al., 2023). Stress may cause physiological, behavioral, and psychological changes, the consequences of which may be different detrimental effects, including cardiovascular disease, increased negativity, low self-esteem, and a lack of self-control (Fiorilli et al., 2019). Chronic experienced stress may cause unfavorable mental effects, such as anxiety disorders and depression (Wang et al., 2018). High-perceived stress has been linked with anxiety, depressive symptoms, emotional distress, and a low quality of life (Li et al., 2020). In addition, long-term stress has been found to impact the neuroendocrine and immune pathways, which may have an effect on disease progression and recovery (Antoni et al., 2006). These results point to perceived stress as an important psychosocial factor determining psychological and physiological cancer outcomes.

Loneliness, which can be described as the subjective sense of not being socially connected, and social isolation, which can be defined as the lack of any social interactions or relations to other people (Lasha et al., 2020), is prevalent among cancer patients and causes adverse health outcomes such as sleep disorders, anxiety, and depressive symptoms (Jaremka et al., 2013). In particular, in the case of patients with a cancer diagnosis, the expectations of emotional support are more susceptible to increase after the diagnosis, but such expectations cannot be satisfied completely because of subjective or objective reasons, which consequently result in increased loneliness (Adams et al., 2017).

The extensive definition of resilience has been presented in citing protective individual traits during the adaptation to cancer (Rowland and Baker, 2005). The dynamic capacity of the people to effectively retain or restore their mental wellbeing amidst considerable life challenges or threat has been defined as resilience (Rutter, 1987). Resilience could be contingent upon a number of factors such as positive affect, cognitive flexibility like acceptance, active coping style and spirituality (Southwick et al., 2005). Nevertheless, regarding cancer, resilience has been associated with positive emotional adjustment, reduced perceived stress, more coping mechanisms, and improved quality of life (Min et al., 2013; Seiler and Jenewein, 2019). Strong cancer patients have a higher chance of adopting adaptive coping, controlling emotions, and having hope in the course of the disease.

According to the stress-buffering model, the adverse consequences of stress and social adversity on the mental health of individuals can be alleviated by psychological resources, including resilience (Southwick et al., 2014). This model is supported by emerging information on cancer

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

populations. Ban and Bai (2024) discovered that resilience mediated the association between perceived stress, loneliness and sleep disturbances in breast cancer patients, which suggests that increased resilience reduced the negative impacts of psychosocial stressor.

Despite the fact that perceived stress, loneliness, and resilience have been considered as independent factors, which can be individually linked to the psychological outcomes of cancer patients, the overall interaction of these variables is not studied thoroughly. Much is currently in the literature that deals with individual psychosocial variables or discrete cancer diagnoses in order to generalize the results. Moreover, the concept of resilience, though it has been noted to be a modifiable protective factor, has not been given the appropriate attention as a buffering effect in relation to perceived stress as well loneliness on a single platform. It is specifically important to understand the interrelationships between these constructs in situations where psychosocial cancer care is scarce and cultural aspects might affect the perception of stress and social connectedness. The interaction between resilience and perceived stress and loneliness could be examined to offer some meaningful insights into the design of specific psychosocial interventions that could be used to decrease distress, increase adaptive coping levels, and overall well-being in cancer patients.

Thus, the current research has been justified by the need to examine the correlations between perceived stress, loneliness, and resilience in cancer patients. The results of the given research could be added to the current body of literature and used to conduct evidence-based interventions that facilitated psychological resilience and enhanced quality of life in cancer care.

Methodology

Research Design and Sample

The correlational research design was used to test the associations between perceived stress, resilience, and loneliness among cancer patients. The research adopted a purposive sampling approach, which is in non-probability sampling whereby the participants are recruited depending on the pre-established inclusion criteria and the researcher's discretion.

The sample consisted of patients diagnosed with any type of cancer. Since such a high number of cancer patients were not possible due to the practical considerations, the estimation of the sample size was implemented with G+ Power 3.1.9.2 (Faul et al., 2009). A multiple regression to analyze the power (six predictors, alpha =.05, statistical power =.95, small effect size = f 2 =.15) revealed the minimum required sample size of N = 89. Also, power calculation of an independent samples t-test at an alpha of 0.05, power of 0.95, and a small-to-medium sized effect (Cohen d = 0.50) indicated a sample size of N 210. Based on the aspect of feasibility and the possibility to reliably estimate the small effects, the final sample of the present study was comprised of N = 100 participants.

Inclusion and Exclusion Criteria

The inclusion criteria were that the participants had to:

- Had known diagnosis of any type of cancer
- Were between 20 and 80 years of age
- Has been diagnosed with a chronic illness.

The participants were excluded who:

- Suffered a diagnosed psychotic disorder.
- Have severe physical disability that would not allow filling in questionnaires.

Data Collection Tools

Demographic Information Performa. The background information such as age, gender, type of cancer, duration of illness and family system was gathered using a self-constructed Demographic Information Performa.

Resilience Scale: The Resilience Scale (RS) created by Wagnild and Young (1993) was used to measure resilience. The scale comprises 25 items with a Likert-type response scale and assesses the concept of resilience in two subscales, which include Personal Competence (17 items),

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

and Self-Acceptance and Life Acceptance (8 items). These subscales demonstrate five main elements of resilience, which are equanimity, perseverance, self-confidence, meaningfulness, and existential aloneness. The RS has shown an acceptable internal consistency where the Cronbach alpha coefficients were found to be between .73 and .91.

Loneliness Scale: The UCLA Loneliness Scale that was initially created by Russell et al. (1978) and later translated into Urdu by Anjum and Batool (2016) was used to measure Loneliness. This scale has 20 items that are rated on a four point response scale that ranged between never and often. There are nine items that are reverse-scored. The total scores are between 20 and 80 with the high ones depicting the personal experience of loneliness. The Urdu version has depicted satisfactory psychometric qualities.

Perceived Stress Scale (PSS-10): The perceived stress was measured with the help of the 10-item Perceived Stress Scale (PSS-10) created by Cohen et al. (1983) and translated into Urdu by Amna Tahira and Rukhsana Kausar (2013). The items are scaled in a five-point Likert scale that has never (0) to very often (4). There are four items that are reverse scored and put in a positive form. The end scores go between 0 and 40 with higher scores indicating more perceived stress. The scale has good internal consistency, and the reliability coefficients reported are.82-84 (Roberti et al., 2006).

Procedure: Relevant authorities and original scale authors were consulted before the collection of the data. Entry of participants was done by informed consent where the study was explained to them, and they were assured of confidentiality. The booklet of the questionnaire consisted of the demographic form and standardized measurements and took about 20-25 minutes to fill in. In the first instance, 150 cancer patients were approached. Data regarding 50 respondents were also eliminated because of unfinished data or their response pattern that showed that they were not taking the answers seriously, which might influence the normality of the data. Data of 100 participants were analyzed finally, which fulfilled the analytical requirements in the study.

Results

Table 1: *Demographic Characteristics of Participants (N=100)*

Variable	
Mean Age (SD)	42.36 (14.11)
Gender %	
Male	40
Female	60
Residence	
Rural	47
Urban	53
Cancer Stage	
Stage 1	29
Stage 2	50
Stage 3	14
Stage 4	7
Duration of Illness	
1 month – 9 years	98
10 years – 20 years	2
Family History of Cancer	
Yes	54
No	46

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

The sample size was 100 patients suffering cancer with an average age of 42.36 years (SD = 14.11) and 40 and 60 are the percentages of males and females respectively. Majority of the participants were diagnosed at Stage II (50%), had been affected by the illness between 1 month to 9 years (98%), and more than half had a positive family history of cancer (54%).

Table 2: ***Correlation among Perceived Stress, Resilience and Loneliness (N=100)***

Scales	PSS	RS	PC	SA	LS
PSS	-	.34**	.33**	.26**	.03
RS		-	.97**	.88**	-.19
PC			-	.74**	-.19
SA				-	-.19
LS					-

The results of correlation analysis results showed that overall resilience, personal competence, and self-acceptance had small to moderate positive and significant relationships. But loneliness was not significantly connected with perceived stress. Resilience positively correlated with personal competence and self-acceptance and showed a very strong positive relationship indicating that these two dimensions are highly related attributes of resilience. Conversely, resilience was weakly negatively correlated with loneliness, and implies that increasing resilience tends to be associated with decreasing feelings of loneliness, but this was an action bordering conventional levels of statistical significance. On the same note, personal competence and self-acceptance had a strong positive relationship. Personal competence and self-acceptance had weak, non-significant negative correlations with loneliness.

Table 3: ***T-test among Urban and Rural Resident Cancer Patients (N=100)***

Variable	**Area**	**M**	**SD**	**t**	**p**
Perceived Stress	Urban	20.44	3.86	-.57	.05
	Rural	21.50	7.94	-.32	
Resilience	Urban	108.98	21.29	-2.78	.02
	Rural	135.83	33.37	-1.93	
Personal	Urban	72.59	15.65	-2.68	.25
Competence	Rural	91.35	19.35	-2.25	
Self-Acceptance	Urban	32.08	7.52	-2.23	.01
	Rural	39.83	12.81	-1.45	
Loneliness	Urban	31.4	7.55	-.57	.05
	Rural	32.2	5.96	-.32	

The independent-samples t-tests were used to identify differences in perceived stress, resilience, personal competence, self-acceptance, and loneliness in urban and rural cancer patients. Findings showed that there was no statistically significant difference in the perceived stress between urban and rural individuals. There was a major disparity in the general resilience where the rural participants scored higher than the urban participants. On the same note, self-acceptance also varied by area of residence with the rural patients indicating higher self-acceptance than urban patients. There were no major differences between urban and rural groups in personal competence or loneliness with similar level of loneliness being reported by both groups.

Discussion

The current analysis discussed the correlations between perceived stress and resilience and loneliness among cancer patients. Generally, the results partially confirm the hypotheses

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

presented, and reveal the multifaceted interaction between psychosocial factors involved in cancer experience. As the previous studies suggested, perceived stress had a significant and close correlation with resilience, which means that the appraisal of stress is highly intertwined with the adaptive abilities of the patient in the face of a life-threatening illness (Cohen et al., 1983; Seiler and Jenewein, 2019). Even though resilience is typically conceptualized in terms of the protective quality helping lessen the stress, findings of positive correlations have been observed in clinical samples where increased resilience indicates active coping with stress, but not the absence of stress (Min et al., 2013).

The theoretical framework of resilience presented by Wagnild and Young (1993) was found to have a strong positive connection with its fundamental dimensions, including personal competence and self-acceptance, which supports its theoretical framework. These results imply that patients with cancer who consider themselves competent and are able to accept circumstances in their lives are more likely to exhibit the overall psychological resilience. Stress-buffering model reveals that resilience was weakly negatively correlated with loneliness and resilience could alleviate the feeling of being socially disconnected, although that correlation was not significant (Southwick et al., 2014; Ban and Bai, 2024).

Although this is contrary to expectation and some previous studies, loneliness did not correlate with a significant level of perceived stress. This can be due to cultural and contextual influences i.e. good family and society life in Pakistani society which may minimize subjective loneliness despite the high intensity of stress experienced by an individual after being diagnosed with cancer (Adams et al., 2017; Butt & Khalid, 2023; Zahid et al., 2021). Comparison by area also demonstrated that compared to urban patients, rural patients reported greater resilience and self-acceptance which could be explained by the fact that in rural settings where patients are more socially integrated, there is more social cohesion and acceptance of illness as a condition of life.

Finally, the results highlight resilience as a psychosocial tool of cancer patients. Resilience-focused interventions (specifically self-acceptance and personal competence) can potentially lead to positive outcomes related to psychological well-being and decreased loneliness in the oncology context.

Implication of the study

The conclusions of the current research have significant clinical and practical implications on psychosocial oncology care. The positive correlation between perceived stress and resilience demonstrates the necessity to incorporate resilience-enhancing interventions as a part of everyday cancer care. Psychological education on self-acceptance, coping and emotional regulation can aid in the alleviation of stress and generally enhance the wellness of cancer patients. Increased resilience among rural patients implies that social and cultural resources are available to capitalize on psychological adjustment. Psychology practitioners can apply such results to develop culturally competent, evidence-based treatment interventions to increase resilience and minimize psychosocial distress.

Limitations of the Study

The study has various limitations even though it has made in its contribution. A correlational type of research design constrains causal interpretation among the perceived stress, resilience, and loneliness. The purposive sampling method and the relative small sample limit the applicability of the findings to the larger scope of cancer population. Self-report measures can also have the effects of response bias and social desirability. Also, the research failed to adjust cancer type, stage of treatment, and comorbid medical conditions, which could have some effects on the results of the psychological outcome. To be able to see the changing relationships between these constructs, future research needs to utilize longitudinal designs, larger and more diverse samples, and incorporate clinical variables.

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

REFERENCES

Adams, R. N., Mosher, C. E., Winger, J. G., Abonour, R., & Kroenke, K. (2017). Cancer-related loneliness mediates the relationships between social constraints and symptoms among cancer patients. *Journal of Behavioral Medicine*, *41*(2), 243–252. https://doi.org/10.1007/s10865-017-9892-5

Ali, A., Manzoor, M. F., Ahmad, N., Aadil, R. M., Qin, H., Siddique, R., Riaz, S., Ahmad, A., Korma, S. A., Khalid, W., & Aizhong, L. (2022). The Burden of Cancer, Government strategic policies, and challenges in Pakistan: A Comprehensive review. *Frontiers in Nutrition*, *9*, 940514. https://doi.org/10.3389/fnut.2022.940514

Anjum, W., & Batool, I. (2016). Translation and cross-language validation of UCLA loneliness scale among adults. *Sci Int*, *28*(4), 517–521.

Antoni, M. H., Lutgendorf, S. K., Cole, S. W., Dhabhar, F. S., Sephton, S. E., McDonald, P. G., Stefanek, M., & Sood, A. K. (2006). The influence of bio-behavioural factors on tumour biology: pathways and mechanisms. *Nature Reviews. Cancer*, *6*(3), 240–248. https://doi.org/10.1038/nrc1820

Ban, Y., & Bai, H. (2024). Association between perceived stress, loneliness and sleep disorders among breast cancer patients: the moderating roles of resilience. *Psychology Health & Medicine*, *29*(8), 1466–1478. https://doi.org/10.1080/13548506.2024.2344127

Butt, S. S., & Khalid, R. (2023). Unsung heroes of cancer care: loneliness, social support, and quality of life in informal cancer caregivers during COVID-19 pandemic. *Pakistan Journal of Psychological Research*, *38*(2), 207–236. https://doi.org/10.33824/pjpr.2023.38.2.13

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*(4), 385–396.

Correia, J. H., Rodrigues, J. A., Pimenta, S., Dong, T., & Yang, Z. (2021). Photodynamic Therapy Review: Principles, photosensitizers, applications, and future directions. *Pharmaceutics*, *13*(9), 1332. https://doi.org/10.3390/pharmaceutics13091332

Falzone, L., Salomone, S., & Libra, M. (2018). Evolution of cancer pharmacological treatments at the turn of the third millennium. *Frontiers in Pharmacology*, *9*, 1300. https://doi.org/10.3389/fphar.2018.01300

Faul, F., Erdfelder, E., Buchner, A., & Lang, A. (2009). Statistical power analyses using G*Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149–1160. https://doi.org/10.3758/brm.41.4.1149

Fiorilli, C., Capitello, T. G., Barni, D., Buonomo, I., & Gentile, S. (2019). Predicting adolescent Depression: The interrelated roles of Self-Esteem and Interpersonal Stressors. *Frontiers in Psychology*, *10*, 565. https://doi.org/10.3389/fpsyg.2019.00565

Grassi, L., Spiegel, D., & Riba, M. (2017). Advancing psychosocial care in cancer patients. *F1000Research*, *6*, 2083. https://doi.org/10.12688/f1000research.11902.1

Jaremka, L. M., Fagundes, C. P., Glaser, R., Bennett, J. M., Malarkey, W. B., & Kiecolt-Glaser, J. K. (2013). Loneliness predicts pain, depression, and fatigue: Understanding the role of immune dysregulation. *Psychoneuroendocrinology*, *38*(8), 1310–1317. https://doi.org/10.1016/j.psyneuen.2012.11.016

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

Kreibig, S. D., Wilhelm, F. H., Roth, W. T., & Gross, J. J. (2011). Affective modulation of the acoustic startle: Does sadness engage the defensive system? *Biological Psychology*, *87*(1), 161–163. https://doi.org/10.1016/j.biopsycho.2011.02.008

Leigh-Hunt, N., Bagguley, D., Bash, K., Turner, V., Turnbull, S., Valtorta, N., & Caan, W. (2017). An overview of systematic reviews on the public health consequences of social isolation and loneliness. *Public Health*, *152*, 157–171. https://doi.org/10.1016/j.puhe.2017.07.035

Li, J., Gao, W., Yang, Q., & Cao, F. (2020). Perceived stress, anxiety, and depression in treatment-naïve women with breast cancer: a case-control study. *Psycho-Oncology*, *30*(2), 231–239. https://doi.org/10.1002/pon.5555

Miaskowski, C., Paul, S. M., Snowberg, K., Abbott, M., Borno, H. T., Chang, S. M., Chen, L. M., Cohen, B., Cooper, B. A., Hammer, M. J., Kenfield, S. A., Kober, K. M., Laffan, A., Levine, J. D., Pozzar, R., Rhoads, K., Tsai, K. K., Van Blarigan, E. L., & Van Loon, K. (2021). Loneliness and symptom burden in oncology patients during the COVID-19 pandemic. *Cancer*, *127*(17), 3246–3253. https://doi.org/10.1002/cncr.33603

Phillips, R., Walsh, E., Jensen, T., Nagy, G., Kinard, J., Cernasov, P., Smoski, M., & Dichter, G. (2023). Longitudinal associations between perceived stress and anhedonia during psychotherapy. *Journal of Affective Disorders*, *330*, 206–213. https://doi.org/10.1016/j.jad.2023.03.011

Rowland, J. H., & Baker, F. (2005). Introduction: Resilience of cancer survivors across the lifespan. *Cancer*, *104*(S11), 2543–2548. https://doi.org/10.1002/cncr.21487

Russell, D., Peplau, L. A., & Ferguson, M. L. (1978). Developing a measure of loneliness. *Journal of Personality Assessment*, *42*, 290–294.

Rutter, M. (1987). Psychosocial resilience and protective mechanisms. *American Journal of Orthopsychiatry*, *57*(3), 316–331. https://doi.org/10.1111/j.1939-0025.1987.tb03541.x

Southwick, S. M., Bonanno, G. A., Masten, A. S., Panter-Brick, C., & Yehuda, R. (2014). Resilience definitions, theory, and challenges: interdisciplinary perspectives. *European Journal of Psychotraumatology*, *5*(1). https://doi.org/10.3402/ejpt.v5.25338

Southwick, S. M., Vythilingam, M., & Charney, D. S. (2005). The Psychobiology of Depression and Resilience to Stress: Implications for Prevention and Treatment. *Annual Review of Clinical Psychology*, *1*(1), 255–291. https://doi.org/10.1146/annurev.clinpsy.1.102803.143948

Vin-Raviv, N., Hillyer, G. C., Hershman, D. L., Galea, S., Leoce, N., Bovbjerg, D. H., Kushi, L. H., Kroenke, C., Lamerato, L., Ambrosone, C. B., Valdimorsdottir, H., Jandorf, L., Mandelblatt, J. S., Tsai, W., & Neugut, A. I. (2013). Racial disparities in posttraumatic stress after diagnosis of localized breast cancer: the BQUAL study. *JNCI Journal of the National Cancer Institute*, *105*(8), 563–572. https://doi.org/10.1093/jnci/djt024

Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the Resilience Scale. *Journal of Nursing Measurement*, *1*(2), 165–178.

Wang, J., Mann, F., Lloyd-Evans, B., Ma, R., & Johnson, S. (2018). Associations between loneliness and perceived social support and outcomes of mental health problems: a systematic review. *BMC Psychiatry*, *18*(1), 156. https://doi.org/10.1186/s12888-018-1736-5

Frontier in Medical & Health Research

ISSN: (e) 3007-1607 (p) 3007-1593

Zahid, N., Zahid, W., Khalid, W., Azam, I., Ikram, M., Hassan, A., Iftikar, H., Bhamani, S. S., Jabbar, A. A., Akhtar, S., Siddiqui, M. I., Awan, M. S., Asad, N., & Ahmad, K. (2021). Resilience and its associated factors in head and neck cancer patients in Pakistan: an analytical cross-sectional study. *BMC Cancer*, *21*(1), 888. https://doi.org/10.1186/s12885-021-08624-8

Zhao, J., Reese, J. B., Han, X., & Yabroff, K. R. (2024). Loneliness and mortality risk among cancer survivors in the United States: a retrospective, longitudinal study. *Journal of the National Comprehensive Cancer Network*, *22*(4), 244–248. https://doi.org/10.6004/jnccn.2023.7114