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Determinants of Quality of Life Among Older Adults in Urban Informal Settlements: Insights from Kathmandu, Nepal

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Abstract

Objective: The purpose of this study is to assess the quality of life (QOL) of older adults living in the Bagmati squatters of Kathmandu and explore factors associated with it.

Material: A cross-sectional study design was conducted in Bagmati Squatter settlements of Kathmandu district. A total of 144 older adults aged 60 years and above were enrolled in the study. QOL was measured by WHOQOL-OLD questionnaire. Data were analyzed using descriptive statistics and the chi-squared test.

Results: The prevalence of poor QOL among the older adults living at Bagmati squatter of Kathmandu was (33.7%). More than one third of the respondents (61.1%) were male, mean age 64.15 ± 3.9 years and their age ranging from (60 to 75) years, where the majority (90.3%) were age group less than 70 years, dalit (66.7%), hindu (79.2%), married (54.2%), had more than 5 children(74.3%), smokers (55.6%) ,had drinking habit (68%) and chew tobacco (47.2%). Over two-thirds of the respondents (77.1%) had medical conditions where the majority suffered from Hypertension (18.1%) and also didn't took any medicines. Half of the respondents perceived their health status bad. The quality of life was found poor among men, feeling depressed, having total children more than 5 , who had smoking habit and were smoking cigarette more than 5 per day, had habit of tobacco use ,having medical condition, who did not take any medication for last 2 months and who perceived health status bad. This study showed that female, dalit, married and married at age less than 16 years, older adults who had history of fall in previous 6 months, respondents with less than 5 members in family, who had smoking habit, smoking for more than last one year, had habit of tobacco use and alcohol drinking habit, who perceived health status good and those who are not involved in leisure activity were significantly associated with depression.

Conclusion: This study demonstrates that most of the older adults lead a poor quality of life where a comprehensive formal support system for the older adults should be a priority to ensure the older adults have acceptable quality of life. Older adults friendly health policy must consider the specific needs of older adults in squatter and the local government should execute direct policies to meet these needs accordingly to upgrade their quality of life.

Keywords: Quality of Life, Older adult, Bagmati Squatters, Ageing, Depression

Introduction

Nepal has a total of 2,154,003 older adults 60 years and above which accounts for 8.1% of the total population of Nepal as per 2011 census data. Province 4 of Nepal has the highest (11.8%) older adults and province 6 has the least (5.6%) older adults. [1]. According to the world population ageing 2019, the percentage of persons aged 60 and over is expected to double between 2007 and 2050 and more than triple by 2050 reaching to 2 billion. [2]. The aging population, along with the epidemiological transition of disease has increased the burden of chronic morbidity conditions.

The QOL is generally decreased with age. The Quality of life of slums and squatters is poor. Older adults in Bagmati squatters are predisposed to poor living condition owing to their physical location along the road, sewage drains, low river embankment, canal, on lowlands and on other high-risk physical locations, insufficient availability of portable water, lack of cleanliness, basic infrastructure and other services [3]. They are also prone to non-communicable disease as they age and also susceptible to different forms of communicable diseases due to poor sanitation and lack of healthcare access[4].

Socio-demographic factors play a critical role in determining QOL of older adults [5-7].However, there are very few studies had been conducted to assess QOL among the older adults living in squatters of Kathmandu, though many studies were conducted on QOL among older adults in other developing countries[2, 8, 9]. The study carried out in older adults in Nepal found 45.9% older adults reported neutral QOL, 35.1% good QOL and 19% poor QOL[10-12] The older adults is facing the challenges ranging from poor access to healthcare, decline in social participation, neglected by family and friends, mental disturbances and sleep disorders and many more, all of which could affect quality of life[8].Aging often comes with problems affecting QOL such as loneliness, ill-health and depression[13]. The objective of our study is to find out the different domains of QOL and its association with socio-demographic factors. The variables age, sex, co-morbidities, physical activity and education has significant relation with quality of life[14]. Furthermore, the study confirmed the multiple factors such as social support, chronic co-morbidities, gender, activity are determinants of quality of life and this emphasize the need for active ageing related interventions to ameliorate the quality of life of older adults squatters[15]. There is need for financial security schemes to be provided by the government in order to improve the quality of life of older adults living in Bagmati Squatters.

Method and Materials

A descriptive cross-sectional study was conducted in slums and squatter settlements of Bagmati-11, Kathmandu. All of the older population of age 60 years and above were selected by the census method for the interview. There were above 200 household where our study only found 144 older adult's respondents as per the study inclusion criteria. Structure questionnaire covered socio-demographic characteristics of the respondent followed by the brief version of WHOQOL [16, 17] is a self-report generic quality of life (QOL) inventory of 26 items, including four domains (Physical, Psychological well-being, Social relationships Environment).Socio-demographic characteristics, that is, age, sex, education, family type, marital status, and income, and data on QOL were collected using a structured questionnaire. The collected data was entered SPSS version 27. The prevalence was expressed using percentage and 95% confidence interval (CI). Association with various determinants was studied using chi square test. P value less than 0.05 was considered as a statistically significant. The study approval was obtained from ethics review committee and the Kathmandu municipal administration Ward no 11 office. Informed written consent was obtained from every interviewee. The older adults participants were interviewed in the presence of their

family attendants.

Results

Socio-demographic characteristics of the respondents

Out of 144 respondents, more than half (61.1%) were male and majority (90.3%) were age group less than 70 years .More than half (66.7%) belongs to Dalit, (13.9%) Brahmin/Chettri, (13.2%) Janajati and (6.3%) Madhesi, Hindu (79.2%) and Christian with least (6%). More than half were married (54.2%) and nearly three-fourth (79.2%) were married at age less than 16 years. Similarly, (49.3%) had history of fall in previous 6 months. Majority of the respondents (80.6%) did not attend school. Out of educated respondents, only (16.7%) attended Grade 1 to 7. Majority of the respondents (74.3%) had more than 5 children and least of the respondents lived with their children (17.4%). The major source of income of respondents are daily wages labor (65.3%). Among 2.1% other sources of family income, many respondents were provided funds occasionally from non-governmental agencies, volunteers and field survey students. The total monthly income of more than two-third of the respondents were less than 10000(75%). More than half of the older adults population were unemployed (64.6%). During their employment tenure, more than half of the respondents (56.3%) faced different behaviors sometimes, (22.2%) never faced different behaviors and (21.5%) always faced different behaviors at workplace. Among the different behaviors at workplace, (42.4%) faced workplace abuse, (38.2%) were assigned more task at work and (19.4%) did not get their salary (***see Table 1***).

Table 1: Socio-demographic characteristics

Variables(N=144)	Frequency(N)	Percentage （%）
Age group		
Less than 70 years	130	90.3
More than 70 years	14	9.7
Gender		
Male	88	61.1
Female	56	38.8
Caste		
Dalit	96	66.7
Janajati	19	13.2
Madhesi	9	6.3
Brahmin/Chettri	20	13.9
Religion		
Hindu	114	79.2
Buddhist	17	11.8
Kirat	7	4.9
Christian	6	4.2
Marital status		
Alone	14	9.7
Married	78	54.2
Widow/Widower	17	11.8

Variables(N=144)	Frequency(N)	Percentage （%）
Separated/Divorced	35	24.3
Fall in previous 6 months		
Yes	71	49.3
No	73	50.7
Feel depressed		
Yes	103	71.5
No	41	28.5
Age at marriage		
Less than 16 years	114	79.2
More than 16 years	30	20.8
Attended school		
Yes	28	19.4
No	116	80.6
Education Level		
No formal education	116	80.6
Grade 1-7	24	16.7
Grade8-10	2	1.4
SLC	2	1.4
Higher secondary	0	0
Bachelor and above	0	0
Family structure		
Joint	42	29.2
Nuclear	102	70.8
Total children		
Less than 5	37	25.7
More than 5	107	74.3
Living arrangement		
Alone	46	31.9
Husband/wife	42	29.2
Children	25	17.4
Brother/Sister	31	21.5
Residential tenure		
Less than 1 year	47	32.6
More than 1 year	97	67.4
Source of income		
Homemaker	34	23.6
Agriculture	7	4.9
Daily wages labor	94	65.3
Sewing/Repairing	3	2.1
Remittance	3	2.1

Variables(N=144)	Frequency(N)	Percentage （%）
Others	3	2.1
Total monthly income		
Less than 10000	108	75
More than 10000	36	25
Employment status		
Unemployed	93	64.6
Daily wages labor	43	29.9
Agriculture	4	2.8
Household work	1	0.7
Others	3	2.1
Faced different behaviors at workplace		
Never	32	22.2
Sometimes	81	56.3
Always	31	21.5
Faced behaviors		
Did not pay salary	28	19.4
Workplace abuse	61	42.4
Assigned more task	55	38.2

Behavioral characteristics of the respondents

Three-fourth (75%) of the respondents were non-vegetarian, above half (55.6%) had smoking habits, 73.6% of smoker had smoked for more than a year. Almost half of the respondents (47.2%) chew tobacco, more than half had alcohol drinking habit (66%) where the majority of the older adults(61.1%) had average alcohol consumption of 4 liter per week .About three-fourth (72.9%) of the respondents didn't had good sleeping habit and two thirds (66.7%) had less leisure activity engagement(***see Table 2***)

Table 2. Behavioral characteristics of respondents

Variables(N=144)	Frequency(N)	Percentage （%）
Dietary pattern		
Vegetarian	36	25
Nonvegetarian	108	75
Smoking habit		
Yes	80	55.6
Non smoker	14	9.7
Past smoker	35	24.3
Occasional smoker	15	10.4
No. of cigarettes smoked per day		
Less than 5	44	30.6
More than 5	100	69.4
Duration of smoking		
Less than 1 year	38	26.4

Variables(N=144)	Frequency(N)	Percentage （%）
More than 1 year	106	73.6
Tobacco use		
Yes	68	47.2
Never chew	39	27.1
Don’t chew anymore	14	9.7
Occasional	23	16
Alcohol drinking habit		
Yes	95	66
Never drank	9	6.3
Don’t drink anymore	8	5.6
Occasional	32	22.2
Average alcohol consumption per week		
Less than 1 liter	3	2.1
2 Liter	14	9.7
3 Liter	39	27.1
4 Liter	88	61.1
Sleep well		
Yes	39	27.1
No	105	72.9
Leisure activity engagement		
Yes	48	33.3
No	96	66.7

Health status of the respondents

Over two-thirds of the respondents(77.1%) had health problems such as high blood pressure, diabetes, joint pains, poor eyesight, urinary incontinence and others .Among those having illness, the highest percentage (18.1%) of respondents had High blood pressure , followed by difficulty walking(15.3%), joint pains(14.6%),diabetes and urinary continence had equal distribution of (10.4%), COPD and poor eyesight(4.9%) ,memory problems(3.5%), hearing impairment(2.1%) and others (16%). More than three fourth of respondents who were ill did not took medications for last 2 weeks(71.5%) and majority (70.8%) didn’t took medicines for last 12 months. Around half of the respondents (46.5%) had bad health status followed by moderate (34%) and good (19.4%). Minority of respondents were seeking their health services from clinic (0.7%) and hospital (2.1%). Most of them were treating themselves at home (54.9%) and more than one third were going to ayurvedic(36.8%). Very few of them (5.6%) visits pharmacy for their health care. (***see table 3***)

Table 3. Health status of respondents

Variables(N=144)	Frequency(N)	Percentage （%）
Any medical condition		
Yes	111	77.1
No	33	22.9

Variables(N=144)	Frequency(N)	Percentage （%）
Illness		
High Blood pressure	26	18.1
Diabetes	15	10.4
Difficulty walking	22	15.3
Joint pains	21	14.6
Poor eyesight	7	4.9
Urinary incontinence	15	10.4
COPD	7	4.9
Memory problems	5	3.5
Hearing Impairment	3	2.1
Others	23	16
Under any medication for last 2 weeks		
Yes	41	28.5
No	103	71.5
Under any medication for last 2 months		
Yes	42	29.2
No	101	70.8
Perceived health status		
Bad	67	46.5
Moderate	49	34
Good	28	19.4
Sources of health care		
Clinic	1	0.7
Ayurvedic	53	36.8
Hospital	3	2.1
Pharmacy	8	5.6
Home treatment	79	54.9

Quality of Life of the respondents

More than one-third of the respondents in our study had the overall quality of life poor (33.7%). Similarly, more than three-fourth of the respondent's general health was bad (79.4%). Around half of them had pain and discomfort (43.1%) and more than one-third were dependent on medical substances. More than half had fatigue and less energy (56.9%), decreased work capacity (56.9%), less participation in recreation/leisure activities (54.2%), poor home environment (53.4%) and physical environment (55.6%), no social support (51.4%). Similarly, three fourth had poor sleep and rest (73.6%) and had low self-esteem (70.1%). A little more than one-fifth respondents had poor mobility (22.2%), few only had positive feelings (28.5%), no financial resources (38.2%). More than half disagreed on health and social care accessibility (59%) and transport (64.6%). Around half of the respondents had poor sexual activity (41.7%) and personal relationship (45.1%). (***see table 4***)

Table 4. Overall quality of life of respondents

Variables(N=144)	Frequency(N)	Percentage （%）
Overall quality of life		
Good	10	7
Neutral	84	58.3
Poor	50	34.7
General Health		
Good	30	82.9
Neutral	82	56.9
Poor	32	22.2
Pain and discomfort		
Good	40	27.8
Neutral	22	15.3
Poor	82	56.9
Dependence on medical substances and medical aids		
Good	34	23.6
Neutral	23	16
Poor	87	60.4
Energy and fatigue		
Good	34	23.6
Neutral	48	33.3
Poor	62	43.1
Mobility		
Good	79	54.9
Neutral	33	22.9
Poor	32	22.2
Sleep and rest		
Good	26	18.1
Neutral	12	8.3
Poor	106	73.6
Activities of daily life		
Good	26	18
Neutral	28	19.4
Poor	90	62.5
Work capacity		
Good	41	28.5
Neutral	21	14.6
Poor	82	56.9
Positive feelings		
Good	17	11.8
Neutral	24	16.7
Poor	103	71.5

Variables(N=144)	Frequency(N)	Percentage（%）
Spirituality, religion and personal beliefs		
Good	18	62.9
Neutral	45	31.3
Poor	81	56.3
Thinking, learning, memory and concentration		
Good	24	16.6
Neutral	32	22.2
Poor	88	61.1
Bodily image and appearance		
Good	55	38.2
Neutral	26	18.1
Poor	63	43.7
Self-esteem		
Good	33	22.9
Neutral	10	6.9
Poor	101	70.1
Negative feelings		
Good	20	13.9
Neutral	14	9.7
Poor	101	76.4
Personal relationships		
Good	42	29.1
Neutral	23	16
Poor	79	54.9
Sexual activity		
Good	41	28.5
Neutral	19	13.2
Poor	84	58.3
Social support		
Good	50	34.8
Neutral	20	13.9
Poor	74	51.4
Freedom, physical safety and security		
Good	40	27.7
Neutral	40	27.8
Poor	64	44.5
Physical environment		
Good	40	27.8
Neutral	24	16.7
Poor	80	55.6

Variables(N=144)	Frequency(N)	Percentage （%）
Financial resources		
Good	51	35.4
Neutral	38	26.4
Poor	55	38.2
Opportunities for acquiring new information and skills		
Good	36	25
Neutral	46	31.9
Poor	62	43
Participation in and opportunities for recreation/leisure activities		
Good	44	30.6
Neutral	22	15.3
Poor	78	54.2
Home environment		
Good	38	26.4
Neutral	29	20.1
Poor	77	53.4
Health and social care: Accessibility and quality		
Good	27	18.7
Neutral	32	22.2
Poor	85	59
Transport		
Good	27	18.8
Neutral	23	16
Poor	93	64.6

Depression status of respondents

More than third fourth prefer home stay (70.8%), feel life is empty (71.5%), feel full of energy (71.5%), dropped activities/interest (72.2%), often felt bored (72.2%), had good spirits(72.9%), think most people are better off than you are (74.3%). There were (26.4%) satisfied with life. They were afraid of something bad happens (30.6%). Only (31.35) felt happy and majority (69.4%) felt helpless. (39.6%) had memory problems (25.7%) felt wonderful to be alive. Almost one third (29.9%) felt worthless. Majority (68.15) felt situation is hopeless. (***see Table 5***)

Table 5. Depression status of respondents

Variables(N=144)	Frequency(N)	Percentage(%)
Dropped activities/interest		
Yes	104	72.2
No	40	27.8
Satisfied with life		
Yes	38	26.4
No	106	73.6

Variables(N=144)	Frequency(N)	Percentage(%)
Feel life is empty		
Yes	103	71.5
No	41	28.5
Often feel bored		
Yes	104	72.2
No	40	27.8
Good spirits		
Yes	105	72.9
No	39	27.1
Afraid something bad happens		
Yes	44	30.6
No	100	69.4
Feel happy		
Yes	45	31.3
No	99	68.8
Feel helpless		
Yes	100	69.4
No	44	30.6
Prefer stay home		
Yes	102	70.8
No	42	29.2
Memory problems		
Yes	57	39.6
No	87	60.4
Feel wonderful to be alive		
Yes	37	25.7
No	107	74.3
Feel worthless		
Yes	43	29.9
No	101	70.1
Feel full of energy		
Yes	103	71.5
No	41	28.5
Feel situation is hopeless		
Yes	98	68.1
No	46	31.9
Think most people are better off than you are		
Yes	107	74.3
No	37	25.7

Mean Score of QOL

The psychological domain had the highest score mean2.39 (±2.48) and the lowest was social relationship domain mean 2.14 (±2.34)(***see Table 6***).

Table 6. Mean score of QoL

QoL Domains	Minimum	Maximum	Mean (SD)	95%CI
Physical Domains	1.33	3	2.27(0.393)	2.21±2.34
Psychological Domains	1	3	2.24(0.611)	2.39±2.48
Social relationship	1.33	3	2.43(0.294)	2.14±2.34
Environmental Domains	1.25	3	2.25(0.429)	2.18±2.32

Association between sociodemographic characteristics and the overall status of quality of life

The sociodemographic factors influencing QOL among older adults living in Bagmati squatters shows significant association between gender, feeling depressed, children, smoking habit,smoking more than 5 cigarettes per day ,tobacco use, medical conditions, perceived health status and sleeping well. The male older adults respondents had poor QOL(20.8%) compared to female older adults(13%). The QOL was comparatively poor among older adults living with children (3.5%) compared to those living alone (7.6%), married (12.5%) or living with siblings(11.1%). It was observed that a very less (1.4%) older adults respondents had good QOL. Similarly, older adults with smoking habit (33.1%), smoking more than 5 cigarettes per day (23.6%) and more than three fourth (70%) respondents who had habit of tobacco use had poor QOL. One fourth of the respondents having medical conditions (26.4%) reported poor QOL. More than half of them perceived bad health status (62%) and reported poor QOL. Also, our study found older adults not sleeping well (25.7%) had association with poor QOL. (***see Table 7***)

Table 7. Association between sociodemographic factors and overall quality of life

Variables (N=144)	Overall Quality of life					
	Good	Neutral	Poor	X^2	p-value	CI
Gender				0.364	0.05	0.82-0.92
Male	7(4.9)	51(35.4)	30(20.8)			2.16-2.37
Female	3(2.1)	33(22.9)	20(13.9)			2.07-2.64
Religion				4.013	0.134	
Hindu	8(80)	71(84.5)	35(70)			2.13-2.34
Others	2(20)	13(15.5)	15(30)			2.19-2.66
Fall in previous 6 months				0.881	0.078	
Yes	6(4.2)	39(27.1)	26(18.1)			2.13-2.42
No	4(2.8)	45(31.3)	24(16.7)			2.14-2.40
Feel depressed				0.41	0.05	

Variables (N=144)	Overall Quality of life					
	Good	Neutral	Poor	X^2	p-value	CI
Yes	8(5.6)	60(41.7)	35(24.3)			2.14-2.37
No	2(1.4)	24(16.7)	15(10.4)			2.13-2.49
Age at marriage (Mean±S. D = 14.86±1.08)				4.294	0.368	
Less than 14 years	1(10)	2(2.4)	2(4)			1.89-2.50
14 to 15years	7(70)	60(71.4)	42(84)			2.13-2.34
16 years and above	2(20)	22(26.2)	6(12)			1.96-2.19
Attended school				0.854	0.07	
Yes	2(1.4)	19(13.2)	8(5.6)			1.99-2.41
No	8(5.6)	65(45.1)	42(29.2)			2.18-2.40
Family structure				1.122	0.088	
Joint	4(2.8)	22(15.3)	16(11.1)	1.122		2.08-2.488
Nuclear	6(4.2)	62(43.1)	34(23.6)			2.16-2.38
Number of children				0.37	0.05	
Mean±S. D=(5.18±1.07)						
1-4	2(1.4)	23(16)	12(8.3)			2.08-2.45
5 and more	8(5.6)	61(42.4)	38(26.4)			2.16-2.39
Living arrangement				12.563	0.295	
Alone	2(1.4)	33(22.9)	11(7.6)			2.04-2.34
Husband/wife	2(1.4)	22(15.3)	18(12.5)			2.19-2.56
Children	3(2.1)	17(11.8)	5(3.5)			1.84-2.32
Brother/Sister	3(2.1)	12(8.3)	16(11.1)			2.17-2.66
Residential tenure				1.729	0.11	
Less than 1 year	5(3.5)	25(17.4)	17(11.8)			2.06-2.44
More than 1 year	5(3.5)	59(41)	33(22.9)			2.17-2.40
Faced different behaviors at workplace				9.75	0.26	
Never	1(0.7)	24(16.7)	7(4.9)			2.01-2.35
Sometimes	9(6.3)	40(27.8)	32(22.2)			2.13-2.42
Faced behaviors				5.131	0.189	
Workplace abuse	5(3.5)	34(23.6)	22(15.3)			2.12-2.43
Assigned more task	5(3.5)	29(20.1)	21(14.6)			2.12-2.46
Dietary pattern				3.931	0.165	
Vegetarian	1(0.7)	18(12.5)	17(11.8)			2.25-2.63
Non-vegetarian	9(6.3)	66945.8)	33(22.9)			2.11-2.33
Smoking habit				8.082	0.018	
Yes	7(5.4)	80(61.5)	43(33.1)			2.09-2.32
No	3(21.4)	4(28.6)	7(50)			1.80-2.76

Variables (N=144)	Overall Quality of life					
	Good	Neutral	Poor	X^2	p-value	CI
No. of cigarettes smoked per day				0.076	0.023	
less than 5	3(2.1)	25(17.4)	16(11.1)			2.14-2.59
More than 5	7(4.9)	59(41)	34(23.6)			2.13-2.35
Duration of Smoking				5.662	0.198	0.018-0.093
Less than 1 year	4(2.8)	16(11.1)	18(12.5)			
More than 1 year	4(4.2)	68(47.2)	32(22.2)			
Tobacco use				0.503	0.05	
Yes	8(80)	62(73.8)	35(70)			2.12-2.37
No	2(20)	22(26.2)	15(30)			2.14-2.52
Alcohol drinking habit				0.819	0.075	
Yes	9(90)	80(95.2)	46(92)			2.16-2.40
No	1(10)	4(4.8)	4(8)			1.78-2.87
Any medical condition				0.423	0.05	
Yes	7(4.9)	66(45.8)	38(26.4)			2.17-2.38
No	3(2.1)	18(12.5)	12(8.3)			2.05-2.49
Under any medication for last 2 weeks				0.427	0.05	
Yes	2(1.4)	8(5.6)	14(9.7)			2.11-2.46
No	25(17.4)	59(41)	36(25)			2.15-2.38
Under any medication for last 2 months				1.343	0.097	
Yes	2(1.4)	26(18.1)	14(9.7)			2.11-2.45
No	8(5.6)	57(29.6)	36(25)			2.15-2.39
Perceived health status				15.19	0.01	
Bad	8(80)	28(19.4)	31(62)			2.17-2.51
Good	2(20)	56(66.7)	19(38)			2.00-2.28
Sleep well				0.378	0.05	
Yes	2(1.4)	24(16.7)	13(9)			2.10-2.46
No	8(7.6)	60(41.7)	37(25.7)			2.16-2.39
Leisure activity engagement				2.057	0.12	
Yes	4(2.8)	24(16.7)	20(13.9)			2.15-2.51
No	6(4.2)	60(41.7)	30(20.8)			2.13-2.36

Depression status of the respondents and association with sociodemographic characteristics

The respondents who were male Dalit ,married, had history of fall in previous 6 months, age less than 16 years at marriage, living in nuclear family, total monthly income less than Rs.10000 , had smoking habit, duration of smoking more than 1 year , had tobacco habit , perceived health status poor, had no leisure

activity engagement were more likely to suffer from depression. (***See Table 8***)

Table 8. Association of sociodemographic characteristics and depression

Characteristics	Depression present(n)	Depression absent(n)	95%CI	p value
Age group in years(N)				0.243
Less than 70 years	93(71.5)	37(28.5)	1.2-1.36	
70 years and above	10(71.4)	4(28.6)	1.10-1.56	
Sex				0.050
Male	59(67)	29(33)	1.23-1.43	
Female	44(78.6)	12(21.4)	1.21-1.32	
Caste				0.049
Dalit	76(79.2)	20(20.8)	1.12-1.29	
Janajati	9(47.4)	(52.6)	1.27-1.77	
Madhesi	6(66.7)	3(33.3)	0.94-1.72	
Brahmin/Chettri	12(60)	8(40)	1.16-1.63	
Religion				0.382
Hindu	83(72.8)	31(27.2)	1.19-1.36	
Buddhist	11(64.7)	6(35.3)	1.09-1.60	
Kirat	4(57.1)	3(42.9)	0.93-1.92	
Christian	5(83.3)	1(16.7)	0.73-1.59	
Marital status				0.028
Alone	9(64.3)	5(35.7)	1.07-1.64	
Married	50(64.1)	28(35.9)	1.25-1.46	
Widow/Widower	16(94.1)	1(5.9)	0.93-1.18	
Separated/Divorced	28(80)	7(20)	1.06-1.34	
Fall in previous 6 months				0.004
Yes	58(81.7)	13(18.3)	1.09-1.27	
No	45(61.6)	28(38.4)	1.26-1.49	
Age at marriage				0.05
Less than 16 years	78(68.4)	36(31.6)	1.22-1.40	
More than 16 years	25(83.3)	5(16.7)	1.02-1.31	
Attended school				0.168
Yes	20(72.2)	9(27.8)	1.13-1.49	
No	83(72.2)	32(27.8)	1.19-1.36	
Education level				0.521
No formal education	84(72.4)	32(27.6)	1.19-1.36	
Primary	15(17.2)	9(6.8)	1.17-1.59	
Secondary	2(100)	0(0)	1-1	
Higher	2(100)	0(0)	1-1	
Family structure				0.02
Joint	37(88.1)	5(11.9)	1.01-1.22	

Nuclear	66(64.7)	36(35.3)	1.26-1.45	
Total children				0.163
Less than 5	26(70.3)	11(28.7)	1.14-1.45	
More than 5	77(72)	30(28)	1.19-1.37	
Living arrangement				0.479
Alone	34(73.9_	12(26.1)	1.13-1.39	
Husband/Wife	28(66.7)	14(33.3)	1.18-1.48	
Children	17(68)	8(32)	1.12-1.52	
Brother/Sister	24(77.4)	7(22.6)	1.07-1.38	
Residential tenure				0.150
Less than 1 year	33(70.2)_	14(29.8)	1.16-1.43	
More than 1 year	70(72.2)	27(27.8)	1.18-1.37	
Sources of income				0.556
Homemaker	25(73.5)	9(26.5)	1.11-1.42	
Agriculture	4(57.1)	3(42.9)	0.93-1.92	
Daily wages labor	68(72.3)	26(27.7)	1.18-1.37	
Sewing/repairing	2(66.7)	1(33.3)	0.10-2.77	
Remittance	1(33.3)	2(66.7)	0.23-3.1	
Others	3(100)	0(0)	1-1	
Total monthly income				0.048
Less than 10000	81(75)	27(25)	1.17-1.33	
More than 10000	22(61.1)	14(38.9)	1.22-1.56	
Employment				0.368
Unemployed	65(69.9)	28(68.3)	1.21-1.39	
Daily wages labor	31(72.1)	12(27.9)	1.14-1.42	
Agriculture	4(100)	0(0)	1-1	
Household work	1(100)	0(0)	1-1	
Faced different behavior at workplace				0.104
Never	19(59.4)	13(40.6)	1.23-1.59	
Sometimes	60(74.1)	21(25.9)	1.16-1.36	
Always	24(77.4)	7(22.6)	1.07-1.39	
Faced behaviors				0.361
Did not get salary	22(78.6)	6(21.4)	1.05-1.38	
Workplace abuse (Yes)	42(68.9)	19(31.1)	1.19-1.43	
Assigned more task (Yes)	39(70.9)	16(29.1)	1.16-1.41	
Dietary pattern				0.068
Vegetarian	29(80.6)	7(19.4)	1.06-1.33	
Nonvegetarian	74(68.5)	34(31.5)	1.23-1.40	
Smoking habit				
Yes	93(90.3)	37(90.2)	0.01-1.13	0.001
No	10(9.7)	4(9.8)	0.33-2.99	

No. of cigarettes smoked per day				0.096
Less than 5	29(65.9)	15(34.1)	1.19-1.49	
More than 5	74(74)	26(26)	1.17-1.35	
Duration of smoking				0.037
Less than 1 year	23(60.5)	15(39.5)	1.23-1.56	
More than 1 year	80(75.5)	26(24.5)	1.16-1.33	
Tobacco use				0.04
Yes	75(72.8)	30(73.2)	1.16-1.37	
No	28(27.2)	11(26.8)	1.13-1.43	
Alcohol drinking habit				0.03
Yes	96(93.2)	39(95.1)	0.89-0.94	
No	7(6.8)	2(4.9)	0.30-0.33	
Any medical condition				0.132
Yes	81(73)	30(27)	1.18-1.35	
No	22(66.7)	11(33.3)	1.16-1.5	
Illness				0.132
High blood pressure	19(73.1)	7(26.9)	1.08-1.45	
Diabetes	13(86.7)	2(13.3)	0.94-1.32	
Difficulty walking	18(81.8)	4(18.2)	1.01-1.36	
Joint pains	13(61.9)	8(38.1)	1.15-1.6	
Poor eyesight	5(71.4)	2(28.6)	0.84-1.74	
Urinary incontinence	11(73.3)	4(26.7)	1.01-1.52	
COPD	4(57.1)	3(42.9)	0.93-1.92	
Memory problems	3(60)	2(40)	0.72-2.08	
Hearing impairment	2(66.7)	1(33.3)	-0.10-2.77	
Others	15(65.2)	8(6.5)	1.13-1.56	
Under any medications for last 2 weeks				0.138
Yes	28(68.3)	13(31.7)	1.16-1.46	
No	75(72.8)	28(29.3)	1.19-1.36	
Under any medications for last 2 months				0.243
Yes	29(69)	13(31)	1.16-1.46	
No	73(72.3)	28(27.7)	1.19-1.37	
Perceived health status				0.028
Bad	47(70.1)	20(48.8)	1.19-1.41	
Good	56(54.4)	21(51.2)	1.14-1.39	
Sleep well				0.151
Yes	27(69.2)	12(30.8)	1.16-1.46	
No	76(72.4)	29(27.6)	1.19-1.36	
Leisure activity engagement				0.05
Yes	38(79.2)	10(20.8)	1.09-1.33	
No	65(67.7)	31(32.3)	1.23-1.42	

Discussion

The prevalence of QOL among older adults population in our study was poor (33.7%). Our study demonstrated low prevalence compared to the developed and developing countries such as Iran urban residence(42.7%)[18], Ethiopia Chiro town (41.9%)[19], Brazil Sao Paulo city (46.9%) [20],different rural parts of India(48.3%)[21]. There are number of studies conducted in Nepal where the findings in Baglung district older adults (51.1%) had high QOL. The reason of poor QOL findings in our study may be due to the study population and the age group where the study was carried only on one squatter population of the Kathmandu district. Our study has lower prevalence as compared to the prevalence reported in Banepa Municipality Nepal(44.9%)[22], Dhapasi area of Kathmandu(56.9%)[23], and rural community of western Nepal , Rolpa (44.32%)[24] and remote community in Nepal (9.84%)[25]. The previous study on QOL in older adults demonstrated sex, age, education or marital status are of lesser importance in the older adults group. The contributing factors such as loss of independence, falls, need for care, urinary incontinence, low level of mobility, hearing impairment, forgetfulness and depression affected their QOL[26]. Our study confirmed the male gender, having children more than 5, smoking habit and smoking more than 5 cigarettes per day, who have drinking alcohol habit and tobacco use, have medical condition, didn't take medicine for 2 weeks, poor perception towards health status, depressed and didn't sleep well are contributing factors that influenced the QOL among the older adults. The result of our study may be affected because the slums of Kathmandu has failed to adapt with the improved rapid urbanization, better lifestyle changes, increased life expectancy and others. There is also a differential distribution in the risk factors such as lifestyle modification, education, size of the family, knowledge and others. Despite the differences in the socioeconomic conditions of the respondents, more than half of the respondents claimed neutral QOL. However studies have reported good QOL[27].

Studies have revealed a relationship between increasing age and QOL[28]. However, this study did not show a statistically significant relationship between age and QOL. QOL was high in males rather than females and found statistically significant(p=0.05) in this study[29]. The significant difference in the QOL among the male and female respondents may be because older adults people face different life situations that could impact on QOL unlike developed countries where the studies have shown no significant differences based on gender[30]. A study conducted in Brazilian community concluded gender differences related to better QOL where women with good physical health are more likely to have a better QOL and for men good QOL was associated with high socioeconomic conditions and good physical and psychological health [31]. The respondents having more number of children (more than 5) had poor QOL (p=0.05). Many studies showed significant association between the smoking and drinking alcohol habits, tobacco use and the illness caused by these habits [32-34]. Also, these findings at some instances are similar from our study where the results were found significant among the smokers (p=0.018), smoking more than 5 cigarettes per day (p=0.023) and had habit of tobacco use(p=0.05).

The significant association between QOL and medical condition (p=0.05)in our study were consistent with many studies conducted between number of illnesses but we found no statistically significant relationship with particular kind of illness whereas studied found asthma, diabetes, arthritis, back pain, hypertension, stroke, CVS diseases had poor QOL[35]. Furthermore, the respondents not sleeping well had poor QOL(p=0.05).Our study was consistent with the findings in the study that showed the poor sleep quality with frailty in older adults population.[36] Majority of respondents perceived their health status as poor (p=0.05) and The magnitude of depression among the older adults population at squatter ,in our study (p=0.05) was found to be at apar with other similar studies conducted different parts of India.

The prevalence of depression among the study population was found 71.53% which is higher compared to the studies conducted in Kathmandu (60.6%)[37], (56%) in Kavre district, Nepal[38], (43.54%) among older adults in eastern Nepal [39]. A study conducted on the prevalence of depression was seen high among the community dwelling older adults in eastern part of Nepal[40]. The various reasons for the differences in could be the use of different scales and sampling methods. The studies found that literacy, mobility, physical health problems, time spent with family members, cognitive ability, loneliness, social functioning and other comorbidities were the major predictors of depression in older adults. They reported female, being older and having lower level of education, and being unhealthy are major factors affecting depression [26, 41, 42]. In contrast, male, Dalit, married, who had history of fall in previous 6 months, married at early age (less than 16 years), having less than 4 members, earning less, having smoking habit and smoking for more than 1 year, habit of tobacco use, alcohol drinking habit, perceive health status bad and no leisure activity engagement were found to be depressed. Our study had s male respondents more depressed (p=0.05) where less than 70 years were depressed compared to more than 70 years old. A study by Campos indicated that among both genders, those who had a high health rate and did not suffer from depression predicted high QOL[31]. In line with other studies, the results were contrast where our results showed Dalit were depressed than other caste. It might be affected with sociocultural aspects[43].

The study assessed the relationship between marital status and the risk of depression where compared with married older adults people, the widowed, divorced and separated had a higher risk (p=0.028) for depression than those who never married. Being alone was an important risk factor for depression[44]. Although a relationship has long been recognized, no summary from our study estimates strength of association are available. Despite of our findings, we suggest single, divorce and widowhood status constitute potentially adverse health effects[45]. Early marriage led to increased responsibilities at early age, early pregnancy and pregnancy related mortality and morbidity causing major psychological and physiological health issues that affects relationship and quality of life. Many studies conclude early marriage are risk factors of depression and it is further evaluated that married women are more depressed[46]. Our study and findings were consistent with this study where the age at marriage 16 years and above were contributing factor to depression(p=0.05).

The present study revealed that the older adults living in a nuclear family system having less than 4 members in family were more likely to be depressed (p=0.02) as compared to those in a joint family system. The disadvantages on workforce for occupations, housing costs are not shared, less members to take care of older adults which has led to fall and injuries. Depression and fall have a significant bidirectional relationship from our study(p=0.004). Both depression and fear of fall are associated with impaired gait and balance where an association is mediated through cognitive, sensory and motor pathways [47]. Our findings were also consistent with the findings done in previous study. The open drains and uneven surface in the slum has posed significant safety hazard to older respondents. The prevalence of fall into open gutters or colliding with the moving vehicles was reported to have played a role in confining large number of slum older adults to their home environment and this problem was especially salient for those using wheelchairs and walking aids. The older adults who had fall over past 6 months were more depressed. It has affected their sense of self-efficacy and negative expectations of the future. Activity restriction and decreased social participation were found to be complication of fall. The poor mobility made the older adults more dependent and negatively affected the psychological well-being of the older adults[48]. The older adults having less monthly income less than 10000 were more depressed. Thought the senior citizens act of Nepal has provided the benefits that included the free and specialized

health-care facilities, the older adults population at Bagmati squatters are deprived from such health packages including preventive, promotive, curative care including referral facilities. They are living at the center of cities and the packages are not well distributes as per the health facilities namely subcenter, primary health care and community health center or district hospital. Their perceived health status and acknowledgement regarding illness is poor. Our study also showed the significant findings on perceived health status($p<=0.028$). The lack of literacy, awareness and low income has affected the psychological aspect of older adults where they don't find a matter to think about their health status. The health camps and free primary medicine distribution at different period of time through various organizations has led them to think the health resources are enough and limited within these resources. The rest of the sociodemographic factors were not associated, and this finding might be due to our limitations where our sampling technique was convenience based and the cross-sectional nature of the study. Thus, the causal relationship could not be inferred, and results couldn't be generalized. Therefore, we can conclude that mixed method study might help us to know the bigger picture of depression among the older adults at Bagmati Squatters, Kathmandu.

Conclusions

The prevalence of QOL among the older adults respondents living at Bagmati squatters, Kathmandu was poor (33.7%). The prevalence of QOL was poor among older adults males, Dalit, Hindu and married, did not attend school, less than 4 members in the family, more than 5 children, living alone, unemployed and those who worked, majority were daily wages labor. QOL was better with the psychological domain compared with the social domain. Older adults who were smoker, smoking more than 5 cigarettes in a day, using tobacco and who were not sleeping well had significant association. The finding was found significant among those with medical condition where majority were hypertensive and who perceived poor health status. There was also a positive correlation between the study population who were depressed. The prevalence of depression among these respondents was 71.53%. More than three-fourth (71.5%) of respondents who were less than 70 years had depression. Majority of them who had depression were female, Dalit, married, married at age less than 16 years, who had history of fall in previous 6 months, living with less than 4members in family, having less monthly income, who smoke and were smoking for more than one year, chew tobacco, drinking alcohol habit, perceived bad health status, who had no leisure activity engagement, were found also associated with depression.

Our study provides a reasonable foundation that older adults with poor QOL and who had depression require appropriate programs and health policy intervention to enhance overall well-being. The current health care system should be improved to promote healthy aging and provide long-term care services to the focused group. A comprehensive assessment of older adults health can be done in regular period of time which includes an in-depth examination of physical and cognitive condition. Through this assessment we can create awareness for substance abuse and healthy habits and promote positive health to cultivate healthy lifestyle through changes in diet, cutting down on cigarettes and alcohol, promoting for exercise and learning ways to manage stress. The government can provide more funds for research and development to address the evidence-based challenges and problems of the older adults at squatter. Future research should explore and identify the factors influencing the perception of older adults adults to cope with the challenges due to the ageing process.

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