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## Factors Affecting the Self-Rated Health of the Community Dwelling Older Adults

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### Abstract:

**Background:** Self-rated health is rated as an important indicator of the older adults' health status, as it combines physical, cognitive, and emotional components as well as aspects related to satisfaction with life and well-being. Exploring factors associated with SRH is vital as it will help in promoting health of the older adults. **Aim:** Identify the factors affecting the self-rated health of the community dwelling older adults. **Method:** A descriptive cross-sectional design was used. The study was conducted in urban and rural areas affiliated to Mansoura city, Dakahlia Governorate, Egypt. From urban areas, 4 health centers out of 12 were selected. While from rural health units, 4 villages out of 58 were selected. The study included a purposive sample of 300 older adults living in the community. **Tools:** Three tools were used for data collection; Socio-demographic and health related data structured interview questionnaire sheet, Functional Independence Measure Instrument, and Lawton-Brody instrumental activities of daily living Scale. **Results:** Nearly half of the studied older adults' age ranged from 60 to less than 75 years with a mean age of  $66.74 \pm 6.21$  years. Good was the most frequent self-rated health rating among the participated older adults. The mean total score in the good self-rated health group was  $92.99 \pm 5.32$  points with respect to functional independence measure. The study participants' gender, residence, income, presence of chronic diseases, social support and functional status were significantly associated with self-rated health  $P \leq 0.05$ . **Conclusion:** Self-rated health is a good indicator of perceived health status of the community dwelling older adults. As well, good self-rated health was significantly associated with female gender, rural residence, high economic status, fewer chronic diseases, presence of social support and high level of functional status. **Recommendation:** Develop and implement a health intervention programs are needed to provide physical, emotional and social support to older adults living in the community.

**Keywords:** Self-rated health, community dwelling older adults, predictors of health.

## INTRODUCTION

The most important demographic phenomena in the world during the last decades are aging population. An increasing life expectancy has led to the rapid growth in older population globally, resulting in an increase in age associated disease and disability that interfere with healthy aging<sup>(1)</sup>. The aging process is associated with gradual deterioration of physical and mental health status, reduction in expected years of active and healthy life. Likewise, alterations in the health status of advanced age are more chronic and progressive. This makes it necessary to know the state of health of this population<sup>(2)</sup>.

The proportion of the world's population over 60 years will nearly double from 12% to 22% by the year 2050<sup>(3)</sup>. Moreover, Egypt population increase was around ten-fold during the period from 1897–2017. While, the first doubling of the population took slightly over 50 years, consequently increasing was from 48.3 to 94.8 million. The population distribution displays that around 42.4 % of the population is living in urban areas and the percentage of persons over age 65 years amounted to 3.9 % of the total population<sup>(4)</sup>.

Health is a major issue that has great influence on older adult's satisfaction and quality of life. Healthy aging is "a process in which the body can develop and maintain the functional ability that enables wellbeing in older age"<sup>(5)</sup>. To achieve this, it is necessary to know the concept of health status that most widely recognized by the World Health

Organization as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity"<sup>(6)</sup>. Understanding the health status of elderly will help in coming across new ideas and concepts to promote health and also to provide rehabilitation where necessary<sup>(7)</sup>.

Self-rated health (SRH) is considered one of different measures to examine the health status of elderly people. It illustrates the perception of individuals of multiple facets about health, including functional disabilities, psychosocial problems and the health conditions<sup>(8)</sup>. A good indicator of the health status in the older adults is the self-rated health, as it combines cognitive, emotional, and physical components as well as aspects related to satisfaction with life and well-being. Also, this measure can help in predicting health outcomes like morbidity, healthcare utilization, disability, and mortality<sup>(9)</sup>. Positive self-rated health prevalence differs extremely between studies. Although the question of the self-rated health and the options for answers are similar in different studies, the findings are not concurrent. The disparity in the rates of the prevalence may be related to short-term changes in health or disease caused by cyclical diversity related to well-being<sup>(10)</sup>.

Self-rated health has different predictors across populations. As well, exploring factors associated with SRH is vital as it will help in promoting health of the older adults such as socio-demographic variables, acute and chronic diseases, functional status, and social interaction<sup>(11,12)</sup>. Nurses have a prominent role and are in a perfect position to help older adults to achieve good health through assessing factors that

affect the individuals' perception toward their health. This can help the nurses in delivering health promotion and preventive interventions to older adults based on these factors<sup>(13)</sup>. So, an overview of older adults' self-rated health is needed to promote healthy aging and equal care. However, there are limited studies regarding SRH and factors associated with SRH among elderly people in Egypt. Based on what has been exposed, this study will investigate which characteristics were linked to the subjective self-rating of health among community dwelling older adults.

#### **Aim of the study:**

Identify the factors affecting the self-rated health of the community dwelling older adults.

#### **Research questions:**

1. What is the self-rated health status of the community dwelling older adults?
2. What are the factors associated with self-rated health of the community dwelling older adults?

### **SUBJECTS AND METHOD**

**Research design:** Descriptive cross-sectional design was used in this study.

**Settings:** This study was conducted in urban and rural areas affiliated to Mansoura city, Dakahlia Governorate, Egypt. From urban areas, 4 health centers out of 12 were selected namely Elhawar center, Sandowb center, Toriel center and Gedela center. While from rural health units, 4 villages out of 58 were selected namely Owish-Elhagar village, Shoha village, Meniate-Sandowb village and New-Karam village.

**Subjects:** The study included a purposive sample of 300 older adults living in the above-mentioned settings and fulfill the following criteria; aged 60 years and above, able to communicate and agreed to participate in the study. Older adults diagnosed with severe medical/neurological disorder or malignant diseases were excluded from the study.

**Sampling technique:** Based on Egyptian population statistical analysis for Dakahlia governorate 2018<sup>(4)</sup>, the study sample was distributed proportionally between the urban and rural areas affiliated to Mansoura city with 28.3% urban and 71.7% rural. From urban areas, four health centers out of twelve were selected by systematic random sample (every third) namely Elhawar center (23 elderly), Sandowb center (24 elderly), Toriel center (12 elderly) and Gedela center (26 elderly). The total number of elderly included was 85 elderly. From rural health units, four villages out of 58 were selected by systematic random sample (every fourteen) namely; Owish-Elhagar village (85 elderly), Shoha village (55 elderly), Meniate-Sandowb village (49 elderly) and New-Karam village (26 elderly). The total number of the older adults included was 215 elderly. Elderly were chosen from the family records by a systematic random sample.

**Sample size calculation:** The sample size was calculated using formula for a descriptive study;  $n = z^2pq / d^2$ <sup>(14)</sup>,  $P =$  prevalence estimates of poor SRH among 23.0% or 0.23 of older adults from a previous study<sup>(15)</sup>;  $q = 1 - p$  (0.77);  $z =$  standard normal deviate corresponding with a 95% confidence interval (CI) (1.96) and;  $d =$  degree of precision

(0.05). The minimum sample size of 272 was calculated and added 10% because of defaulter to become 299 elderly and was increased to be 300 elderly.

### **TOOLS**

To achieve the aim of this study, three tools were used.

#### **Tool I: Socio-demographic and health related data structured interview questionnaire sheet**

This tool was developed by the researchers after reviewing relevant literature and included 3 parts:

1. **Socio-demographic characteristics** as age, gender, marital status, educational level, occupation before retirement, monthly income, living arrangement, residence, presence of emotional support, social support and instrumental support.
2. **Health related data** as presence of comorbidities.
3. **Self-Rated Health.** It is a widely used measure of general health. Respondents were asked an internationally used question: 'How do you describe your current health? And they rated their own health on a five-point scale (excellent, very good, good, fair, and poor) according to Idler et al., (1990)<sup>(16)</sup>. For the purpose of analysis, responses fair and poor were merged and categorized as poor self-rated health and the other responses were merged and categorized as good self-rated health.

#### **Tool II: Functional Independence Measure (FIM Instrument)**

This tool was developed by the American Congress of Rehabilitation Medicine and the American Academy of Physical Medicine and Rehabilitation and published by Hamilton et al. (1987)<sup>(17,18)</sup>. The FIM instrument was used to assess the functional status of the older adults participated in the study. It was translated into Arabic and tested for validity and reliability by Shebl and Abd Elhameed<sup>(19)</sup> ( $r = 0.95$ ). It consists of eighteen item, including; 13 motor tasks related to self-care, sphincter control, transfers, locomotion and 5 cognitive tasks related to communication and social cognition. Each task was evaluated regarding older adults independence level on a 7-point likert scale from complete independence (level 7) to total assistance (level 1). The total score of FIM ranged between 18 and 126. The high score indicate a greater level of functional independence.

#### **Tool III: Lawton-Brody instrumental activities of daily living (IADL) Scale**

This scale was developed by Lawton and Brody (1969)<sup>(20)</sup>. It is originally designed to assess the degree of assistance needed in performing instrumental activities of daily living (IADL). This scale was translated into Arabic by Shehata (2001)<sup>(21)</sup> and was tested for validity and reliability by Magdi (2013)<sup>(22)</sup> ( $r = 0.96$ ). The scale includes 8 items: ability to use the telephone, shopping, food preparation, housekeeping, laundry, mode of transportation, responsibility for own medications and ability to handle finances. The answers were given a score: able (2) and unable (1). The maximum score was 16 for females and 10 for males (males are not assessed on laundry, meal preparation, and housekeeping if their wife has always take responsibility for these). The score achieved by the older adults is calculated as a percentage from the maximum score

of his category representing 100%. A score of > 75% is assigned for those who are independent; a score from 25% to less than 75% is assigned for those who are partially dependent, while a score from zero to less than 25% is gained by those who are totally dependent.

**METHOD**

1. Approval to conduct the study was obtained from the responsible authorities.
2. Tool I (socio-demographic and health related data structured interview questionnaire sheet) was developed by the researchers after reviewing the relevant literature.
3. The Arabic version of tool II and tool III were used.
4. The study tools were tested for content validity by five experts in the related fields of the study and the required modifications were done accordingly.
5. A pilot study was carried out on 15 elderly to evaluate the ambiguity, clarity and applicability of the tools and the approximate time needed for the interview. The elderly who included in the pilot study were not included in the study sample.
6. Based on the schedule the researchers visited the previous study settings 2 day/week (from 12 pm to 5 pm and managed to interview 10-15 elderly daily. The time taken to fill the study tools ranged from 30 to 45 minutes.
7. Each study subject was interviewed individually by the researcher using face to face interview to collect the necessary data using all study tools in the elderly own home.
8. The researchers started the interview by introducing themselves to the elderly and give him a brief idea about the aim of the study.

9. Data collection covered a period of five months from April to August, 2019.

**Ethical considerations:**

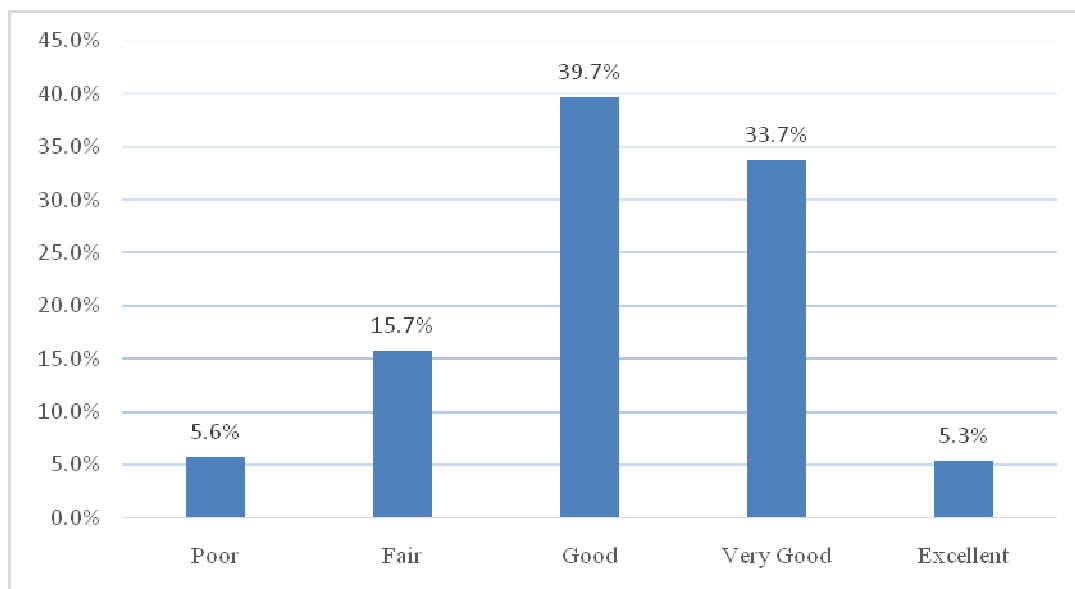
Ethical approval was obtained from Mansoura University, Faculty of Nursing Ethic Committee. The elderly was informed about the objective of the study and assured about privacy, confidentiality and anonymity of the collected data and verbal consent was obtained from them. The participants were informed that their participation is voluntary and they can withdraw from the study at any time.

**Statistical analysis:**

Statistical analysis was done by utilizing the Statistical Package for Social Science version sixteen. The data obtained were coded, analyzed and tabulated. Basic descriptive statistical analysis was carried out using; frequencies, minimum-maximum, means, and standard deviations. The analytical statistics was carried using; Independent t –test and Chi square tests. Multivariate logistic regression test and adjusted odds ratios were carried out to assess the relationship of the various predictors of SRH. The level of significance was set at  $P \leq 0.05$ . Graphs were done for data visualization using Microsoft Excel.

**RESULTS**

Figure 1 shows that, good was the most frequent self-rated health (SRH) rating among the participated older adults followed by very good (33.7%) and only 15.7% perceived their health status as fair. According self-rated health categories in this study, 78.7% of the studied elders reported good SRH and 21.3% reported poor SRH.



**Figure 1: Self rated health of the studied older adults**

Table 1 shows that, 49.3% of the studied older adults' age ranged from 60 to less than 75 years (young old) with a mean age of  $66.74 \pm 6.21$  years, 57% were males, 69.7% married. 46.4% were illiterate, and 57.3% of the older adults worked before retirement. Monthly income reported to be

enough among 83.0% and most of the older adults are living with their family and reside in rural area. Comorbidity was prevailing among the majority of the studied older adults (89.7%) and 42.7% of the participants had two chronic diseases. Moreover, 71.3% of the participated older adults

received emotional support, 81.3% received social support and 70.3% reported absence of instrumental support (use of assistive devices).

The Participated older adults were divided into two groups according to the degree of SRH; a poor SRH group (n = 64)

and good SRH group (n = 236). The good SRH group tended to be female (P = 0.032), have enough income (P = 0.001), living with their families (P = 0.011), living in rural area (P = 0.006), have a lower rate of chronic diseases (P = 0.051) and received social support (P= 0.031) compared with the poor SRH group.

Table (1): Characteristics of the older adults by categories of self-rated health

Characteristics	Overall (n = 300) %	Poor SRH (n = 64) %	Good SRH (n = 236) %	P value
<b>Age (in years)</b>				
60 -	148 (49.3)	26 (17.6)	122 (82.4)	0.213 <sup>a</sup>
75 -	126 (42.0)	33 (26.2)	93 (73.8)	
85 and more	26 (8.7)	5 (19.2)	21 (80.8)	
<b>Mean± SD</b>	66.74 ± 6.21	67.67 ± 6.68	66.48 ± 6.07	0.176 <sup>b</sup>
<b>Gender</b>				
Male	171 (57.0)	44 (25.7)	127 (74.3)	0.032(*) <sup>a</sup>
Female	129 (43.0)	20 (15.5)	109 (84.5)	
<b>Marital status</b>				
Married	209 (69.7)	41 (19.6)	168 (80.4)	0.482 <sup>a</sup>
Widowed	85 (28.3)	21 (24.7)	64 (75.3)	
Single	6 (2.0)	2 (33.3)	4 (66.7)	
<b>Educational level</b>				
Illiterate	139 (46.4)	30 (21.6)	109 (78.4)	0.248 <sup>a</sup>
Read and write	70 (23.3)	20 (28.6)	50 (71.4)	
Secondary	60 (20.0)	9 (15.0)	51 (85.0)	
University	31 (10.3)	5 (16.1)	26 (83.9)	
<b>Occupation before retirement</b>				
Working	172 (57.3)	36 (20.9)	136 (79.1)	0.843 <sup>a</sup>
Not working	128 (42.7)	28 (21.9)	100 (78.1)	
<b>Monthly income</b>				
Enough	249 (83.0)	44 (17.7)	205 (82.3)	0.001 (***) <sup>a</sup>
Not enough	51 (17.0)	20 (39.2)	31 (60.8)	
<b>Living arrangement</b>				
With family	281 (93.7)	56 (19.9)	225 (80.1)	0.011 (**) <sup>a</sup>
Alone	16 (5.3)	8 (50.0)	8 (50.0)	
With relatives	3 (1.0)	0 (0.0)	3 (100.0)	
<b>Residence</b>				
Rural	215 (71.7)	37 (17.2)	178 (82.8)	0.006 (***) <sup>a</sup>
Urban	85 (28.3)	27 (31.8)	58 (68.2)	
<b>Presence of comorbidities</b>				
No	31 (10.3)	5 (16.1)	26 (83.9)	0.051 (*) <sup>a</sup>
one disease	108 (36.0)	23 (21.3)	85 (78.7)	
Two diseases	128 (42.7)	23 (18.0)	105 (82.0)	
More than two diseases	33 (11.0)	13 (39.4)	20 (60.6)	
<b>Emotional support</b>				
Presence	214 (71.3)	50 (23.4)	164 (76.6)	0.176 <sup>a</sup>
Absence	86 (28.7)	14 (16.3)	72 (83.7)	
<b>Social support</b>				
Presence	244 (81.3)	58 (23.8)	186 (76.2)	0.031(*) <sup>a</sup>
Absence	56 (18.7)	6 (10.7)	50 (89.3)	
<b>Instrumental support</b>				
Presence	89 (29.7)	20 (22.5)	69 (77.5)	0.755 <sup>a</sup>
Absence	211 (70.3)	44 (20.9)	167 (79.1)	

SRH= Self related health

<sup>a</sup> (Chi square test), <sup>b</sup>(t-test)

\* (P < 0.05); \*\* (P < 0.01); \*\*\* (P < 0.001)

Figure 2 shows the functional status of the studied older adults using the functional independence measure instrument (FIM). It was observed that, 55.4% are modified dependent (need assistance), 39.3% are independent and

only 5.3% of the older adults are complete dependent on others in performing their functional activities.

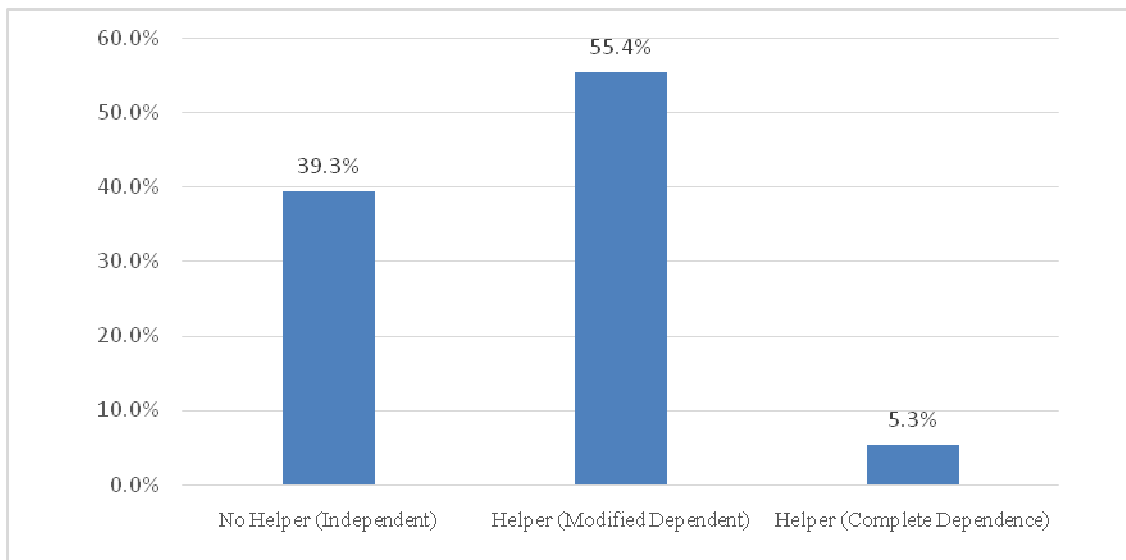


Figure 2: Functional status of the studied older adults

Table 2 shows the functional status of the participated older adults. It was observed that, the mean total score in the poor SRH group was  $69.98 \pm 9.48$  points, with  $51.94 \pm 7.64$  points for the motor tasks, and  $18.05 \pm 1.98$  points for the cognitive tasks.

The mean total score in the good SRH group was  $92.99 \pm 5.32$  points, with  $67.03 \pm 4.18$  points for the motor tasks, and  $25.97 \pm 1.19$  points for the cognitive tasks. Moreover, the good SRH group had higher scores (indicating independence) for motor tasks, cognitive tasks and for the total score of FIM ( $P \leq 0.001$ ) compared with the poor SRH group.

Table 2: Mean score of the functional status and its variation according self-rated health categories

FIM Items	Overall (n = 300) %	Poor SRH (n = 64) %	Good SRH (n = 236) %	P value
Eating	$5.55 \pm 0.91$ (3-7)	$3.91 \pm 0.61$ (3-5)	$6.00 \pm 0.13$ (5-7)	0.000*
Grooming	$4.54 \pm 0.94$ (2-6)	$2.81 \pm 0.59$ (2-5)	$5.00 \pm 0.11$ (4-6)	0.000*
Bathing	$4.14 \pm 0.88$ (2-6)	$2.78 \pm 0.52$ (2-4)	$4.50 \pm 0.52$ (3-6)	0.000*
Dressing - Upper body	$5.07 \pm 1.02$ (2-7)	$3.52 \pm 0.89$ (2-5)	$5.49 \pm 0.52$ (4-7)	0.000*
Dressing - Lower body	$4.15 \pm 0.86$ (2-6)	$2.86 \pm 0.64$ (2-6)	$4.49 \pm 0.52$ (3-7)	0.000*
Toileting	$5.05 \pm 0.62$ (3-6)	$5.20 \pm 1.31$ (3-6)	$5.01 \pm 0.11$ (5-6)	0.028*
Bladder Management	$4.50 \pm 0.61$ (3-6)	$4.48 \pm 0.91$ (3-6)	$4.51 \pm 0.51$ (4-6)	0.781
Bowel Management	$5.44 \pm 0.76$ (3-7)	$5.20 \pm 1.31$ (3-6)	$5.50 \pm 0.51$ (5-7)	0.005*
Transfers; Bed, Chair, Wheelchair	$5.72 \pm 0.57$ (3-7)	$4.73 \pm 0.48$ (3-5)	$5.99 \pm 0.13$ (5-7)	0.000*
Transfers; Toilet	$5.71 \pm 0.61$ (3-6)	$4.67 \pm 0.56$ (3-5)	$5.98 \pm 0.11$ (5-6)	0.000*
Transfers; Tub, Shower	$4.63 \pm 1.16$ (3-6)	$3.26 \pm 0.45$ (3-4)	$5.00 \pm 1.00$ (3-6)	0.000*
Locomotion; Walk, Wheelchair	$4.78 \pm 0.44$ (3-6)	$4.00 \pm 0.18$ (3-5)	$5.00 \pm 0.16$ (4-6)	0.000*
Locomotion; Stairs	$4.51 \pm 0.60$ (3-6)	$4.50 \pm 0.85$ (3-5)	$4.52 \pm 0.52$ (4-6)	0.842
<b>Motor task total score</b>	$63.81 \pm 8.02$ (39-79)	$51.94 \pm 7.64$ (39-62)	$67.03 \pm 4.18$ (56-79)	0.000*
Comprehension	$4.84 \pm 0.68$ (2-6)	$4.22 \pm 1.29$ (2-5)	$5.00 \pm 0.11$ (4-6)	0.000*
Expression	$4.72 \pm 0.58$ (3-6)	$3.72 \pm 0.45$ (3-4)	$4.99 \pm 0.15$ (4-6)	0.000*
Social Interaction	$5.42 \pm 1.14$ (3-7)	$3.32 \pm 0.56$ (3-5)	$5.99 \pm 0.22$ (3-7)	0.000*
Problem Solving	$4.11 \pm 0.88$ (2-5)	$2.73 \pm 0.45$ (2-3)	$4.49 \pm 0.52$ (3-5)	0.000*
Memory	$5.18 \pm 0.76$ (3-6)	$4.05 \pm 0.28$ (3-5)	$5.49 \pm 0.52$ (4-6)	0.000*
<b>Cognitive Task total score</b>	$24.28 \pm 3.54$ (15-30)	$18.05 \pm 1.98$ (15-22)	$25.97 \pm 1.19$ (19-30)	0.000*
<b>FIM total score</b>	$88.08 \pm 11.41$ (54-109)	$69.98 \pm 9.48$ (54-81)	$92.99 \pm 5.32$ (76-109)	0.000*

SRH= Self related health, FIM= Functional independence measure.

The score of FIM was presented as: mean  $\pm$  standard deviation (minimum-maximum), and t-test was used to examine the differences. \* ( $P \leq 0.05$ )

Figure 3 shows the level of dependence of the older adults using instrumental activities of daily living (IADL) according to Lawton and Brody scale. The figure shows that 42.7% of the participated older adults in the study are

independent, while 57.3% of them are partially dependent on others in their IADLs.

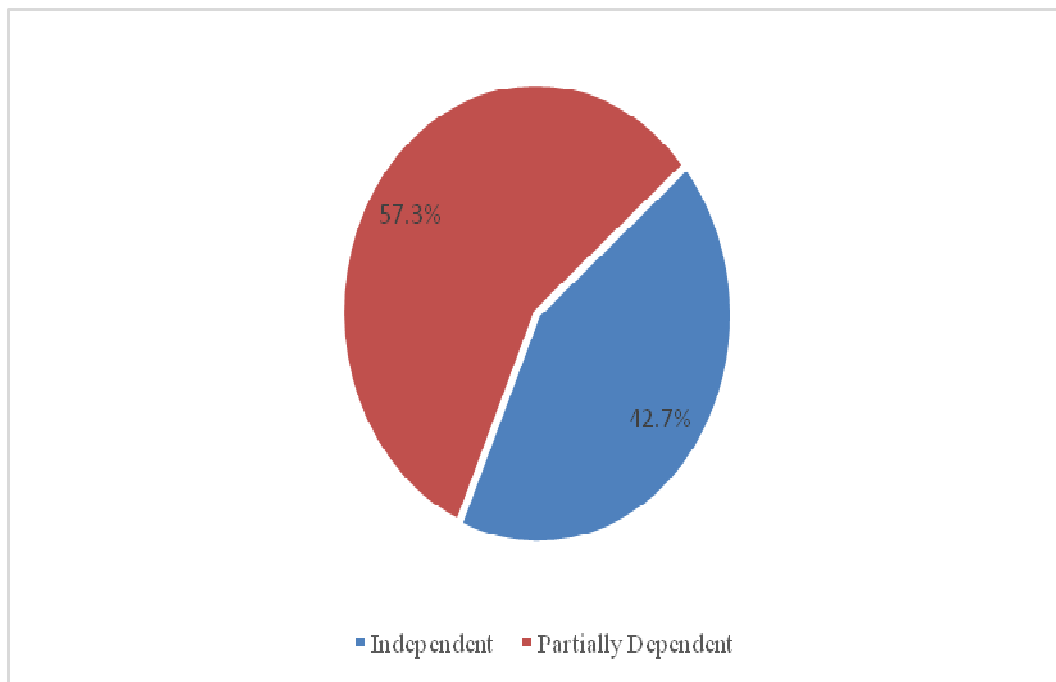


Figure 3: Instrumental activities of daily living of the studied older adults

Table 3 revealed that, the mean total score of IADL in the poor SRH group was  $10.78 \pm 2.97$  points and was  $12.06 \pm 2.35$  points in the good group. In addition, the good SRH

group had higher total scores ( $P \leq 0.001$ ) indicating high independency compared with the poor SRH group.

Table 3: Mean score of the instrumental activities of daily living and its variation according self-rated health categories

IADL Items	Overall (n = 300) %	Poor SRH (n = 64) %	Good SRH (n = 236) %	P value
Ability to use telephone	$1.96 \pm 0.19$ (1-2)	$1.91 \pm 0.29$ (1-2)	$1.98 \pm 0.14$ (1-2)	0.006*
Shopping	$1.92 \pm 0.27$ (1-2)	$1.73 \pm 0.45$ (1-2)	$1.97 \pm 0.16$ (1-2)	0.000*
Food preparation	$0.89 \pm 0.99$ (0-2)	$0.78 \pm 0.98$ (0-2)	$0.92 \pm 0.99$ (0-2)	0.311
House keeping	$0.88 \pm 0.99$ (0-2)	$0.77 \pm 0.97$ (0-2)	$0.91 \pm 0.99$ (0-2)	0.310
Laundry	$0.54 \pm 0.66$ (0-2)	$0.66 \pm 0.88$ (0-2)	$0.51 \pm 0.59$ (0-2)	0.113
Mode of transportation	$1.72 \pm 0.45$ (1-2)	$1.53 \pm 0.50$ (1-2)	$1.78 \pm 0.42$ (1-2)	0.000*
Responsibility for own medication	$1.96 \pm 0.20$ (1-2)	$1.79 \pm 0.41$ (1-2)	$2.00 \pm 0.00$ (2-2)	0.000*
Ability to handle finances	$1.91 \pm 0.29$ (1-2)	$1.60 \pm 0.49$ (1-2)	$1.98 \pm 0.11$ (1-2)	0.000*
<b>IADL total score</b>	$11.78 \pm 2.54$ (6-16)	$10.78 \pm 2.97$ (6-16)	$12.06 \pm 2.35$ (8-16)	0.000*

IADL= Instrumental activities of daily living, SRH = Self related health.

IADL scores presented as: mean  $\pm$  standard deviation (minimum–maximum), and t-test was used to examine the differences. \* ( $P \leq 0.05$ )

Table 4 shows the results of multivariate logistic regression that was done to identify the association of different independent variables and self-rated health (dependent variable). It was noticed that gender of the study participants, residence, income, presence of chronic diseases (comorbidities), functional status (measured by FIM and IADL) and social support were significantly associated with

self-rated health  $P \leq 0.05$ . Indicating, good self-rated health was significantly related with female gender, rural residence, high economic status, fewer chronic diseases, presence of social support and high level of functional status. However, age, marital status, education, living condition, use of instrumental support, and emotional support were no longer related to self-rated health  $P > 0.05$ .

Table 4: Multivariate logistic regression analysis of independent factors associated with good self-rated health

Factors		$\beta$ (SE)	P value	AOR (95%CI)
Age		.022 (.032)	.483	1.023(.961-1.089)
Gender	Men			1(r)
	Women	.913 (.417)	.024*	2.612(1.132-6.028)
Marital status		.432 (.399)	.279	.649(.297-1.420)
Education level		.348 (.204)	.087	.607(.473-1.052)
Residence	Rural			1(r)
	Urban	1.138 (.407)	.005*	3.121(1.405-6.933)
Monthly income	Enough			.357 (.188-.677)
	Not enough	1.029 (.326)	.002*	1(r)
Living arrangement		.721 (.491)	.142	2.056(.785-5.384)
Presence of comorbidities		-1.251 (.307)	.000*	.286(.157-.522)
Functional status		.094 (.28)	.001*	1.099(1.041-1.159)
Instrumental activities of daily living		.252 (.106)	.017*	1.287(1.046-1.584)
Social support	Presence			2.049(1.222-3.438)
	Absence	.718 (.264)	.007*	1(r)
Instrumental support		.115 (.467)	.805	1.122(.449-2.802)
Emotional support		.408 (.394)	.316	1.495(.681-3.280)

$\beta$ = Coefficients of regression \* ( $P \leq 0.05$ )

AOR= Adjusted Odds Ratio – CI= Confidence Interval – r= reference category

## DISCUSSION

Self-rated health (SRH) of older adults is one of the most commonly used health measures in studies and surveys. This measurement reflects overall perceptions of participants for their general health status. SRH has different predictors across different populations. Clarifying the main factors that influence self-rated health has several public health benefits as implementing more targeted interventions for that population<sup>(9)</sup>. Thus, the present study aimed to identify the factors affecting self-rated health of the community dwelling older adults.

Self-rated health is the evaluation of the individual health, which helps to understand the level of elders' awareness regarding their own health<sup>(23)</sup>. In the present study, 78.7% of studied elders rated their health as good (which included excellent, very good and good) while 21.3% rated their health as poor (which included fair and poor). The high percentage of perceived good health among older adults might be justified by the fact that the study participants are residing in the community and may be adduced to better standards of living and higher life expectancies. The result appears similar with Fadila and Abd Elhameed (2019)<sup>(24)</sup> in Egypt as reported that 38.8 and 33.2% of older adults perceived their health status as good and very good respectively. Another study in Nepal revealed that, 74% of participants rated their health as good in term of very good, good and fair while, 26% perceived their health as poor<sup>(7)</sup>. In the same line, a higher percentage (68.1%) of perceived good health among elderly population was reported by Yoshimitsu et al., (2017)<sup>(25)</sup> in Japan and 69.4% by Ogunyemi et al., (2018)<sup>(26)</sup> in Nigeria. On the contrary, a lower percentage of perceived good (23.1%) and very good health status (13.8%) was reported by Hu et al., (2016)<sup>(27)</sup> in Taiwan. The explanation in this variation of self-rated health among the elderly population may be related to the variation in sample characteristics and variation in the self-rated health categories used.

Several studies have shown that the number of older adults who perceive themselves as healthy significantly decreases

with increasing age, and therefore aging is highly associated with poor self-rated health<sup>(10,27-29)</sup>. However, the results of the present study revealed no association between elders' age and self-rated health. This may attribute to about half of the study participants are young old. This is in accordance with Filho et al., (2013)<sup>(30)</sup>, Borim and Neri (2014)<sup>(31)</sup> in Brazil and Xu et al., (2019)<sup>(32)</sup> in china who concluded that age did not have a significant relationship to self-rated health. Meanwhile, many other studies contradict the current result such as Yoshimitsu et al., (2017)<sup>(25)</sup> in Japan, Ogunyemi et al., (2018)<sup>(26)</sup> in Nigeria and Tetteh et al., (2019)<sup>(33)</sup> in Ghana. Moreover, good self-rated health was statistically significant higher among elders who live with their family. This could be explained by the tradition of the community, feeling of loneliness, lack of social support, and potential of financial problems consequent to living alone. This is in accordance with that reported by Wandera et al., (2015)<sup>(34)</sup> in Uganda.

In the present study, several factors were observed to be associated with self-rated health in the older population. Gender, residence, income, comorbid condition, functional status (FIM and IADL) and social support were found to be having a significant influence on self-rated health. Gender of the study participants has found as a major factor that affects SRH as older women were more likely to report good SRH compared to older men. A possible explanation for prevailing of good self-reporting health among older women may be linked to women is more prone to providing socially desirable answer than men. In addition, men in this population were more likely to report having history of chronic diseases than women. This is in accordance with Liu et al., (2017)<sup>(35)</sup> in china who reported that SRH in elderly women appeared to be better than men. Other studies conducted among elderly population in Spain<sup>(36)</sup> and Nepal<sup>(7)</sup> showed similar results. However, several other studies have revealed that women rated their health as poor compared to men<sup>(8,10,28,33)</sup>. They justified this gender disparity as women have higher life expectancy, susceptible to more disease and functional decline which can influence their perceived health status. On the other hand, Borim and Neri (2014)<sup>(31)</sup> and Yoshimitsu et al., (2017)<sup>(25)</sup> reported no

significant association between participants' gender and SRH.

The current study found that good self-rated health was statistically significant higher among rural residents compared to urban residents. Moreover, this study concluded that rural residence is important factor that influence self-rated health (good). This is in agreement with Tobiasz-Adameczyk and Zawisza (2017)<sup>(37)</sup> in Poland who confirmed differences between urban and rural elderly residents in which subjective wellbeing significantly higher among rural residents. However Wandera et al., (2015)<sup>(34)</sup> stated that self-reported ill health was highest among rural residents. Also, Singh et al., (2013)<sup>(38)</sup> in India stated that poor self-rated health was higher among women residing in rural areas. On the other hand, Tetteh et al., (2019)<sup>(33)</sup> reported no association between place of residence and self-rated health among elders in Ghana.

The present study revealed that income was statistically associated with self-rated health among older adults. Possible explanation is that low income may influence health behaviors and seeking health services which in turn linked with poor health perception. Similarly, Ogunyemi et al., (2018)<sup>(26)</sup> found that being retired and not receiving pension was associated significantly with poor SRH. Also, Filho et al., (2013)<sup>(30)</sup> and Hu et al., (2016)<sup>(27)</sup> supported this finding and stated that poor self-rated health was higher among those with low socioeconomic status. While, Wandera et al., (2015)<sup>(34)</sup> contradict this finding and revealed no association between income and self-rated health in elderly people.

Consistent with most previous studies, chronic diseases were strongly associated with poor self-rated health among older adults people<sup>(28,30,39)</sup>. The present study revealed that co morbidities were found as a factor most consistently associated with self-rated health. This means that, participants with poor SRH were independently and significantly more likely to have co morbidities than those with good SRH. This finding may be explained by the fact that elders who have no or less chronic diseases might have the ability to control and adapt with the condition, and thus see themselves as healthy and enjoy better health. This is in agreement with Ogunyemi et al., (2018)<sup>(26)</sup> in Nigeria who reported that elders without a morbid condition have good self-rated health. This agrees with Ishizaki et al., (2019)<sup>(40)</sup> in Japan who concluded that subjects with poor and average SRH already have multimorbidity. Confortin et al., (2015)<sup>(10)</sup> also found that the absence or lower number of diseases increased the prevalence of positive self-rated health among elderly population in Brazil. Same finding was reported by Liu et al., (2017)<sup>(35)</sup>.

Functional status is another factor that significantly associated with self-rated health in the present study. This means that subjects who were independent were 1.099times more likely to rate their health as good than those who need help or assistance. This may be attributed to the fact that SRH is a subjective health assessment and any problem in functional status has an effect on it. As if the individuals unable to perform self-care activities independently, this may lead to rate their health as poor. Moreover, this study

revealed significantly higher independence among elders with good SRH compared with poor SRH with respect to function independent measure instrument. This finding conforms to Dangi (2015)<sup>(7)</sup> who showed that the capacity of people to maintain independence in their everyday activities is seen as an important factor in assessing their health. Also, Arnadottir et al., (2011)<sup>(41)</sup> in Iceland and Filho et al., (2013)<sup>(30)</sup> in Brazil revealed that negative self-rated health was more prevalent among elderly with disabilities. This was in contrast to Yoshimitsu et al., (2017)<sup>(25)</sup> who found that activities of daily living were not associated with self-rated health for most elderly people.

In the present study, instrumental activities of daily livings (IADLs) were found to be higher among those who rated their health as good compared with other in most items. Also, IADLs appeared to play an important role in self-rated health among older adults in the present study. This might justify by the fact that individuals who able to live independently with respect to IADLs can rate their health status as good. Ishizaki et al., (2019)<sup>(40)</sup> in Japan found similar result. Meanwhile, Yoshimitsu et al., (2017)<sup>(25)</sup> and Xu et al., (2019)<sup>(32)</sup> contradict this result and stated no association between IADLs and self-rated health.

Social support is an important predictor of perceived health status of older adults in the community. The present study results revealed that, good self-rated health was higher among those with higher level of social support. This is in accordance with Tobiasz-Adameczyk and Zawisza (2017)<sup>(37)</sup> who reported that better self-rated health was significantly related with a higher level of social support among rural older people. Also, Filho et al., (2013)<sup>(30)</sup> stated that negative self-rating was more significantly prevalent among those dissatisfied with social relationships. Meanwhile, Ogunyemi et al., (2018)<sup>(26)</sup> disagree with this finding and reported that Social support satisfaction was not related with SRH.

## CONCLUSION

It can be concluded that, self-rated health is a good indicator of perceived health status of the community dwelling older adults. The factors associated with good self-rated health in this study were female gender, rural residence, high economic status, fewer chronic diseases, presence of social support and high level of functional status (Activities of daily living and Instrumental activities of daily living). Indicating that, these factors can influence in the prediction of self-rated health among elderly population.

## RECOMMENDATIONS

1. Holistic approaches should be targeted at promoting health in all aspects of older adult's lives, along with improving healthcare services. In this regard, governmental policies and mass media campaigns may play a key role.
2. Develop and implement a health intervention programs are needed to provide physical, emotional and social support to older adults living in the community.



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