Section: Miscellaneous

Original Research Article

ASSESSMENT OF QUALITY OF LIFE AND MENTAL HEALTH IN ELDERLY: A CROSS-SECTIONAL STUDY IN URBAN HYDERABAD

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ABSTRACT

Background: This study investigates the quality of life (QoL) and mental health (MH) among 400 elderly individuals from urban area in Hyderabad. The objectives were to explore the influence of demographic (age, gender, education, marital status, socioeconomic class) and health (illness) factors on four QoL domains and the General Health Questionnaire (GHQ-12) scores, and to identify significant predictors.

Materials and Methods: A cross-sectional study was carried out by selecting participants by systematic random sampling. Statistical analyses included One-way Analysis of Variance (ANOVA), Pearson correlations, and multiple linear regression A significance level of $p<0.05$ was used.

Results: The associations of GHQ-12 and four QoL domains with various demographic and health factors by Univariate analyses consistently showed significant. Regression analysis shows education, marital status, illness, and socioeconomic class as significant predictors for GHQ-12 and most QoL domains. Age was positively correlated with GHQ-12 but negatively correlated with QoL DOMAINs 1, 2, and 3.

Conclusion: The findings highlight the complex interplay of demographic and health characteristics in shaping the quality of life and mental health of the studied urban elderly population. These insights are crucial for developing targeted interventions.

Keywords: QoL, Elderly, Mental health, sociodemographic factors, and urban area.

INTRODUCTION

The world is undergoing a significant demographic transformation, with the global population aged 60 years and over is expected to double from 1 billion in 2020 to 2.1 billion by 2050.[1] This increase is particularly more pronounced in low- and middle-income countries, which contributes two-thirds of the world's older population by 2050.[2] This demographic shift presents a major public health challenge, because aging increases susceptibility to chronic health conditions like decreased hearing, cataracts, musculoskeletal disorders, diabetes, and neurological conditions like dementia.[1] The co-existence of these multiple chronic diseases complicates proper care in an effective way, highlighting an urgent need for strategic re-assessment of public health policies to prioritize healthy aging initiatives and improve geriatric care frameworks.[3]

Quality of Life (QOL) is an individual's perception of their standing in life within their cultural and value systems, and in relation to their personal goals, expectations, standards, and concerns.[4] For the elderly, QOL is influenced by a complex interplay of physical health, mental well-being, social connections, and financial security, necessitating a comprehensive approach beyond just medical treatments.[5]

Mental health conditions are highly prevalent among the elderly, affecting about 14% of individuals aged 60 and over globally, and are predicted to become the

leading cause of disability-adjusted life years (DALYs) worldwide by 2030.[1,6] Late-life mental health issues reduce quality of life, worsen physical health, increase functional impairment, cognitive decline, and raise mortality rates, including suicide.[7] The economic burden of mental health conditions is also expected to double by 2030, highlighting the need for active, integrated mental health interventions in the healthcare and social welfare policies.[6]

India is experiencing an intense demographic transition, with elderly population expected to reach 158.7 million by 2025 and over 20% of the total population by 2050.[8] Despite national health programs like the National Program for Health Care Elderly and National Mental Health Program, mental health issues are on the rise.[9] Studies indicate moderate to low overall QOL among the elderly, influenced by socioeconomic factors, chronic diseases, and social support.[10] The urban environment, with its changing family structures (e.g., nuclear families), economic pressures, and social isolation, leads to loneliness and psychological distress in the elderly.[11] These combined factors make urban elderly vulnerable to mental health challenges and reduced QOL, highlighting the need for research and culturally appropriate interventions.[12]

A clear gap exists in recent, community-based studies that simultaneously assess both quality of life using the WHOQOL-BREF scale and mental health using the General Health Questionnaire 12-item (GHQ-12) scale in urban India, specifically Hyderabad.[13] Prior research often used different screening tools, focused predominantly on rural areas, or was not recent.[14] The absence of current, specific data limits understanding of the dual burden of poor QOL and mental health, and their relationship in rapidly evolving urban areas, potentially leading to misaligned public health planning and suboptimal outcomes.

Aims and Objectives

Aim

To assess the mental health and quality of life among elderly in an urban field practice area in Hyderabad, Telangana, India.

Objectives

- To determine the overall quality of life among the elderly using the WHOQOL-BREF scale.
- To assess the mental health and grade the mental well-being among the elderly using the General Health Questionnaire 12-item (GHQ-12) scale.
- To identify the socio-demographic, health-related, and environmental factors associated with quality of life and mental health among the elderly.
- To explore the relationship between quality of life and depression among the elderly population in the study area.

MATERIALS AND METHODS

Study Design: A community-based cross-sectional study.

Study Setting and Period: Urban Field Practice Area, Hyderabad, Telangana, India

Study Period: The study period is from January 2023 – March 2023

Study Population: Elderly aged 60 years and above.

Inclusion criteria

Permanent residents of the urban field practice area.

Exclusion criteria

Neurodegenerative diseases, Severe psychiatric conditions, those currently on psychotropic medication.

Sample Size: The sample size was calculated using formula 4PQ/L2 taking prevalence of mental health as 37%,[15] with confidence interval of 95%, and margin of error 5% it came out as 373, it was rounded off to 400 considering non-response rate

Sampling Method: Systematic Random Sampling

Systematic random sampling used to select participants from the urban field practice area of Osmania Medical College. Assuming that each house contains at least one elderly individual the sampling interval was calculated using the formula: total number of houses to sample size. (The number of houses data was obtained from the records maintained by the urban health center). The sampling interval came as 50. Every 50th house in the urban area were selected. The next house was visited if locked or no elderly. After taking ethical approval from the institutional ethics committee of Osmania Medical College, elderly aged 60 and over who gave consent and can speak any one of three language English, Hindi, and Telugu, were included. A predesigned, semi structured questionnaire was prepared using the WHOQOL-BREF Questionnaire and General Health Questionnaire-12 and review of available articles. Data was collected by direct interview method. The questionnaire consists of a socio demographic profile, WHOQOL-BREF Questionnaire and General Health Questionnaire-12. Collected data were entered in MS Excel 2007 and analyzed in SPSS- Ver 22. Results were calculated as descriptive statistics like frequencies, percentages, mean and standard deviation. Inferentail statistics by pearson's correlation and One way ANOVA and Multi-logistic regression. A P value of less than 0.05 was considered significant.

Questionnaire consist of Sociodemographic data, such as age, gender, marital status, educational, socioeconomic status, and medical history. Any elderly with any chronic conditions positive declared as unhealthy. Quality of Life was assessed using the World Health Organization Quality of Life-BREF (WHOQOL-BREF) scale.[16] This is a 26-item questionnaire that measures four domains of QOL: physical health (7 items), psychological health (6 items), social relationships (3 items), and environment (8 items), two items assess overall QOL

and general health. Response is based on 5-point Likert scale, ranging from 1 to 5. Raw domain scores are summed and then transformed to a scale of 0-100, where higher scores indicate better QOL. Mental Health was assessed using the General Health Questionnaire 12-item (GHQ-12) scale.[17] The questionnaire consists of 12 items, indicating the recent experience of particular symptoms or behaviors on a four-point likert scale; a total score from 0 to 36, with higher scores indicating greater psychological distress. The article is in line with the STROBE guidelines for observational studies.

RESULTS

Majority of the participants are in the age group of 60-65 years, Females, studied up to primary education, married, not healthy, and belong to upper class.

Table 1: Socio-demographic profile of the study participants

Characteristics	400(100)
Age	N (%)
60-65	215(53.7)
66-70	126(31.6)
71-75	32(8)
76-80	15(3.7)
81-85	8(2)
86-90	4(1)
Gender	N (%)
Male	158(39.5)
Female	242(60.5)
Education	N (%)
Primary education	203(50.7)
Secondary Education	142(35.5)
Tertiary Education	32(8)
Professionals	23(8)
Marital Status	N (%)
Not Married	14(3.5)
Married	256(63.5)
Widow	133(33)
Health Status	N (%)
Healthy	64(16)
Not Healthy	336(84)
Socio-economic Status	N (%)
Upper Class	208(52)
Upper Lower class	164(41)
Middle Class	20(5)
Lower middle	6(1.5)
Lower Class	2(0.5)

Table 2: Quality of life and Mental health status of Study participants

S.No	Characteristic	Mean ± Standard Deviation
1	GHQ-12	16.645 ± 3.833
2	Domain 1	40.095 ± 9.989
3	Domain 2	47.860 ± 10.080
4	Domain 3	55.703 ± 12.747
5	Domain 4	68.445 ± 13.911

The mean QoL is highest for the Domain 4 i.e., environmental domain and least for the Domain 1 i.e., Physical domain.

Table 3: Bivariate Correlations (Pearson's r) between Age, GHQ-12, and Quality of Life Domains (N=400)

Variables Correlated	Pearson Correlation (r)	Sig. (p-value)
Age vs GHQ-12	.104*	.03826
Age vs Domain 1	-.191	<.00127
Age vs Domain 2	-.260	<.00128
Age vs Domain 3	-.215	<.00129
Age vs Domain 4	-.001	.98630
GHQ-12 vs Domain 1	-.215	<.00134
GHQ-12 vs Domain 2	-.064	.20033
GHQ-12 vs Domain 3	.060	.22932
GHQ-12 vs Domain 4	-.055	.27531

Age showed a weak positive correlation psychological distress, negatively correlated with Domain 1, Domain 2, and Domain 3 , suggesting older aged has lower QoL, with the strongest effect on psychological health.

GHQ-12 was negatively correlated with Domain 1, suggesting higher psychological distress was associated with lower physical health QoL.

Table 4: One-Way ANOVA for Quality of Life Domains and GHQ-12 by Sociodemographic Factors (N=400)

Dependent Variable	Independent Variable	df (Between Groups, Within Groups)	F-statistic	Sig. (p-value)
Domain 1	Gender	1, 398	16.701	<.0011
	Education	3, 396	10.219	<.0012
	Marital	2, 397	15.755	<.0013
	Health status	1, 398	62.078	<.0014
	Class	3, 396	8.639	<.0015
Ghq-12	Gender	1, 398	28.547	<.0017
	Education	3, 396	4.409	.0058
	Marital	2, 397	5.008	.0079
	Health status	1, 398	0.222	.63810
	Class	3, 396	1.701	.16611
Domain 2	Class	3, 396	28.700	<.00111
	Health status	1, 398	28.651	<.00112
	Marital	2, 397	16.359	<.00113
	Education	3, 396	33.194	<.00114
	Gender	1, 398	0.910	.34115
Domain 3	Gender	1, 398	11.235	.00117
	Education	3, 396	27.331	<.00118
	Marital	2, 397	69.821	<.00119
	Health status	1, 398	20.007	<.00120
	Class	3, 396	12.421	<.00121
Domain 4	Class	3, 396	57.510	<.00121
	Health status	1, 398	2.007	.15722
	Marital	2, 397	14.230	<.00123
	Education	3, 396	50.934	<.00124
	Gender	1, 398	4.408	.03625

These findings indicate that marital status, education, and social class consistently influence QoL domains, with health status particularly impacting physical and psychological health. Gender effects were prominent for mental health and social relationships.

Table 5: Multiple Linear Regression Models Predicting GHQ-12 and WHOQOL- BREF Domains (N=400)

Model	**R**	**R-Square**	**Adjusted R-Square**	**Std. Error**	**F (p-value)**
GHQ-12	0.341	0.116	0.103	3.64	8.63 (<0.001)
Coefficients					
Predictor	**B**	**Std. Error**	**Beta**	**t**	**p-value**
Constant	3.28	2.80	–	1.17	.243
Age	0.11	0.03	0.19	3.85	<.001
Gender	3.07	0.47	0.39	6.50	<.001
Education	0.28	0.26	0.06	1.10	.272
Marital Status	−0.99	0.41	−0.14	−2.41	.017
Illness	0.93	0.51	0.09	1.82	.069
Social Class	0.63	0.31	0.11	2.01	.045
Model	**R**	**R-Square**	**Adjusted R-Square**	**Std. Error**	**F (p-value)**
Domain 1 (Physical Health)	0.455	0.207	0.195	8.97	17.11 (<0.001)
Coefficients					
Predictor	**B**	**Std. Error**	**Beta**	**t**	**p-value**
Constant	47.95	6.91	–	6.94	<.001
Age	−0.24	0.07	−0.16	−3.38	.001
Gender	−2.84	1.17	−0.14	−2.43	.015
Education	0.65	0.63	0.06	1.03	.302
Marital Status	−1.07	1.01	−0.06	−1.06	.292
Illness	9.02	1.27	0.33	7.13	<.001
Social Class	−1.45	0.77	−0.10	−1.89	.060
Model	**R**	**R-Square**	**Adjusted R-Square**	**Std. Error**	**F (p-value)**
Domain 2 (Psychological Health)	0.585	0.342	0.332	8.25	34.09 (<.001)
Coefficients					
Predictor	**B**	**Std. Error**	**Beta**	**t**	**p-value**
Constant	58.82	6.35		9.26	<.001
Age	−0.31	0.07	−0.20	−4.60	<.001
Gender	2.12	1.07	0.10	1.98	.049
Education	3.13	0.58	0.26	5.40	<.001
Marital Status	−3.04	0.93	−0.16	−3.28	.001
Illness	7.34	1.16	0.27	6.31	<.001
Social Class	−3.69	0.70	−0.25	−5.24	<.001

Model	R	R-Square	Adjusted R-Square	Std. Error	F (p-value)
Domain 3 (Social Relationships)	0.595	0.354	0.344	10.34	35.84 (<.001)
Coefficients					
Predictor	**B**	**Std. Error**	**Beta**	**t**	**p-value**
Constant	80.39	7.97		10.09	<.001
Age	−0.30	0.08	−0.15	−3.55	<.001
Gender	3.12	1.34	0.12	2.32	.021
Education	2.88	0.73	0.19	3.96	<.001
Marital Status	−10.21	1.17	−0.44	−8.76	<.001
Illness	7.03	1.46	0.20	4.82	<.001
Social Class	−2.85	0.88	−0.15	−3.23	.001
Model	**R**	**R-Square**	**Adjusted R-Square**	**Std. Error**	**F (p-value)**
Domain 4 (Environment)	0.621	0.386	0.376	11.00	41.16 (<.001)
Coefficients					
Predictor	**B**	**Std. Error**	**Beta**	**t**	**p-value**
Constant	65.55	8.47	—	7.74	<.001
Age	0.06	0.09	0.03	0.72	.470
Gender	2.32	1.43	0.08	1.62	.106
Education	5.01	0.77	0.31	6.49	<.001
Marital Status	−4.64	1.24	−0.18	−3.74	<.001
Illness	4.76	1.55	0.13	3.07	.002
Social Class	−7.44	0.94	−0.36	−7.92	<.001

The above table suggest that socio-demographic factors affects the different domains of the QoL and Mental health with different factors affecting different domains with varied statistical findings.

DISCUSSION

The assessment of QOL among the elderly in urban Hyderabad revealed a complex picture influenced by socio-demographic characteristics and mental health status. The study found a female preponderance and a majority of participants in the 60-69 age group, aligning with other studies.[13,18] Most participants had primary education, consistent with some research, though other studies show higher educational attainment.[19] The majority were married and living with spouses, reflecting a common trend, though traditional joint family structures are transitioning towards nuclear families, potentially increasing vulnerability for older adults.[20] Most participants belonged to the upper class, consistent with some previous findings.[21]

The overall mean QoL score of the present study aligned with the study by,[12] while showing variability when compared to others.[18] This variability can be attributed to differences in WHO-QOL versions, scoring methodologies, and the unique socio-demographic profiles and urban contexts of study populations.[19] Mean domain scores were also comparable to a study conducted in Bangladesh, emphasizing the need to consider population-specific characteristics, cultural nuances, and precise QoL assessment methodology.[20]

The mean GHQ-12 score of 16.645 ± 3.833 indicates prevalent mental health problems among the elderly, higher scores relate to poorer mental health.[21] This highlights a burden of mental health issues, as seen in other Indian studies where a substantial portion of the geriatric population exceeded the mental illness threshold.[11] Mental health is intertwined with social, economic, and health determinants; higher GHQ-12 scores were negatively correlated with educational level and number of family members. This suggests that interventions for older adults should adopt a holistic approach addressing clinical symptoms, social, and environmental stressors.[22]

The study showed a negative correlation between age and QoL, indicating that older age is associated with poorer QoL, in physical, psychological, and social health domains.[22,23] This deterioration is attributed to factors such as decreased independence, increased need for assistance, chronic illnesses, reduced socialization, and financial insecurities.[24] Age is positively correlated with GHQ-12 scores, as older age is associated with higher psychological distress. These findings align with prior research.[24,25]

Gender differences were observed in QoL and mental health issues, with females showing a higher prevalence of mental disorders and increased psychological distress compared to men, especially after events like COVID-19.[18, 24.26]

Educational status also proved a significant determinant of QoL across all domains, with literacy positively associated with better QoL. Higher education tends to improve socioeconomic status, income, living standards, and access to healthcare, all contributing to better QoL. Lower educational levels are also linked to higher depression prevalence.[24,27,28]

Marital status also significantly influenced QoL, particularly physical and environmental domains. Married elderly individuals tend to have better QoL due to emotional, social, financial, and material support. Living alone is associated with higher depression prevalence and poorer QoL across various domains, especially for females, whereas living with a spouse or children reduces depression risk.[25,28,29]

Socio-economic Status (SES), including education and occupation, is a crucial determinant of QoL, as better income correlates with improved nutrition, living conditions, and healthcare. Poverty and low

income are risk factors for depression, aligning with the present study.[24,25,28]

The strong negative correlation between GHQ-12 scores and QoL domains suggests that as mental health deteriorates, QoL decreases across physical, psychological, social, and environmental aspects. Mental health is a fundamental component of overall well-being, influencing an individual's perception of life. Poor mental health can lead to decreased physical, cognitive, and social functioning, and increased risk of self-neglect, emphasizing that loneliness and anxiety also affect older adults' dietary behaviors and overall well-being.[22,23]

This interrelationship implies that a comprehensive approach simultaneously addressing physical and mental health needs, alongside social and environmental determinants, is essential for holistic well-being in the elderly. Such an approach acknowledges that improvements in one area of health can positively influence others, creating a virtuous cycle.[19,23,28]

Multivariate analyses further underscore the interplay of socio-demographic factors, health status, and social support networks in shaping individual well-being. A fragmented approach focusing solely on physical or mental health is insufficient. Instead, an integrated, person-centered approach is required, involving interdisciplinary collaboration among geriatric social workers, psychologists, and healthcare providers to offer comprehensive care that addresses the holistic needs of the elderly. Globally, chronic diseases, physiological changes, bereavement, loneliness, social isolation, and low income are known contributors to mental disorders in older adults.[23,24,30]

Summary: This community-based cross-sectional study assessed the mental health and quality of life (QOL) among 400 elderly individuals using the WHOQOL-BREF scale for QOL and the General Health Questionnaire 12-item (GHQ-12) scale for mental health. The mean GHQ-12 score of 16.645 ± 3.833 indicated prevalent psychological distress among the elderly, while QOL varied across domains, with physical health showing the lowest mean score. The study highlighted that age correlated with higher psychological distress and negatively with physical, psychological, and social QOL. Moreover, higher psychological distress (GHQ-12 scores) was significantly associated with lower physical health QOL.

CONCLUSION

There is a burden of mental health issues and significant challenges to QOL for urban elderly in Hyderabad. This involves a bidirectional relationship between QOL and mental health. Holistic geriatric care is essential.

Recommendation: Routine screening, integrated care, community-based psychosocial support, health education, and improved financial security for better well-being is recommended.

REFERENCES

1. Mental health of older adults https://www.who.int/news-room/fact-sheets/detail/mental-health-of-older-adults cited on 1 july 2025
2. Ageing and health https://www.who.int/news-room/fact-sheets/detail/ageing-and-health. cited on 1 july 2025
3. Shreya D, Fish PN, Du D. Navigating the Future of Elderly Healthcare: A Comprehensive Analysis of Aging Populations and Mortality Trends Using National Inpatient Sample (NIS) Data (2010-2024). Cureus. 2025 Mar 11;17(3):e80442.
4. WHOQOL-Measuring quality of life https://www.who.int/tools/whoqol. cited on 1 july 2025
5. World Health Organization Quality Of Life BREF https://scireproject.com/outcome/world-health-organization-quality-of-life-bref-whoqol-bref/. cited on 1 july 2025
6. The global burden of NCD and mental health. https://www.mckinsey.com/mhi/our-insights/investing-in-the-future-how-better-mental-health-benefits-everyone
7. Du R, Yang K, Li W, Wang Z and Cai H (2024) Research status and global trends of late-life depression from 2004 to 2023: bibliometric analysis. Front. Aging Neurosci. 16:1393110. doi: 10.3389/fnagi.2024.1393110
8. Konda PR, Sharma PK, Gandhi AR, Ganguly E. Geriatric Depression and its Correlates among South Indian Urbans. J Depress Anxiety. 2018;7(4):314. doi: 10.4172/2167-1044.1000314. Epub 2018 Aug 14. PMID: 31406629; PMCID: PMC6690607.
9. Ministry of health and family welfare https://ihip.mohfw.gov.in/#!/programmes. cited on 1 july 2025
10. Dhasaram P, Chellamuthu L, Ganesh K, Santhaseelan A and Muthaiyan S Assessment of Quality of Life and Determinants Among the Elderly Population in Rural Areas of Puducherry: A Mixed Method Study. Journal of Medical Sciences. 2024; 2(11):1146–1156.
11. Chandrakant Lahariya, Jyothi Khandekar, S K Pradhan A community based study of health related quality of life of the elderly in urban India August 2012 Journal of the Indian Medical Association 110(8):548-50, 559
12. Kumar S G, Majumdar A, G P. Quality of Life (QOL) and Its Associated Factors Using WHOQOL-BREF Among Elderly in Urban Puducherry, India. J Clin Diagn Res. 2014 Jan;8(1):54-7.
13. Goswami S, Deshmukh PR, Pawar R, Raut AV, Bhagat M, Mehendale AM. Magnitude of depression and its correlates among elderly population in a rural area of Maharashtra: A cross-sectional study. J Family Med Prim Care. 2017 Oct-Dec;6(4):803-812.
14. Nagisetty S, Anitha CT. Assessment of Quality of Life Among Elderly Population Residing At Old Age Homes In Hyderabad, Telangana. RESEARCH & DEVELOPMENT JOURNAL.:28.
15. Chakraborty A, Mandal AK, Mukhopadhyay D, Ghosh S. Prevalence of mental illness among old age people in urban area: A study in Kolkata, West Bengal. Asian Journal of Medical Sciences. 2022 Mar 1;13(3):158-63.
16. https://www.who.int/tools/whoqol/whoqol-bref/docs/default-source/publishing-policies/whoqol-bref/english_whoqol_bref.pdf. cited on 1 july 2025
17. https://www.carepatron.com/files/general-health-questionnaire-ghq-12.pdf . cited on 1 july 2025
18. Lieber J, Clarke L, Timæus IM, Mallinson PAC, Kinra S. Changing family structures and self-rated health of India's older population (1995-96 to 2014). SSM Popul Health. 2020 Mar 25;11:100572.
19. S. GK, Majumdar A, G. P.Quality of Life (QOL) and Its Associated Factors Using WHOQOL-BREF Among Elderly in Urban Puducherry, India.J Clin of Diagn Res.2014; 8(1):54-57.
20. Liem A, Chih HJ, Velaithan V, Norman R, Reidpath D, Su TT. A comparison of health-related quality of life using the World Health Organization Quality of Life-BREF and 5-Level

EuroQol-5 Dimensions in the Malaysian population. Osong Public Health Res Perspect. 2025 Apr;16(2):126-140.
21. Kang W. Factor Structure of the GHQ-12 and Their Applicability to Epilepsy Patients for Screening Mental Health Problems. Healthcare. 2023; 11(15):2209. https://doi.org/10.3390/healthcare11152209
22. Asgarabad MH, Etesam F, Yegaei PS, Vahabi Z, Saneh N A, Fathi F, et.al. Construct validity of the GHQ (GHQ-12) in patients with COVID-19 and its demographic and medical correlates. Front. Psychol, Sec. Health Psychology, Volume 14 - 2023 https://doi.org/10.3389/fpsyg.2023.1132154
23. Singh B, Kumar A. Ageing, multimorbidity, and quality of life: a mediation analysis using longitudinal ageing study in India. Front. Public Health, Sec. Aging and Public Health, Volume 13 - 2025 | https://doi.org/10.3389/fpubh.2025.1562479
24. Mahaur G, Dwivedi A, Joshi D, Dwivedi N. A Study on Quality of Life among the Elderly at Urban Health Center in North Delhi. J Midlife Health. 2023 Oct-Dec;14(4):246-251. doi: 10.4103/jmh.jmh_82_22
25. Ahamad V, Akhtar S, Pal SK, Bhagat RB. How migration and its types affect mental health in later life: a cross-sectional study among the older adults in India. BMC Psychiatry. 2025 May 1;25(1):446.
26. Van Nguyen T, Van Nguyen H, Duc Nguyen T, Van Nguyen T, The Nguyen T. Difference in quality of life and associated factors among the elderly in rural Vietnam. J Prev Med Hyg. 2017 Mar;58(1):E63-E71. PMID: 28515634; PMCID: PMC5432781.
27. Adhikari R, Shah R, Ghimire K, Khanal B, Baral S, Adhikari A, et.al. The Quality of Life and Associated Factors Among Older Adults in Central Nepal: A Cross-Sectional Study Using the WHOQOL-OLD Tool. International Journal of Environmental Research and Public Health. 2025; 22(5):693. https://doi.org/10.3390/ijerph22050693
28. Shaw S, Khan J. The risk of experiencing depression among older adults in India: A cross-sectional study. J Diabetes Metab Disord. 2023 Jan 19;22(1):629-638. doi: 10.1007/s40200-023-01185-6. PMID: 37255784; PMCID: PMC10225437.
29. Amonkar P, Mankar MJ, Thatkar P, Sawardekar P, Goel R, Anjenaya S. A Comparative Study of Health Status and Quality of Life of Elderly People Living in Old Age Homes and within Family Setup in Raigad District, Maharashtra. Indian J Community Med. 2018 Jan-Mar;43(1):10-13.
30. Ishassery Pathrose S, Thampi K, Yohannan SV, Mathew LM. Life Review Interventions in Improving Mental Health and Well-Being of Older Adults in Institutional Care. J Gerontol Soc Work. 2025 May-Jun;68(4):551-567. doi: 10.1080/01634372.2025.2467347.