JGPEMN
ISSN 2091-279X
eISSN 2362-1168

ORIGINAL ARTICLE

Factors associated with depression and loneliness among older adults of Nagarjun Municipality: a mixed-method study

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Date of submission: 26 Apr 2026

Date of acceptance: 27 Jun 2026

Date of Publication: 14 Jun 2026

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How to cite:
Sharma A, Bhandary S. Factors associated with depression and loneliness among older adults of Nagarjun municipality: a mixed-method study. J Gen Pract Emerg Med Nepal. 2026 Jun;13(1):36-41.

Online information
DOI:
https://doi.org/10.59284/jgpeman411

Abstract

Introduction: Depression and loneliness are major mental health concerns among older adults, particularly in low- and middle-income countries like Nepal. Despite rapid demographic transition toward an aged society, mixed-method evidence on psychosocial determinants remains limited.

Method: A convergent parallel mixed-method design was used. For the quantitative arm, 44 older adults (≥60 years) were recruited by convenience sampling from Ward No. 1 of Nagarjun Municipality. Depression was assessed using the Geriatric Depression Scale (GDS-15) and loneliness using the UCLA Loneliness Scale (UCLA-20). Bivariate analyses were conducted using chi-square and one-way ANOVA. For the qualitative arm, five purposively selected in-depth interviews were analyzed thematically using Braun and Clarke's framework with RQDA. Findings were integrated through triangulation.

Result: The mean age was 75.47 ± 7.78 years. Depression prevalence was 50% (n=22), and the mean loneliness score was 53.59 ± 14.32. Widowhood was significantly associated with higher loneliness (p=0.003). Exclusion from family decision-making was associated with both depression (p=0.005) and loneliness (p=0.002). Nine qualitative themes emerged, including loneliness and neglect, child migration, and financial decision-making. Triangulation revealed a migration paradox, where children's migration evoked both pride and longing despite no quantitative association, and identified caregiving burden as an additional factor.

Conclusion: Depression and loneliness among older adults were associated with psychosocial exclusion, particularly widowhood and limited participation in family decision-making. Larger community-based studies are needed to confirm these findings.

Keywords: Aging; Depression; Geriatric; Loneliness; Mixed methods; Nepal; Older adults; Social support

INTRODUCTION

Aging is a complex process associated with declining functional ability and increasing health burden, with populations worldwide aging at an unprecedented rate.[1] Globally, the population aged 60 and above surpassed one billion in 2021, representing 13.5% of the world population, and is projected to reach one in six people by 2030.[2] Nepal reflects this trajectory closely, with 2.97 million Nepali people (10.21%) aged 60 and above according to the 2021 Census.[3] Depression and loneliness are among the most prevalent and under-recognized mental health burdens in this age group, affecting quality of life, physical health outcomes, and mortality risk worldwide.[4]

Nepali older adults face particular vulnerabilities. Patriarchal cultural norms that treat sons as primary caregivers leave older adults without sons or with migrated children at risk of inadequate family support.[5] Elder mistreatment affects an estimated 61.7% of older adults in rural Nepal.[6] Youth outmigration further compounds care deficits, while village-to-urban transitions disrupt established social networks.[7] Quantitative studies dominate the Nepali literature, and qualitative insights into the lived emotional and social experience of older adults remain limited.[8] Key psychosocial determinants, including exclusion from family decision-making, effects of child migration, and the consequences of widowhood, are underexplored in localized Nepali settings.[9]

This study aimed to assess the prevalence of depression and loneliness, identify their associated psychosocial factors, and explore the lived experiences of older adults in Ward No. 1 of Nagurjun Municipality, Nepal, using a convergent parallel mixed-method design. The findings will inform the methodology of a planned larger study and contribute evidence for context-appropriate mental health policy in Nepal.

METHOD

A convergent parallel mixed-method study comprising a quantitative cross-sectional analytical component and a qualitative descriptive component was conducted in Ward No. 1 of Nagarjun Municipality, Kathmandu, Nepal, from 1 to 4 July 2025. The study included community-dwelling older adults aged ≥60 years. As this was a pilot study designed to assess the feasibility of a larger community-based investigation, a formal sample size calculation was not performed. A feasibility-based target sample of 50 participants was planned, and 44 older adults were recruited using convenience sampling from temple *bhajan* gatherings. For the qualitative component, five participants were purposively selected using maximum variation sampling to ensure diversity in age, sex, marital status, and lived experiences. Older adults who were able to communicate in Nepali and provided written informed consent were included, while those who declined participation or were unable to communicate were excluded.

Quantitative data were collected through interviewer-administered questionnaires using KoboToolbox. Depression was assessed using the validated Nepali version of the 15-item Geriatric Depression Scale (GDS-15), loneliness using the UCLA Loneliness Scale (UCLA-20), social support using the 10-item Duke Social Support Index (DSSI-10), and functional status using the Lawton Instrumental Activities of Daily Living (IADL) Scale. The questionnaires were translated into Nepali and pretested among five older adults outside the study area before data collection. Semi-structured in-depth interviews were conducted for the qualitative component, audio-recorded with participants' consent, transcribed verbatim, translated into English, and analyzed thematically using Braun and Clarke's six-phase framework with the assistance of RQDA software. Coding was performed independently by two researchers, and discrepancies were resolved through discussion and consensus.

Quantitative data were exported from KoboToolbox, cleaned in Microsoft Excel, and analyzed using Stata version 19. Continuous variables were summarized using means and standard deviations, whereas categorical variables were presented as frequencies and percentages. Associations between categorical variables and depression were assessed using the Chi-square test or Fisher's exact test, while differences in mean loneliness scores were compared using one-way analysis of variance (ANOVA). A two-sided p-value <0.05 was considered statistically significant. Owing to the exploratory nature and limited sample size of this pilot study, multivariable analysis was not performed. Quantitative and qualitative findings were integrated during interpretation using methodological triangulation to identify convergent, divergent, and complementary findings. Ethical approval was obtained from the Institutional Review Committee of Patan Academy of Health Sciences (IRC Ref. No.: PHP2508292077), and administrative permission was obtained from Nagarjun Municipality. Written informed consent was obtained from all participants before enrolment, and the study was conducted in accordance with the principles of the Declaration of Helsinki (1975, revised 2000).

RESULT

A total of 44 older adults participated in the quantitative component and five participated in the qualitative interviews. The mean age was 75.47 ± 7.78 years (range: 60–97 years). There were 28 (63.64%) male participants, 21 (47.73%) were widowed, 34 (77.27%) lived in joint families, and 40 (90.91%) belonged to the Brahmin/Chhetri ethnic group. Thirty-three (75.00%) participants had no formal education, 40 (90.91%) were unemployed, and 43 (97.73%) had no personal savings, although 30 (68.18%) received the government old-age allowance. Chronic diseases were present in 32 (72.73%) participants, with hypertension affecting 21 (46.67%) and diabetes affecting 12 (26.67%). According to the Lawton Instrumental Activities of Daily Living (IADL) Scale, 17 (38.64%) participants were fully independent, 17 (38.64%) had mild-to-moderate dependence, and 10 (22.73%) had severe dependence (Table 1).

Based on the GDS-15, 22 (50.00%) participants had depressive symptoms. The mean UCLA-20 loneliness

Table 1. Sociodemographic and health-related characteristics of participants (n=44)

Variables	*f* (%)	Variables	*f* (%)
Age (Mean ± SD: 75.47 ± 7.78 years; Range: 60–97)		**Education**	
Young old (60–74 yrs)	19(43.18%)	No education	33 (75.00%)
Middle old (75–84 yrs)	21(47.73%)	Basic education	3 (6.82%)
Oldest old (≥85 yrs)	4(9.09%)	Secondary	6 (13.64%)
Sex		>Secondary	2 (4.55%)
Male	28(63.64%)	**Main occupation**	
Female	16(36.36%)	Unemployed	40 (90.91%)
Marital Status		Retired	4 (9.09%)
Married	23(52.27%)	**Chronic disease**	
Widowed	21(47.73%)	Yes	32 (72.73%)
Family type		No	12 (27.27%)
Joint	34(77.27%)	**Old-age allowance**	
Nuclear	10(22.73%)	Yes	30 (68.18%)
Ethnicity		No	14 (31.82%)
Brahmin/Chhetri	40(90.91%)	**International child migration**	
Janajati	4(9.09%)	Yes	21 (47.73%)
Living arrangement		No	23 (52.27%)
With children	26(59.09%)	**IADL status**	
With spouse only	9(20.45%)	Fully independent	17 (38.64%)
With spouse & children	9(20.45%)	Mild/mod dependence	17 (38.64%)
Living alone	-	Severe dependence	10 (22.73%)

IADL = Lawton Instrumental Activities of Daily Living Scale

Table 2. Depression status and loneliness scores among participants (n=44)

Variable	n / Mean	% / SD	Range
GDS-15 Score ≥5 (Depressed)	22	50	—
GDS-15 Score <5 (Not Depressed)	22	50	—
GDS-15 Cronbach's alpha	0.8574	—	—
UCLA-20 Total Loneliness Score (Mean ± SD)	53.59	± 14.32	24–80
[higher = more loneliness]			
Duke Social Support Index – Social Interaction (Mean ± SD) [higher = better support]	7.64	± 2.02	4–12
Duke Social Support Index – Subjective Support (Mean ± SD)	12.05	± 3.74	6–18
[higher = better support]			
Bivariate: Loneliness vs. Social Support (r)	r = –0.12	p = 0.45	Not significant

GDS-15 = Geriatric Depression Scale (15-item); UCLA-20 = UCLA Loneliness Scale (20-item)

score was 53.59 ± 14.32 (range: 24–80). The mean Duke Social Support Index (DSSI) social interaction and subjective support scores were 7.64 ± 2.02 and 12.05 ± 3.74, respectively. The correlation between social support and loneliness was weakly negative and not statistically significant (r = −0.12, p = 0.45) (Table 2).

Among the sociodemographic variables, only widowhood was significantly associated with loneliness. Widowed participants had higher mean loneliness scores than married participants (60.00 ± 12.62 vs. 47.74 ± 13.46, p = 0.003). No significant associations were observed between age, sex, ethnicity, living arrangement, financial indicators, and either depression or loneliness (Table 3).

Three family-related variables were significantly associated with depression. Satisfaction with involvement in family decision-making showed the strongest association (χ^2 = 12.957, p = 0.005), with all participants who were dissatisfied (7/7, 100%) or very dissatisfied (2/2, 100%) being classified as depressed, compared with 8 of 26 (30.77%) participants who were very satisfied. Quality time spent with family was also significantly associated with depression (p = 0.003); depression was observed in 13 of 17 (76.47%) participants who reported not spending quality time with their family compared with 5 of 21 (23.81%) who did. Feeling understood by family members was also significantly associated with depression (p = 0.001), with depression reported in 7 of 8 (87.50%) participants who felt understood sometimes, 5 of 7 (71.43%) who felt understood often, and 5 of 6 (83.33%) who felt understood always, compared with 5 of 23 (21.74%) participants who reported never feeling understood.

For loneliness, greater difficulty performing household activities was associated with higher loneliness scores (p = 0.004). Participants with severe or extreme difficulty had higher mean loneliness scores than those without difficulty (67.64 vs. 52.31). Sleeping less than five hours per night was also associated with higher loneliness scores (mean = 60.46, p = 0.042). Dissatisfaction with family decision-making was significantly associated with loneliness (p = 0.002), with participants who were very dissatisfied recording the highest mean loneliness score (70.00). Chronic diseases, IADL status, lifestyle factors, and child migration were not significantly associated with depression or loneliness.

Five in-depth interviews involving four men and one woman (aged 66–83 years) generated nine themes (Table

Table 3. Significant bivariate associations with depression and loneliness

Variable	Depressed *f* (%)	Not Depressed *f* (%)	χ^2	p-value (Depression)	Mean Loneliness	p-value (Loneliness)
Marital status						
Married	10 (43.48%)	13 (56.52%)	0.82	0.365	47.74	0.003 [a]
Widowed	12 (57.14%)	9 (42.86%)			60	
Decision-making satisfaction [b]						
Very satisfied	8 (30.77%)	18 (69.23%)	12.957	0.005 [a]	56.57	0.002 [a]
Satisfied	5 (55.56%)	4 (44.44%)			42.11	
Dissatisfied	7 (100.00%)	0 (0.00%)			50	
Very dissatisfied	2 (100.00%)	0 (0.00%)			70	
Quality time with family [b]						
Yes	5 (23.81%)	16 (76.19%)	11.193	0.003 [a]	54	0.809
No	13 (76.47%)	4 (23.53%)			54.35	
Sometimes	4 (66.67%)	2 (33.33%)				
Felt understood by family [b]						
Never	5 (21.74%)	18 (78.26%)	15.8	0.001 [a]	53.08	0.943
Sometimes	7 (87.50%)	1 (12.50%)			55.75	
Often	5 (71.43%)	2(28.57%)			53.29	
Always	5 (83.33%)	1(16.67%)				
Household activity difficulty [b]						
None	6 (31.58%)	13 (68.42%)	8.318	0.102	52.31	0.004 [a]
Mild	2 (33.33%)	4(66.67%)			67.64	
Moderate	4 (80.00%)	1 (20.00%)				
Severe	1 (100.00%)	0(0.00%)				
Extreme/cannot do	8 (72.73%)	3 (27.27%)				
Did not have to involve	1(50.00%)	1(50.00%)				
Sleeping hours						
<5 hours/night	9 (60.00%)	6 (40.00%)	1.85	0.689	60.46	0.042 [a]
5–6 hours/night	6 (50.00%)	6 (50.00%)			44.91	
7–8 hours/night	7 (43.75%)	9 (56.25%)			53.81	
More than 8 hours	0(0.00%)	1(100.00%)				

[a] p<0.05 statistically significant; [b] fisher exact tests; χ^2 = Chi-square statistic; Mean loneliness = mean UCLA-20 score

Table 4. Findings from Thematic Analysis of In-depth Interviews (IDIs) (n=5)

Theme	Sub-themes	Key Codes / Representative Findings
1. Child Migration and Family Dynamics	Child migration characteristics; Child-related characteristics	Acceptance of migration; pride and longing; positive changes post-migration; emotional absence; talking with children abroad; children's respectful behaviour
2. Death and Illness of Spouse	Death of spouse; illness of spouse	Life changes after widowhood; raising children alone; caregiving for disabled wife; difficulty managing when spouse ill; emotional and physical toll of caregiving
3. Social Support	Social support from community; care by family members; role of daughters and in-laws	Community engagement; festival gatherings; friendship as emotional anchor; care by children during illness; intergenerational cultural tensions; daughter-in-law relationships
4. Health and Lifestyle	Health status and perception; health-seeking behaviour; sleep quality	Acceptance of age-related decline; proactive health visits; out-of-pocket expenditure; hesitancy with long-term medication; sleep disturbance due to caregiving stress
5. Daily Life and Activities of Daily Living (ADL)	Changes in daily life; daily routine activities; ADL capacity	Loss of energy and vitality; village vs urban lifestyle contrast; temple visits and morning walks as social anchors; pride in independence; mobility limitations on long travel
6. Financial and Household Decision-Making	Financial conditions; household decision-making	Financial independence linked to dignity; pension as autonomy; exclusion from decisions post-son's marriage; variation between respected and marginalised older adults
7. Loneliness and Neglect	Neglect and adjustment problems; loneliness	Son neglect despite geographic proximity; fear of financial burden; reluctance to share struggles; feeling left alone; emotional abandonment after investing in children's education
8. Life Experiences and Future Concerns	Adverse events in life; meaningful life moments; wishes for future	Early hardship and sacrifice; life satisfaction and acceptance; happiness through human connection; fear of dying alone; worry about end-of-life care
9. Recommendations	To older adults; to government; message to children	Stay active, save for old age; build temples and chautaris; age-friendly infrastructure; emotional connection from children; remembering roots and sacrifices

IDI = In-depth interview; ADL = Activities of Daily Living

Table 5. Triangulation of mixed-method findings

Finding Type	Factors	Explanation
Convergent Findings	Widowhood; exclusion from family decision-making; financial dissatisfaction; functional decline	Quantitative significance corroborated by qualitative narratives. Widowhood and decision-making exclusion emerged strongly in both arms as drivers of depression and loneliness.
Divergent Findings	Child international migration; family understanding	No statistical association found between migration and depression (p=0.228), yet qualitative narratives revealed the 'migration paradox', co-existing parental pride and deep emotional longing undetectable by quantitative instruments.
Expansive Findings	Caregiving burden of spousal illness; existential fear of dying alone; need for age-friendly community infrastructure	Qualitative data expanded beyond quantitative scope: dual burden of managing own health while caregiving for ill spouse; fear of end-of-life abandonment; participant recommendations for temples, *chautaris*, and age-friendly roads as community mental health infrastructure.

4). Prominent themes included child migration and family dynamics, death or illness of a spouse, financial and household decision-making, loneliness and neglect, and future concerns. Participants frequently described mixed emotions regarding children's migration, balancing pride in their children's achievements with feelings of loneliness. Widowhood and spousal illness were commonly associated with emotional hardship and caregiving challenges. Financial independence was perceived as maintaining dignity, whereas exclusion from household decision-making was associated with feelings of marginalization. Participants also described loneliness despite living with family members and expressed concerns regarding dependency and end-of-life care. Representative quotations are presented in Table 4.

Integration of quantitative and qualitative findings identified three convergent findings: widowhood, exclusion from family decision-making, and functional decline were associated with depression and loneliness in both datasets. Child migration represented a divergent finding, as no significant quantitative association was observed, whereas qualitative interviews highlighted its emotional impact. Qualitative data further expanded the quantitative findings by identifying caregiving burden, fear of dying alone, and the need for age-friendly community support as additional issues (Table 5).

DISCUSSION

This study found a depression prevalence of 50% among community-dwelling older adults, which is directionally consistent with Nepali studies reporting community rates ranging from 21.9% to 63.5%.[10] The mean UCLA-20 loneliness score of 53.59, on a scale of 20 to 80, places participants above the scale midpoint and suggests substantially higher loneliness than typically reported in high-income country samples, underscoring the vulnerability of older Nepali adults.[11]

The most clinically significant finding was the association between exclusion from family decision-making and both depression and loneliness. In Nepal's collectivist family structure, decision-making authority is closely tied to an older adult's sense of identity and dignity. The finding that 100% of those dissatisfied with their decision-making role were depressed reflects a clear dose-response pattern. This is consistent with prior qualitative work in Nepal identifying post-marital marginalization as a critical inflection point in older adults' psychological decline.[7] Importantly, this factor is modifiable: family-level psychosocial interventions that restore older adults' participatory roles in household decisions could have meaningful mental health impact.

Widowhood was the sociodemographic predictor of loneliness (p=0.003). Widowed participants scored 60.00 on the UCLA-20, representing 75% of the maximum possible score of 80, compared to a mean of 47.74 among married participants. This 12-point difference is clinically meaningful. Qualitative narratives revealed that widowhood involves compounding losses of a caretaking relationship, shared daily routines, and mutual belonging. For male participants whose spouses were chronically ill, the inversion of expected caregiving roles created a distinct and often invisible form of loneliness. This is an expansion finding with direct implications for caregiver-oriented services.

Physical health status and child migration did not show statistically significant associations with either outcome. These findings should be interpreted with caution given the small and purposive sample and should not be taken as evidence that such associations do not exist in the broader population. The qualitative migration paradox, however, highlights why mixed-method designs are essential for this population: standardized instruments are poorly equipped to capture the co-existence of pride and grief that characterizes parental experience of children's migration.[13] The non-significant social support finding ($r = –0.12$, $p=0.45$) most likely reflects limited statistical power and the DSSI's measurement of interaction frequency rather than the quality and meaning of social relationships.

Several limitations must be acknowledged. Recruitment from temple bhajan attendees introduces selection bias, likely excluding homebound and socially isolated older adults and potentially underestimating the true prevalence of depression and loneliness. The small sample size reduces statistical power. The UCLA-20 and DSSI were not formally validated in Nepali, potentially affecting item appropriateness. The cross-sectional design does not permit causal inference. Additionally, potential confounding factors including socioeconomic status, chronic illness, and living arrangement could not be fully controlled for.

CONCLUSION

This mixed-method pilot study suggests that depression and loneliness among older adults in Nepal are associated with psychosocial exclusion, particularly exclusion from family decision-making and widowhood, rather than physical health status or child migration alone. The integration of qualitative findings revealed dimensions of emotional suffering, the complex migration paradox, and existential fears about end-of-life care that quantitative instruments could not capture. The findings support the need for larger, community-representative studies using validated Nepali-language instruments. Programmatic interventions should prioritize restoring participatory family roles for older adults, expanding age-friendly community infrastructure, and providing psychosocial support for widowed and marginalized older adults in Nepal.

DECLARATION

Acknowledgement

The authors extend heartfelt gratitude to all older adult participants whose time, trust, and narratives made this study meaningful. We thank the Nagarjun Municipality Ward No. 1 office for facilitating data collection. We are grateful to the faculty of School of Public Health, Patan Academy of Health Sciences, for their guidance. The colleague who supported the inter-coder reliability process is sincerely acknowledged.

Conflict of Interest

None

Funding

None. This study was conducted as part of the academic requirements of the Master of Public Health (MPH) program at Patan Academy of Health Sciences.

Ethical Clearance

Administrative approval was obtained from Nagargun Municipality. Formal ethical clearance for the associated main study was granted by the Institutional Review Committee (IRC), Patan Academy of Health Sciences (IRC Ref. No.: PHP2508292077). All procedures complied with the Helsinki Declaration of 1975, as revised in 2000, and with the ethical guidelines provided by ICMR for research involving human participants. No patient names, initials, or identifying information appear in this manuscript.

Consent

Written informed consent was obtained from all participants in Nepali prior to data collection. Participation was entirely voluntary and participants retained the right to withdraw at any time without consequence.

Consent for Publication

All authors and participants consent to publication of these anonymized findings.

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