CORRELATES OF DEPRESSION AMONG ELDERLY POPULATION RESIDING IN A COMMUNITY IN EASTERN NEPAL

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ABSTRACT

Introduction

With a increase in life expectancy, demographic transition has led to sharp rise in number of elderly population. The elderly population growth rate per year has always been more than the total population growth rate, signifying the start of the ageing dynamics in Nepal. Mental health is a neglected health problem of the elderly in Nepal, with depression topping the list. This needs to be addressed in the national programs for the elderly to bring about an overall improvement in their health status.

Objectives

This study was conducted with objectives to identify the prevalence of depression and factors associated with it in an urban municipality of eastern Nepal.

Methodology

A community based cross-sectional study was conducted using the Geriatric Depression Scale- Short Form (GDS-SF) with 15 questions to screen for depression with a cutoff of 4/5. Door to door visit was done for data collection and face to face interviews were conducted. Pearson's Chi-square was used and Odds Ratio (OR) with confidence limits was calculated for inferential statistics. Logistic regression analysis was performed for all independent variables significantly associated in the bivariate analysis.

Results

Among the 353 study subjects interviewed, depression was identified in 65.2% by GDS-SF. Regression Model showed that age more than 70 years, being in the lower class of Kuppuswamy Socioeconomic scale and elderly who were not satisfied with the respect given by their community had more odds of being depressed.

Conclusion

Prevalence of depression among elderly was found to be very high in this study which was significantly associated with older age, low socio-economic status and perceived lack of respect from the community.

KEYWORDS

Geriatric, geriatric depression scale (GDS), mental health

INTRODUCTION

Ageing is a normal phenomenon associated with physical, social and psychological changes. With declining fertility and mortality rates and rising life expectancy, demographic transition in the 21st century has led to a sharp rise in number of older population.[1] This increase has been noted in both developed and developing countries.[2] It has been projected that 80% of older people will be residing in low and middle income countries by 2050.[3]

The old age dependency rate calculated for different time periods shows an increasing trend from 7.5% in 1911 to 12.01% in 2001. The elderly population growth rate per year has always been more than the total population growth rate in Nepal.[4]

With a rise in life expectancy, age structure of the population has been changing due to increase in proportion of people aged 60 years and above who constitute 8.4% of the population in Nepal.[5] Though, the increase is not as high compared to those observed for developed countries (as high as 13%), it signifies the start of the ageing dynamics in Nepal, that will have adverse effects on Nepalese social structure and economy in the long run.

Ageing is associated with various physiological and pathological changes including Mental Health. Mental health is a neglected health problem in Nepal, especially among elderly population.[6] Limited researches have been conducted in the community as mental health ignites stigmatization, isolation and there have been lack of policies focusing on the needs of, and health measures provided for geriatric population in the health policies of Nepal.[7] Even the operational use of the existing policies regarding healthcare of elderly population has been virtually ignored by current health system.[8] This study was conducted in one such representative urban area of Duhabi Municipality with objectives to identify the prevalence of depression and assess factors associated with depression among the geriatric population.

METHODOLOGY

A community based cross-sectional study was conducted among elderly population residing in Duhabi Municipality of Sunsari District over a duration of one month. This municipality is located in southeastern part of Sunsari district having a population of 25,545 with 5.75% elderly subjects (≥ 60 years).[5]

The required sample size was calculated to be 353 based on the findings from the available literature, after adding for a non-response rate of 10%.[9] Data collection tools included a semi-structured questionnaire that was developed and pretested in Dharan Municipality on 10% of sample size, which was not included in the final analysis. The 15-item Geriatric Depression Scale (GDS) was translated into Nepali language, followed by back-translation by independent experts. GDS has been used in Asian communities for older adults and has been shown to have Cronbachs alpha of 0.80.[10] The score of 5 or above was used as cut-off for detecting depression as this cut-off has been reported to have a high sensitivity (92%) and specificity (82%).[11]

After obtaining data on the population composition of each ward of the municipality, the proportionate sample size for each ward was calculated. Data collection for the ward was started from the ward office and the direction was decided by rotating a bottle. Following this the first house was visited, and if an elderly was present, interview was conducted. The second house was skipped and collection was resumed in the third household. If there was no elderly in the household, data collection was resumed in the next household. This was continued till the required proportionate sample size for the ward was obtained.

In each household the nature and purpose of study was clearly explained and an informed written consent was obtained. One elderly from each household was included as respondent (study subject) irrespective of gender and where two or more were present, lottery was done to select one respondent. Each respondent was interviewed privately where s/he would feel comfortable to ensure privacy and confidentiality. Subjects absent at the time of visit were relayed information and asked to be present the next day to be assessed. Those absent even after this visit were excluded from the study.

Operational definition of a few terms used in this study have been included. Overcrowding was defined as less than 70 square feet of floor space area per person in the household. Floor space area refers to total floor space area of all the sleeping room in house divided by the number of family members.[12] Pucca houses are made from high quality materials, i.e. bricks, cement, concrete, including roof, walls and floor while katcha houses are made from mud and thatch or other low quality materials. Semi-pucca houses are made from a combination of the above types.[13] Kuppuswamy socioeconomic score categories included lower socio-economic status defined as those having score of 0-10 andhigher socio-economic status as those having a score of 11-29.[14]

Odds Ratio (OR) with confidence limit was calculated for inferential statistics. Logistic regression analysis was performed for all independent variables significantly associated in the bivariate analysis. This was done to identify associated factors for depression in elderly with the probability of significance set at 95% of Confidence Interval (CI).

Ethical permission was taken from the Institutional Review Committee (IRC) of BP Koirala Institute of Health Sciences before the study.

RESULTS

A total of 353 respondents aged 60 and above, residing in Duhabi Municipality participated in this study with a response rate of 94.13%. Majority (80.7%) of respondents belonged to age group of 60-70 years with a mean age of 66.4 years and standard deviation (SD) of 7.118. Among the participants, 81.6% were Hindu by religion and 59.2% Females. The Terai Janajati ethnicity (33.4%) dominated other ethnic groups and 70.8% of the respondents were married.

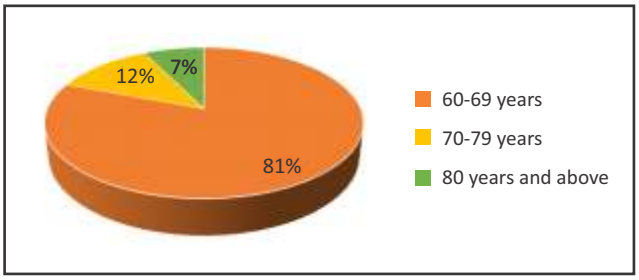

Figure 1: Age distribution of the study subjects (n = 353)

About 64.9% of the respondents were illiterate and 68.3% unemployed. Only 57.5% of the respondents were in the normal BMI range. Based on the income, education and occupation status, majority (60.6%) of households were in the Upper lower SES based on Kuppuswamy Scale as shown in Table 1.

Table 1. Socioeconomic and demographic profile of respondents residing in Duhabi Municipality (n=353)

Characteristics	Categories	Frequency	Percentage
Sex	Female	209	59.2
	Male	144	40.8
Religion	Hindu	288	81.6
	Muslim	64	18.1
Ethnicity*	Christian	1	0.3
	Dalit Hill	5	1.4
	Dalit Terai	26	7.4
	Madhesi	95	26.9
	Muslim	64	18.1
	Janajati Hill	7	2.0
	Janajati Terai	118	33.4
	Brahmin/ Chettri	38	10.8
Marital status	Married	250	70.8
	Divorced	2	0.6
	Widowed	101	28.6
Body Mass Index	Underweight (<18.5)	31	8.8
	Normal (18.5-24.9)	203	57.5
	Overweight (25-29.9)	105	29.7
	Obese (>30)	14	4.0
Kuppuswamy Scale	Upper-Middle	31	8.8
	Lower-Middle	80	22.7
	Upper Lower	214	60.6
	Lower	28	7.9

* Based on NDHS 2011[5]

Among the respondents, a slightly greater percentage (37.7%) lived in a Pucca house in comparison to katcha houses with overcrowding present in 61.8%. Only 9.1% of the respondents did not use the toilet regularly. (Table 2)

Among the respondents, only 66.3% still lived with spouse and children and 77.6% were satisfied with the respect they received from the community even in old age. Although 83.3% had knowledge about the old age allowance provided by the government, only 23.5% were actually receiving it.

Table 2: Housing Profile and Social Characteristics of the study population (n=353)

Characteristics	Categories	Frequency	Percentage
Type of house	Katcha	111	31.4
	Semi-pucca	109	30.9
	Pucca	133	37.7
Over crowding	Yes	218	61.8
	No	135	38.2
Living arrangement	Alone	8	2.3
	With children	92	26.1
	With spouse	19	5.4
	With spouse & children	234	66.3
Get respect from others	Satisfied	274	77.6
	Sometimes avoided	69	19.5
	Burden to family	10	2.8
Knowledge of old age allowance	Yes	294	83.3
	No	59	16.7
Get allowance	Yes	83	23.5
	No	270	76.5

Table 3. Depression status among respondents residing in Duhabi Municipality using the Geriatric Depression Scale (n=353)

Characteristics	Categories	Frequency	Percentage
Geriatric Depression Scale	<5(No Depression)	123	34.8
	≥5(Depression)	230	65.2

Based on the Geriatric Depression Scale-Short Form, depression was seen among 65.2% of the respondents. (Table 3) Bivariate analysis with Pearson Chi-square showed that subjects aged seventy years or more were 2.4 times more likely to be depressed than subjects less than seventy years old (p=0.006) and females had 1.8 times more chances of being depressed (p=0.007). (Table 4) Similarly, not being married (p=0.015), living in a Kutcha house (p=0.010) and living without spouse (p=0.028) were significantly associated statistically with being more depressed. Statistical association was highly significant (p=0.000) for lower class elderly population based on Kuppuswamy socioeconomic scale and subjects not satisfied with the respect bestowed, with depression.

Table 4. Bivariate Analysis (n=353)

Characteristic	Category	Geriatric Depression Scale		Total (n= 190)	OR	95% CI		Significance
		No Depression	Depression			Lower	Upper	
Age	< 70 years	38.2	61.8	285	1.0			
	70 years & above	20.6	79.4	68	2.4	1.3	4.5	0.006
Gender	Male	43.1	56.9	144	1.0			
	Female	29.2	70.8	209	1.8	1.2	2.9	0.007
Religion	Others	27.7	72.3	65	1.0			
	Hindu	36.5	63.5	288	0.7	0.4	1.2	0.18
Marital Status	Married	38.8	61.2	250	1			
	Others	25.2	74.8	103	1.9	1.1	3.1	0.015
BMI	Normal	37.9	62.1	203	1			
	Abnormal	30.7	69.3	150	1.4	0.9	2.2	0.16
Kuppuswamy Scale	Middle Class	54.1	45.9	111	1			
	Lower Class	26.0	74.0	242	3.3	2.1	5.3	0.000
Type of House	Pucca/Semipuca	39.3	60.7	242	1			
	Katcha	25.2	74.8	111	1.9	1.2	3.2	0.010
Respect from others	Satisfied	40.9	59.1	274	1.0			
	Unsatisfied	13.9	86.1	79	4.3	2.2	8.4	0.000
Living	With Spouse	38.3	61.7	253	1.0			
	Without Spouse	26.0	74.0	100	1.8	1.1	2.9	0.028
Poverty Status	Above	40.2	59.8	102	1			
	Below	32.7	67.3	251	1.4	0.9	2.2	0.18

Table 5: Logistic Regression Analysis

Characteristics	Category	Adjusted OR (aOR)	95% CI		Significance (p-value)
			Lower	Upper	
Age	<70 years	1			
	70 years & above	2.1	1.1	4.2	0.026
Kupuswamy Scale	Middle Class	1			
	Lower Class	3.3	2.2	5.4	0.000
Respect from others	Satisfied	1			
	Unsatisfied	4.2	2.1	8.4	0.000

Goodness of fit: Chi-square = 0.892, df = 3, p = 0.827

Variable(s) entered on step 1: Age, Gender, Religion, Marital status, Kuppuswamy socioeconomic scale, Type of House, Get Respect from others and Living with/without Spouse.

Logistic regression analysis was used to assess the most significant factors associated with depression as identified by the Geriatric Depression Scale. After adjusting for other variables, age 70 years or more [adjusted OR (aOR)=2.4; (1.2-4.7)], lower class category in the Kuppuswamy socioeconomic scale [aOR=3.0; (1.8-5.0)] and those not satisfied with the respect conferred by others [aOR=4.2; (2.0-8.7)] were significantly associated with depression.

DISCUSSION

The prevalence of depression among elderly in this study was 65.2% using the Geriatric Depression scale -15, which is higher than that found by other studies conducted in community-dwelling elderly of three Asian countries (Indonesia: 33.8%, Vietnam: 17.2%, Japan: 30.3%) and elderly of rural Thailand (27.5%).[9,15] Studies published in Nepal have also found high rates of depression among elderly ranging from 47.3%, 66% to 72.8% in old-age homes and 25.45% in community.[16-19] This wide variation of prevalence could be attributed to various factors, firstly, the use of GDS-30 scale in some studies and the use of different cut-off values for GDS-15 scale and secondly, smaller sample sizes of studies in sheltered homes and hospitals giving varied prevalence. However, this study included an adequate sample size and used a cut-off of 4/5 for the GDS-15 which has a high sensitivity and specificity.[11] The high prevalence of depression in this setting could be attributed to socio-cultural factors like lack of health care facilities pertaining to elderly population, migration of younger generation for employment and lack of awareness regarding mental illness.[7] The migration of the younger population for employment to Arabian and other countries

has left elderly population behind with no one to care for them. This could be one of the reasons for the high prevalence which needs to be studied further.

Variables that were significant in the bivariate analysis but not in the regression model were gender, marital status, type of house and living with/without spouse. Elderly female respondents were 1.8 times more likely to have depression than their male counterparts (OR=1.8, CI: 1.2-2.9). Similar reports have been observed in studies conducted in Malaysia (OR = 2.87, 95% CI : 1.37–6.02) and Pakistan (OR=3.5, CI:1.5-8.1), where gender was a significant predictors for depression.[2,20] In contrast, a few studies have not found gender to be a significant factor.[15,21] Similarly in our study, gender was not significantly associated in the regression model.

A study showed that marital status had a direct role in predisposing the elderly to depression.[22] In this study respondents who were unmarried/widowed/divorced were found to be 1.9 times likely to be depressed than those married (OR=1.9; CI: 1.1-3.1). However this was not significant in the regression model, similar to the findings of a study done in rural Malaysia.[23]

Poverty has been shown to be associated with depression in various studies including this.[21] Poor housing conditions are present in underprivileged population that includes thatched houses, mud/wood walls which have been shown to be associated with depression in few studies, and was also observed in bivariate analysis in this study (OR=1.9; CI: 1.2-3.2).[24] However, the regression model rendered this factor insignificant. Elderly population not living with their spouse were more likely to be depressed than those living with their spouse in the bivariate analysis in this study (OR=1.8; CI: 1.1-2.9). This observation has also been seen in meta-analysis done by Yan et al (OR=1.55) and Greece.[25,26]

Among the findings significant in the regression model, this study showed that respondents aged 70 years or more were 2.1 times more likely to have depression than those less than 70 years of age (adjusted OR=2.1; CI:1.1-4.2), a finding that mirrors conclusions of other authors.[27-29] However, few studies have not found any significant association of age with depression.[15, 16, 19] The possible explanation could be that as a person grows older, the old age changes become more severe and incapacitating leading to social exclusion and mental disorders.

This study also shows that elderly in the Lower Class category of the Kuppuswamy scale were 3.3 times more likely to be depressed than their affluent counterparts (aOR=3.3; CI:2.0-5.4). This brings us to a point of view that being poor, lacking education and un/under-employment predisposes the elderly to depression as this scale is based on income, education and employment.[14] This is in agreement with study carried out on elderly persons from two communities in Kingston, Jamaica.[28]Other studies done in rural south Indian Community and rural Malaysia also showed that respondents with low income were at high risk for depression.[21,23]

Elderly who were satisfied by the respect they received from the community were less likely to be depressed in this study. Likewise those who were of the opinion that they were either avoided or perceived themselves as a burden to the family were 4.2 times at more odds of being depressed (aOR=4.2; CI: 2.1-8.4). This is in line with the findings of a study where Care Recipients who perceived that they were afforded lower levels of respect were at greater risk of depression and another dissertation from the Loyola University Chicago.[30,31] Perceived respect from others is a positive support that keeps a person socially active and mobile. This study also identified this aspect which was statistically significant after adjusting for other variables.

CONCLUSION

Prevalence of depression among elderly was found to be very high in this study and is of a major concern, especially in this age of increased migration of the young of the household for employment, leaving the elderly behind. Depression was found to be associated significantly with age more than 70 years, low socio-economic status and perceived lack of respect for the elderly.

RECOMMENDATIONS

With the initiation of special health programs for the elderly by the government in Nepal, depression is also an important factor to be addressed in those programs as its prevalence is very high. Social Organizations also need to focus on the problem of the elderly and address them. The recent trend of migration for work is also partly responsible for the problem, for which long term solutions needs to be identified by the Government.

LIMITATION OF THE STUDY

Additional measures like routine lab investigations to assess the physical health would have provided a more comprehensive picture of the overall health of the elderly, but was not possible due to resource limitation. In addition, the study would have been more consistent if the scales used had been validated in the local population.

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CONFLICT OF INTEREST

None

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