UNDERGRADUATE RESEARCH IN NATURAL AND CLINICAL SCIENCE AND TECHNOLOGY (URNCST) JOURNAL
Read more URNCST Journal articles and submit your own today at: https://www.urncst.com

RESEARCH PROTOCOL OPEN ACCESS

Investigating the Relationship Between Health Literacy and Mental Health Status and the Utilization of Mental Health Services in Older Adults Diagnosed with Cancer: A Research Protocol

Negar Keramati, BHSc Student [1]*

[1] Department of Biochemistry and Biomedical Sciences, McMaster University, Hamilton, Ontario, Canada L8S 4K1

*Corresponding Author: keramatn@mcmaster.ca

Abstract

Introduction: The utilization of mental health services has been shown to enhance treatment outcomes in older adults diagnosed with cancer, yet these services are underutilized. Health literacy level and mental health status of patients affect the degree to which they seek and utilize mental health services. Sociodemographic factors play a role in service use. The objective of the study is to examine how health literacy and mental health status impact the utilization of mental health services available among older adults diagnosed with cancer.

Methods: A sample of 120 older adults > 65 diagnosed with cancer will be recruited. Health literacy will be measured using the Health Literacy Questionnaire (HLQ). Mental health status will be measured using the 12-Item General Health Questionnaire (GHQ-12). The utilization of mental health services will be measured using a 7-item self-administered questionnaire. The statistical association between mental health service utilization, mental health status and health literacy will be investigated using Analysis of Covariance (ANCOVA). A qualitative analysis will be conducted based on the COM-B model with open-ended questions and analyzed using thematic analysis.

Results: A positive significant association between health literacy and mental heath service utilization is expected. An inverse significant association between mental health status and mental health service utilization is expected. It is anticipated that higher utilization of mental health services varies based on sociodemographic factors such as being female and having higher income.

Discussion: The study reports that being female and of higher income are associated with greater use of mental health services, likely due to increased health behaviour changes and better access to resources among educated, higher income individuals.

Conclusion: This study emphasizes the significant impact of health literacy and mental health status on the use of mental health services among older adults diagnosed with cancer. The importance of mental health services in the care of older adults highlights the need for further investigation in future research.

Keywords: health literacy; mental health; older adults; cancer

Introduction

The prevalence of cancer increases with age [1], and studies show that older adults > 65 are 11 times more likely to develop cancer [2], highlighting the importance of identifying the needs and opportunities for better quality care among these patients. There are various factors that impact quality of care and patient well-being including access to care [3], communication with healthcare providers [4], and mental health status [5]. Evaluating the mental health status of a patient diagnosed with cancer is critical as cancer has been associated with psychological distress, including anxiety, depression, post-traumatic stress, and reduced health-related quality of life, all of which adversely affect health outcomes [6, 7]. Research has demonstrated that the use of mental health services can improve mental health status of patients diagnosed with cancer; however, these services remain underutilized [7-9].

When examining factors that impact the utilization of mental health services among patients diagnosed with cancer, Health Literacy (HL) plays a crucial role in determining their ability to access and navigate available services effectively [10, 11]. HL is defined as the degree to which an individual can obtain, process, and comprehend health information to understand their disease and treatment process and make informed decisions about their health [12]. HL level is highly varied between populations in Canada and this gap widens according to age and level of

education [13]. Despite its major influence on the general health status of individuals [14], about 60% of Canadian adults and 88% of older adults have low HL [15, 16]. Sociodemographic factors, such as gender, are also associated with HL level and mental health service utilization among older adult cancer patients [13, 14]. Specifically, women are more likely to use mental health services [14].

High HL level among patients diagnosed with cancer can contribute to enhanced communication with healthcare providers [17], confidence in decision-making and self-management [18]. Patients with advanced health literacy skills are better equipped to seek and utilize various services [10], including mental health support services such as printed materials, mobile applications, and cognitive behavioral therapy (CBT) [19-22], which help them cope more effectively with the significant mental burden of the disease. Low HL has been associated with low treatment outcomes, and this could be due to a low understanding of symptoms [23]. This applies to mental health outcomes, as a result of a limited understanding of mental health symptoms [24, 25]. Research has shown the relationship between low HL and mental health status, revealing that low HL is associated with low mental health status. In a study among hospitalized cancer patients, it was found that having low HL was related to greater psychological distress, leading to mental health complications that are left untreated [23, 24, 25].The relationship between HL and mental health status with utilization of mental health services has not been well-explored. This study aims to examine how HL and mental health status impact the utilization of mental health services among older adults diagnosed with cancer.

Methods

This is a mixed methods study that will be completed online and administered by Qualtrics, an online academic survey platform. The survey takes approximately 50 minutes to complete. Participants will sign an informed consent form and will be approved by the McMaster Research Ethics Board.

Study Design

A total of 120 participants will be recruited to the study with an expected attrition rate of 20%. Eligible participants are >65 who have been diagnosed with cancer and receiving medical care at Juravinski Hospital and Cancer Centre (JHCC). JHCC sees more than 7,500 new patients each year and conducts over 110,000 patient visits annually, hence, the recruitment of 120 older adults is feasible within this setting [26]. Participants must be able to speak, understand and write in English and reside in Ontario. Participants with known diagnoses of psychiatric disorders and no access to internet and a smartphone are excluded from the study. Patients in advanced stages of cancer, diagnosed with Alzheimer's or dementia are also excluded from the study.

Recruitment

Oncologists working at JHCC, Hamilto, Ontario, are identified by snowball sampling. The research team will contact the oncologists to share a study poster that includes the link to the questionnaires with their patients. Eligible participants are to access the link to the questionnaires. Participants are informed that they can opt out of this study at any time during the survey.

Measures

Sociodemographic Questionnaire

A sociodemographic questionnaire will be used to collect information on the age, gender, race, marital status, education level, type of cancer, and income level of participants.

Health Literacy Questionnaire

Health literacy level will be evaluated using the Health Literacy Questionnaire (HLQ) which takes 7 to 40 minutes to complete [27]. It is comprised of two parts: part 1 consists of five domains about perceived level of support received from healthcare providers to manage their emotions and remain involved in their treatment process. Part 2 consists of four domains about self-efficacy in navigating the healthcare system. Each domain includes four to five items. Items in the HLQ part 1 are scored based on level of agreement from 1 to 4 (strongly disagree = 1 to strongly agree = 4). While items in HLQ part 2 are scored based on level of competence from 1 to 5 (cannot do or always difficult = 1 to very easy = 5). The score of each domain is calculated by summing the scores of its respective items and dividing this value by the total number of items within that domain. A higher domain score indicates higher health literacy.

General Health Questionnaire (GHQ)

Mental health status will be evaluated using the 12-Item General Health Questionnaire (GHQ-12). The GHQ-12 is a validated tool commonly used for screening psychological distress [28, 29, 30]. This questionnaire takes two minutes to complete. The GHQ-12 is comprised of six 'positively phrased' (PP) and six 'negatively phrased' (NP) items which assess positive and negative aspects of mental health over the past four weeks, respectively. PP items are positive descriptions of mood states (e.g., 'have you recently been able to concentrate on whatever you are doing?'), with responses 'better than usual', 'same as usual', 'less than usual' and 'much less than usual'. NP items are negative descriptions of mood states (e.g., 'have you recently lost much sleep over worry?'), with responses 'not at all', 'no more than usual', 'rather more than usual' and 'much more than usual'. Reponses are scored on a Likert scale. For PP items, 0 = better than usual, and

3 = much less than usual. For NP items, 0 = not at all, and 3 = much more than usual. The responses to all items are summed up to give a total score from 0 to 36. A higher score indicates greater psychological distress.

Mental Health Service Utilization Questionnaire

A mental health service utilization questionnaire is collaboratively developed by researchers, cancer patients, and healthcare providers. This 7-item self-administered questionnaire is developed to assess the utilization of mental health services which can include, but not limited to printed materials, mobile applications, and CBT, among older adult patients diagnosed with cancer. Items are divided into two domains: the first domain consists of three items assessing participants' use of mental health services (e.g., Have you ever taken prescription medication for feelings of anxiety and/or depression? [31]; have you ever received counseling or therapy from a mental health professional? [31]; and have you used any other form of mental health services such as printed materials (e.g. brochures and pamphlets) or virtual support services (e.g. mobile applications and text message support)? [32]). The second domain consists of four items and explores perceived familiarity and desire to utilize these services (e.g., If you felt that you had a mental health problem, how likely would you be to ask your doctor for help? [33]; how much do you agree with the following statement?: If I needed to seek professional help for my mental or emotional health, I would know where to access my hospital's resources. [34]; are you aware of mental health outreach efforts by your hospital (e.g. educational programs, awareness events, anti-stigma campaigns)? [34]; how much do you agree with the following statement?: There is a good support system in the hospital for patients going through difficult times. [34]). Reponses are scored on a Likert scale with 0 = not at all, and 3 = often. The responses to all items are summed up to give a total score from 0 to 21. A higher score indicates greater use of mental health services as well as perceived familiarity and desire to utilize these services.

Qualitative Assessment of Mental Health Service Utilization

Open-ended text feedback will be used to gather further insights on the utilization of mental health services. The open-ended questions will be based on the COM-B model to understand human behavior [35]. This approach will provide additional insights into the participants' experiences and perspectives. Illustrative questions are displayed in Table 1.

Table 1. Qualitative Open-Ended Survey Sample Questions

Illustrative Questions
(C) What mental health services have you used?
(O) What other mental health services do you think can benefit you?
(M) What improvement(s) have you felt in your mental health since using these services?

Data Analysis

The quantitative data analysis will be conducted using SAS software [36]. Descriptive statistics will be presented for the sociodemographic questionnaire, HLQ, and GHQ-12. The statistical association between research variables and the effects of covariates, including age, gender, race, marital status, education level, type of cancer, and income level will be examined using Analysis of Covariates (ANCOVA) at the significance level of $p < 0.05$ [37, 38]. ANCOVA will be used to statistically investigate the impact of health literacy and mental health status on mental health service utilization while controlling for sociodemographic factors.

Qualitative data from open text responses will be independently analyzed and coded by two researchers using NVivo R1 software [39, 40, 41]. Thematic analysis will be used to identify patterns within the data, uncovering the most prominent themes influencing the utilization of mental health services [42, 43]. To enhance the validity of the results and reach a level of agreement, conflicts in analysis will be reviewed by a third researcher. To ensure consistency in data coding, all researchers will be trained accordingly. Independent coding will be followed by a group discussion regarding overlaps and divergences [44]. An intercoder reliability assessment will be used to quantify the degree of agreement between coders [44].

Results

Participants are assessed for sociodemographic characteristics, HL level, and mental health status.

Sociodemographic Characteristics of Participants

The mean age of participants is anticipated to be 72.3±5.7. It is anticipated that 57% of participants identify as females. It is expected that 70% of the participants identify as White. Regarding marital status, 60% of participants are expected to be married. The education level of participants is expected to be 25% completed high school and 75% having higher education. It is anticipated that patients are diagnosed with breast cancer (30%), prostate cancer (20%), lung cancer (15%), colorectal cancer (12%), and other (23%). It is anticipated that at least 60% of participants are earning < $50,000/year.

Health Literacy Level

It is anticipated that 20% of participants will have low HL, 68% moderate, and 12% will have high HL.

Participants having higher education are anticipated to demonstrate high HL [45, 46].

Mental Health Status

It is anticipated that 40% of participants will demonstrate a GHQ-12 score of ≥14, indicating significant psychological distress, while 60% of participants will have a score of <14 indicating no psychological distress [47, 48].

Association Between HL and Mental Health Status with Mental Health Service Utilization

Health Literacy and Utilization of Mental Health Services

A positive correlation between HL level and the extent of mental health service utilization is anticipated. Participants with high HL are anticipated to significantly have more knowledge and awareness on mental health services available to them and use these services more frequently [10, 49]. It is anticipated that sociodemographic variables such as education and income significantly influence HL and utilization of mental health services. Participants with higher education and income have higher HL, leading to greater use of mental health services [50, 51]. Despite adequate health literacy, it is anticipated that participants with lower income face barriers in accessing these services [50, 51].

Mental Health Status and Mental Health Service Utilization

An inverse association between mental health status and mental health service utilization is anticipated [52]. The extent to which participants with lower mental health status are anticipated to utilize mental health services varies with sociodemographic factors such as gender and income. For instance, being female and having higher income are more likely to use mental health services [53].

Qualitative assessment through open-ended text feedback is expected to show that participants use counseling, therapy, CBT, and support groups as their preferred mental health service [54-56]. Participants are expected to express a need for personalized mental health services, including grief counseling and mindfulness-based stress reduction [57-60]. It is anticipated that participants express improvements in psychological well-being, and reductions in anxiety and depression [57, 58].

Discussion

The purpose of this study is to explore how HL and mental health status impact utilization of mental health services among older adults diagnosed with cancer.

It is anticipated that there is a positive correlation between HL and the utilization of mental health services [10, 49-51]. Participants with lower mental health status are less likely to utilize mental health services, a finding that is significantly influenced by sociodemographic factors such as gender and income [22, 52, 53, 61].

When compared with existing literature, anticipated findings align with previous research that highlight the role of HL in increasing utilization of healthcare services for preventive measures by older adults. Prior studies showed that higher HL is associated with increased engagement with healthcare providers and better treatment outcomes [17]. Research also shows that lower mental health status is associated with the underutilization of mental health services [22, 52, 53, 61].

In a study conducted among Korean older adults, the association between health literacy and utilization of mental health services have been positive, similar to the anticipated findings of the study [49]. Another study by Dufour et al. [10] found a positive relationship between HL and healthcare service utilization among older adults with chronic conditions in Quebec, Canada. Findings of these research support a positive relationship between HL and mental health service utilization. The inverse relationship between mental health status and mental health service utilization in older adults was also demonstrated by Rim et al. [62]. This study found that high psychological distress was associated with lower use of healthcare services among cancer survivors. McDonald et al. [52] explored the impact of sociodemographic factors on the association between mental health status and mental health service utilization. This study highlighted the clear disparities that exist when considering factors such as gender, income, and education, reporting that being female, of higher income and of higher education predicts greater use of mental health services. This is possibly due to females being more inclined to engage in health behaviour changes, especially women with higher education [63]. Individuals with higher income are more likely to practice self health-management due to having higher education and greater access to nutritious foods and healthcare services [64].

Ng et al. [65] explored the commonly used mental health services in 318 adults diagnosed with cancer, reporting that these services include information, medication, counselling (e.g., therapy and CBT), support groups, and self-management skills training. Zhu et al. [60] evaluated the impact of mindfulness-based stress reduction (MBSR), as a relatively new and less-used mental health intervention, on the quality of life, and psychological distress (including anxiety and depression) of patients with breast cancer under early chemotherapy. This study reported significant improvement in quality of life, as well as significant reduction in patients' anxiety and depression, which show that personalized mental health services are effective, yet underutilized. Lingens et al. [66] showed the effectiveness of brief psychosocial support (e.g., one to two sessions of patient-centred counselling) for the mental health of 787 adult patients with cancer. Within 3 months, improvement of patient mental health was observed through reduced distress, depressive and anxiety symptoms, and increased well-being and quality of life.

The strength of this study lies in its mixed-methods approach, including both quantitative and qualitative,

allowing an in-depth analysis of data. In addition, older adults diagnosed with cancer is an underrepresented population which is worth examining.

The limitations of the study should be acknowledged. This study is to be conducted in a primary site which limits the generalizability of the results. In addition, a larger population size would offer a more detailed and thorough understanding of the relationships explored. Future research should examine changes in the impact of health literacy and mental health status on the utilization of mental health services among older adults diagnosed with cancer. Additionally, attitudinal barriers, cultural beliefs, and mental health stigma have been shown to further reduce mental health service use among older adults and are worth examining [22, 52, 53, 62].

This study informs how mental health services could be utilized more among older adults diagnosed with cancer, which can contribute to improved health outcomes.

To manage internal validity-related bias, covariates are accounted for using ANCOVA, and two widely used and validated questionnaires are used which are the HLQ and GHQ-12. To address biases in external validity, the specializations of selected oncologists are considered, and a balanced number of various specializations are contacted to ensure maximum generalizability of the results. It is also acknowledged that the results cannot be generalized to other populations since the data collected is from older adult cancer patients who are receiving care at JHCC in Hamilton, Ontario [48].

Conclusions

This study highlights the critical role of HL and mental health status in the utilization of mental health services among older adults diagnosed with cancer. While higher HL is associated with better service utilization, those with lower mental health status remain underserved. Addressing the underutilization mental health services by this population sheds light on the need for all older adult cancer patients to receive the mental health support they need, ultimately improving their quality of life and treatment outcomes.

List of Abbreviations

ANCOVA: analysis of covariates
CBT: Cognitive behavioral therapy
GHQ-12: 12-item general health questionnaire
HL: health literacy
HLQ: health literacy questionnaire
JHCC: juravinski hospital and cancer centre

Conflicts of Interest

The author declares that they have no conflicts of interest.

Ethics Approval and/or Participant Consent

This research protocol did not require ethical approval or participant consent as it is a proposed study. This research protocol provides a potential study design and anticipated results based on peer-reviewed scientific articles.

Authors' Contributions

NK: designed the study, collected, and analysed data, drafted the manuscript, and gave final approval of the version to be published.

Acknowledgements

I would like to thank Patricia Acosta for her invaluable guidance and mentorship throughout this initiative.

Funding

This study was not funded.

References

[1] Siegel RL, Giaquinto AN, Jemal A. Cancer statistics, 2024. CA Cancer J Clin. 2024 Jan-Feb;74(1):12-49. https://doi.org/10.3322/caac.21820

[2] When Cancer Grows Old: Assessing the Socio-economic Burden of Cancer and Ageing and the Policies Required [Internet]. KPMG Services Pte. Ltd. [cited 2024 Sept 7]. Available from: https://assets.kpmg.com/content/dam/kpmg/sg/pdf/2022/02/socio-economic-burden-of-cancer-and-ageing.pdf

[3] Soto-Perez-de-Celis E, Chavarri-Guerra Y, Ramos-Lopez WA, Alcalde-Castro J, Covarrubias-Gomez A, Navarro-Lara Á, et al. Patient Navigation to Improve Early Access to Supportive Care for Patients with Advanced Cancer in Resource-Limited Settings: A Randomized Controlled Trial. Oncologist. 2021 Feb;26(2):157-164. https://doi.org/10.1002/onco.13599

[4] Li J, Luo X, Cao Q, Lin Y, Xu Y, Li Q. Communication Needs of Cancer Patients and/or Caregivers: A Critical Literature Review. J Oncol. 2020 May 7;2020:7432849. https://doi.org/10.1155/2020/7432849

[5] Karunanithi G, Sagar RP, Joy A, Vedasoundaram P. Assessment of Psychological Distress and its Effect on Quality of Life and Social Functioning in Cancer Patients. Indian J Palliat Care. 2018 Jan-Mar;24(1): 72-77. https://doi.org/10.4103/IJPC.IJPC_104_17

[6] Elkefi S, Trapani D, Ryan S. The role of digital health in supporting cancer patients' mental health and psychological well-being for a better quality of life: A systematic literature review. Int J Med Inform. 2023 Aug;176:105065. https://doi.org/10.1016/j.ijmedinf.2023.105065

[7] Caruso R, Breitbart W. Mental health care in oncology. Contemporary perspective on the psychosocial burden of cancer and evidence-based interventions. Epidemiol Psychiatr Sci. 2020 Jan 9;29:e86. https://doi.org/10.1017/S2045796019000866

[8] Wang YH, Li JQ, Shi JF, Que JY, Liu JJ, Lappin JM, et al. Depression and anxiety in relation to cancer incidence and mortality: a systematic review and meta-analysis of cohort studies. Mol Psychiatry. 2020 Jul;25(7):1487-1499. https://doi.org/10.1038/s41380-019-0595-x

[9] Nikbakhsh N, Moudi S, Abbasian S, Khafri S. Prevalence of depression and anxiety among cancer patients. Caspian J Intern Med. 2014 Summer;5(3): 167-70. PMCID: PMC4143739

[10] Dufour I, Lacasse A, Chouinard M-C, Chiu Y, Lafontaine S. Health Literacy and use of healthcare services among community-dwelling older adults living with chronic conditions. Clinical Nursing Studies. 2019 Mar 25;7(2). https://doi.org/10.5430/cns.v7n2p79

[11] Cho YI, Lee SY, Arozullah AM, Crittenden KS. Effects of health literacy on health status and health service utilization amongst the elderly. Soc Sci Med. 2008 Apr;66(8):1809-16. https://doi.org/10.1016/j.socscimed.2008.01.003

[12] Hasannejadasl H, Roumen C, Smit Y, Dekker A, Fijten R. Health Literacy and eHealth: Challenges and Strategies. JCO Clin Cancer Inform. 2022 Sep;6:e2200005. https://doi.org/10.1200/CCI.22.00005

[13] Murray TS, Hagey J, Willms D, Shillington R, Desjardins R. Health literacy in Canada: a healthy understanding. Available from: https://escholarship.org/uc/item/890661nm

[14] Shahid R, Shoker M, Chu LM, Frehlick R, Ward H, Pahwa P. Impact of low health literacy on patients' health outcomes: a multicenter cohort study. BMC Health Serv Res. 2022 Sep 12;22(1):1148. https://doi.org/10.1186/s12913-022-08527-9

[15] Agarwal G, Habing K, Pirrie M, Angeles R, Marzanek F, Parascandalo J. Assessing health literacy among older adults living in subsidized housing: a cross-sectional study. Can J Public Health. 2018 Jun;109(3): 401-409. https://doi.org/10.17269/s41997-018-0048-3

[16] Ungerleider C. The Canadian Council on Learning, Canada. In: Evidence in Education: Linking Research and Policy. Paris: OECD Publishing; 2007. p. 81-86. Available from: https://doi.org/10.1787/9789264033672-7-en

[17] Sparks L, Nussbaum JF. Health literacy and cancer communication with older adults. Patient Educ Couns. 2008 Jun;71(3):345-50. https://doi.org/10.1016/j.pec.2008.02.007

[18] Clarke N, Dunne S, Coffey L, Sharp L, Desmond D, O'Conner J, et al. Health literacy impacts self-management, quality of life and fear of recurrence in head and neck cancer survivors. J Cancer Surviv. 2021 Dec;15 (6):855-865. https://doi.org/10.1007/s11764-020-00978-5

[19] Shaffer KM, Turner KL, Siwik C, Gonzalez BD, Upasani R, Glazer JV, et al. Digital health and telehealth in cancer care: a scoping review of reviews. Lancet Digit Health. 2023 May;5(5):e316-e327. https://doi.org/10.1016/S2589-7500(23)00049-3

[20] O'Keefe K, Chen M, Lesser KJ, DuVall AS, Dils AT. Treating Mental Health and Quality of Life in Older Cancer Patients with Cognitive Behavioral Therapy: A Systematic Review and Meta-Analysis. International Journal of Environmental Research and Public Health. 2024 Jul 6;21(7):881. https://doi.org/10.3390/ijerph21070881

[21] Trevino KM, Saracino RM, Roth AJ. Symptomatology, assessment, and treatment of anxiety in older adults with cancer. J Geriatr Oncol. 2021 Mar;12(2):316-319. https://doi.org/10.1016/j.jgo.2020.06.011

[22] Habicht J, Viswanathan S, Carrington B, Hauser TU, Harper R, Rollwage M. Closing the accessibility gap to mental health treatment with a personalized self-referral chatbot. Nat Med. 2024 Feb;30(2):595-602. https://doi.org/10.1038/s41591-023-02766-x

[23] Holden CE, Wheelwright S, Harle A, Wagland R. The role of health literacy in cancer care: A mixed studies systematic review. PLoS One. 2021 Nov 12;16(11):e0259815. https://doi.org/10.1371/journal.pone.0259815

[24] Grassi L. Psychiatric and psychosocial implications in cancer care: the agenda of psycho-oncology. Epidemiol Psychiatr Sci. 2020 Jan 9;29:e89. https://doi.org/10.1017/S2045796019000829

[25] Haeri-Mehrizi A, Mohammadi S, Rafifar S, Sadighi J, Kermani RM, Rostami R, et al. Health literacy and mental health: a national cross-sectional inquiry. Scientific Reports. 2024 Jun 13;14(1):13639. https://doi.org/10.1038/s41598-024-64656-7

[26] Juravinski Cancer Centre Clinics [Internet]. 2023 [cited 2024 Sept 7]. Available from: https://www.hamiltonhealthsciences.ca/areas-of-care/cancer-care/cancer-services/juravinski-cancer-centre-clinics/

[27] Osborne RH, Batterham RW, Elsworth GR, Hawkins M, Buchbinder R. The grounded psychometric development and initial validation of the Health Literacy Questionnaire (HLQ). BMC Public Health. 2013 Jul 16;13:658. https://doi.org/10.1186/1471-2458-13-658

[28] Goldberg DP, Blackwell B. Psychiatric illness in general practice. A detailed study using a new method of case identification. Br Med J. 1970 May 23;1(5707): 439-43. https://doi.org/10.1136/bmj.2.5707.439

[29] Goldberg DP, Gater R, Sartorius N, Ustun TB, Piccinelli M, Gureje O, Rutter C. The validity of two versions of the GHQ in the WHO study of mental illness in general health care. Psychol Med. 1997 Jan;27(1):191-7. https://doi.org/10.1017/s0033291796004242

[30] Goldberg DP, Williams P. A User's Guide to the General Health Questionnaire. Windsor, UK: NFER-NELSON; 1988. Available from: https://search.worldcat.org/title/A-user's-guide-to-the-General-Health-Questionnaire/oclc/26545847
[31] Lee YJ, Palmer J, Cline AC, Lee H. Factors Influencing the Health Care Utilization Among People With Depression and/or Anxiety Symptoms. Journal of the American Psychiatric Nurses Association. 2023 Sep 19. https://doi.org/10.1177/10783903231197655
[32] Government of Canada SC. Mental health and access to care survey, 2022 [Internet]. 2023 [cited 2024 Sept 7]. Available from: https://www.statcan.gc.ca/en/statistical-programs/instrument/5015_Q2_V1
[33] Henderson C, Evans-Lacko S, Thornicroft G. Mental illness stigma, help seeking, and public health programs. Am J Public Health. 2013 May;103(5): 777-80. https://doi.org/10.2105/AJPH.2012.301056
[34] Healthy Minds Study [Internet]. 2024 [cited 2024 Sept 7]. Available from: https://healthymindsnetwork.org/hms/
[35] Xiao L, Li T, Lin J, Peng M, Miao J, Zhang L. Determinants of cancer patients' involvement in treatment decision-making based on the COM-B model: A cross-sectional study. Patient Education and Counseling. 2023 Sep 1. https://doi.org/10.1016/j.pec.2023.107795
[36] Data and AI Solutions [Internet]. [cited 2024 Sept 7]. Available from: https://www.sas.com/en_ca/home.html
[37] [Internet]. [cited 2024 Sept 7]. Available from: https://documentation.sas.com/doc/en/statug/15.2/statug_glm_examples04.htm
[38] Benuto LT, Gonzalez F, Reinosa-Segovia F, Duckworth M. Mental Health Literacy, Stigma, and Behavioral Health Service Use: the Case of Latinx and Non-Latinx Whites. J Racial Ethn Health Disparities. 2019 Dec;6(6):1122-1130. https://doi.org/10.1007/s40615-019-00614-8
[39] NVivo (2020, R1) Windows. [Internet]. NVIVO [cited 2024 Sept 7]. Available from: https://help-nv.qsrinternational.com/20/win/Content/welcome.htm
[40] Dhakal K. NVivo. J Med Libr Assoc. 2022 Apr 1;110(2):270-272. https://doi.org/10.5195/jmla.2022.1271
[41] Church S, Dunn M, Prokopy L. Benefits to qualitative data quality with multiple coders: two case studies in multi-coder data analysis. J Rural Soc Sci. 2019; 34 (1). Available from: https://egrove.olemiss.edu/jrss/vol34/iss1/2
[42] Castleberry A, Nolen A. Thematic analysis of qualitative research data: Is it as easy as it sounds? Curr Pharm Teach Learn. 2018 Jun;10(6):807-815. https://doi.org/10.1016/j.cptl.2018.03.019
[43] Ee C, MacMillan F, Boyages J, McBride K. Barriers and enablers of weight management after breast cancer: a thematic analysis of free text survey responses using the COM-B model. BMC Public Health. 2022 Aug 20;22 (1):1587. https://doi.org/10.1186/s12889-022-13980-6
[44] O'Connor C, Joffe H. Intercoder reliability in qualitative research: debates and practical guidelines. International journal of qualitative methods. 2020 Jan 22. https://doi.org/10.1177/1609406919899220
[45] Simpson RM, Knowles E, O'Cathain A. Health literacy levels of British adults: a cross-sectional survey using two domains of the Health Literacy Questionnaire (HLQ). BMC Public Health. 2020 Dec;20:1-3. https://doi.org/10.1186/s12889-020-09727-w
[46] Aghajanloo R, Nadrian H, Baraei B, Shirzadi S, Sarbakhsh P, Keshavarzian K, et al. Health literacy, treatment adherence, bone mass density and health-related quality of life among Iranian older adults with osteoporosis. International Journal of Health Promotion and Education. 2023 Sep 3;61(5):227-42. https://doi.org/10.1080/14635240.2022.2052145
[47] Comotti A, Fattori A, Greselin F, Bordini L, Brambilla P, Bonzini M. Psychometric Evaluation of GHQ-12 as a Screening Tool for Psychological Impairment of Healthcare Workers Facing COVID-19 Pandemic. Med Lav. 2023 Feb 14;114(1):e2023009. https://doi.org/10.23749/mdl.v114i1.13918
[48] Hurria A, Li D, Hansen K, Patil S, Gupta R, Nelson C, Lichtman SM, Tew WP, Hamlin P, Zuckerman E, Gardes J. Distress in older patients with cancer. Journal of Clinical Oncology. 2009 Sep 10;27(26):4346-51. https://doi.org/10.1200/JCO.2008.19.9463
[49] Kim YS, Rhee TG, Lee HY, Park BH, Sharratt ML. Mental health literacy as a mediator in use of mental health services among older korean adults. International Psychogeriatrics. 2017;29(2):269–79. https://doi.org/10.1017/S1041610216001721
[50] Berete F, Gisle L, Demarest S, et al. Does health literacy mediate the relationship between socioeconomic status and health related outcomes in the Belgian adult population?. BMC Public Health 24, 1182 (2024). https://doi.org/10.1186/s12889-024-18676-7
[51] Yuen E, Winter N, Savira F, Huggins CE, Nguyen L, Cooper P, Peeters A, Anderson K, Bhoyroo R, Crowe S, Ugalde A. Digital Health Literacy and Its Association With Sociodemographic Characteristics, Health Resource Use, and Health Outcomes: Rapid Review. Interact J Med Res. 2024 Jul 26;13:e46888. https://doi.org/10.2196/46888

[52] McDonald B, Kulkarni M, Andkhoie M, Kendall J, Gall S, Chelladurai S, et al. Determinants of self-reported mental health and utilization of mental health services in Canada. International Journal of Mental Health. 2017 Oct 2;46(4):299-311. https://www.jstor.org/stable/26770178
[53] Gao Y, Burns R, Leach L, et al. Examining the mental health services among people with mental disorders: a literature review. BMC Psychiatry. 2024;24:568. https://doi.org/10.1186/s12888-024-05965-z
[54] American Cancer Society. Psychosocial support options for people with cancer [Internet]. Atlanta (GA): American Cancer Society; 2023 [cited 2024 Sep 7]. Available from: https://www.cancer.org/cancer/managing-cancer/side-effects/emotional-mood-changes.html
[55] Niedzwiedz CL, Knifton L, Robb KA, Katikireddi SV, Smith DJ. Depression and anxiety among people living with and beyond cancer: a growing clinical and research priority. BMC Cancer. 2019 Oct 11;19 (1):943. https://doi.org/10.1186/s12885-019-6181-4
[56] Trevino KM, Saracino RM, Roth AJ. Symptomatology, assessment, and treatment of anxiety in older adults with cancer. J Geriatr Oncol. 2021 Mar;12(2):316-319. https://doi.org/10.1016/j.jgo.2020.06.011
[57] Ramos, K. Psychosocial Health of Older Adults with Cancer: Clinical Interventions Promoting Meaning and Value-Driven Behavior. Curr Geri Rep 5, 220–225 (2016). https://doi.org/10.1007/s13670-016-0180-y
[58] National Cancer Institute. Cancer survivors: Managing anxiety and distress [Internet]. Bethesda (MD): National Cancer Institute; 2020 [cited 2024 Sep 7]. Available from: https://www.cancer.gov/news-events/cancer-currents-blog/2020/cancer-survivors-managing-anxiety-distress
[59] Grassi L, Spiegel D and Riba M. Advancing psychosocial care in cancer patients. F1000Research 2017, 6(F1000 Faculty Rev):2083, https://doi.org/10.12688/f1000research.11902.1
[60] Zhu P, Liu X, Shang X, Chen Y, Chen C, Wu Q. Mindfulness-Based Stress Reduction for Quality of Life, Psychological Distress, and Cognitive Emotion Regulation Strategies in Patients With Breast Cancer Under Early Chemotherapy-a Randomized Controlled Trial. Holist Nurs Pract. 2023 May-Jun 01;37(3):131-142. https://doi.org/10.1097/HNP.0000000000000580
[61] Andrade LH, Alonso J, Mneimneh Z, Wells JE, Al-Hamzawi A, Borges G, et al. Barriers to mental health treatment: results from the WHO World Mental Health surveys. Psychol Med. 2014 Apr;44(6):1303-17. https://doi.org/10.1017/S0033291713001943
[62] Rim SH, Yabroff KR, Dasari S, Han X, Litzelman K, Ekwueme DU. Preventive care service use among cancer survivors with serious psychological distress: An analysis of the medical expenditure panel survey data. Prev Med. 2019 Jun;123:152-159. https://doi.org/10.1016/j.ypmed.2019.03.024
[63] Hernandez EM, Margolis R, Hummer RA. Educational and Gender Differences in Health Behavior Changes After a Gateway Diagnosis. J Aging Health. 2018 Mar;30(3):342-364. https://doi.org/10.1177/0898264316678756
[64] Hu X, Wang T, Huang D, Wang Y, Li Q. Impact of social class on health: The mediating role of health self-management. PLoS One. 2021 Jul 16;16(7):e0254692. https://doi.org/10.1371/journal.pone.0254692
[65] Ng HS, Koczwara B, Beatty L. Patterns of mental health service utilisation in people with cancer compared with people without cancer: analysis of the Australian National Study of Mental Health and Wellbeing. J Cancer Surviv. 2023 Oct 4. https://doi.org/10.1007/s11764-023-01472-4
[66] Lingens SP, Schilling G, Schulz H, Bleich C. Effectiveness of brief psychosocial support for patients with cancer and their relatives: a quasi-experimental evaluation of cancer counselling centres. BMJ Open. 2023 Mar 28;13(3):e068963. https://doi.org/10.1136/bmjopen-2022-068963

Article Information
Managing Editor: Jeremy Y. Ng
Peer Reviewers: Patricia Acosta, Harveen Saini
Article Dates: Received Sep 08 24; Accepted Nov 18 24; Published Jan 22 25

Citation
Please cite this article as follows:
Keramati. N. Investigating the relationship between health literacy and mental health status and the utilization of mental health services in older adults diagnosed with cancer: A Research Protocol URNCST Journal. 2025 Jan 22: 9(1). https://urncst.com/index.php/urncst/article/view/739
DOI Link: https://doi.org/10.26685/urncst.739

URNCST Journal
"Research in Earnest"

Funded by the Government of Canada | Canada