Factors Associated with history of Fall among Elderly people in Southern West Bank

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Abstract

Background Elderly men and women have higher risk of fall due to various factors including malnutrition, decreased muscle mass, decreased functional capacity, cognitive impairment and depression. Among Palestinian older adults fall history yet to be studied in term of prevalence and correlates.

Objective The primary objective of this study is to determine the prevalence of fall and the differences in fallers and non-fallers among a group of Palestinian elderly living in rural areas in Southern West Bank region of Hebron. Methods The study included 142 participants from two villages: Se'ar and Bani Na'em , Hebron governance. Demographic variables and fall history was collected by a pre-tested structured questionnaire. Anthropometric measurement were used to assess nutritional status; physical function was assessed by activity of daily living and instrumental activity of daily living, level of fitness was assessed using senior fitness test. Geriatric scale for depression was used to assess depression and Montreal cognitive assessment test was used to evaluate mild cognitive impairment.

Results : 51.7% of study participants were females, the mean age 69.5± 5.7 years old. Positive fall history was present among 11.7% mostly females. Significant relationship with fall was found with larger waist and hip circumference, cognitive impairment, higher level of dependency and slower performance in time up and go (TUG) $p<0.05$.

Conclusion Fall history has considerable prevalence among the study sample and it is correlated with nutritional status, cognitive and physical function. The findings of the study recommend educational and intervention programs to enhance the nutritional status, physical fitness and cognitive function among Palestinian elderly. Further research are needed to determine the risk factors of fall utilizing longitudinal study design and intervention studies to optimize intervention model to enhance the health status and decrease the risk of fall.

Introduction

There is Global increase in aging people (population ≥ 65) worldwide by 3% from 1950 to 2009 (Kinsella & He, 2009). In 2015, aging population was 8.5% of total population(He, Goodkind, & Kowal, 2016). According to Palestinian Bureau of statistics life expectancy for Palestinian males is 72.1 y and for females 75.2 y (statistics, 2016). Due to high fertility rate and high proportion of younger population, older Palestinian population ≥ 65 was only 2.9% of total population in 2000(Abu Seir & Kharroubi, 2017). Aging population face higher risk of falls with consequent severe injury disability, decreased functional capacity and increased health cost(Khanuja, Joki, Bachmann, & Cuccurullo, 2018). It is estimated that 6% of falls in elderly will lead to fracture(Das & Joseph, 2005). Rate of fall in some population may be as high as 30% (Tinetti & Williams, 1998). History of falls in elder Palestinians has not been studied before.

Risk factors for falls include impairment in sensory, muscle function and cognition, specific diseases and medication use(Ek et al., 2019). Factors like gait, balance and muscle strength all have been associated with risk of fall (Tinetti & Kumar, 2010). Moderate to severe cognitive problems are associated with double

risk falling (M. E. Tinetti, M. Speechley, & S. F. Ginter, 1988). In addition, depressive symptoms increase the risk of fall in older people (Kvelde et al., 2015).Combined physical and cognitive decline can lead to higher risk of fall(Welmer, Rizzuto, Laukka, Johnell, & Fratiglioni, 2017).

The double burden of obesity and sarcopenia increase the risk of fall in elder population. Sarcopenia is gradual decrease in muscle strength and function. Declined muscle mass is replaced by fat tissue with consequent increase in obesity(Follis, Cook, Bea, Going, & Laddu, 2018). Sarcopenic individuals have 60% increases in the odds of falling in meta-analysis of studies on elderly ≥ 65(Yeung et al., 2019). On the other hand, obese people expressed more fear of falling and higher risk of falling, in addition, to significant association between waist circumference and fall(Neri et al., 2019).

Various measures of physical functions have been used to track the wellbeing of older population including basic and instrumental activities of daily living (ADLs and IADLs), physical performance measures gait speed, timed up and go (TUG), chair stand test and other measures, and muscle function tests such as hand grip that were scarcely studied in relation to fall risk(Mangani et al., 2008), (Fischer et al., 2014). Slower gait speed among elderly who are 70 or older was independently associated with risk of fall even after adjustment for cognitive function(van Schooten et al., 2019). However, more studies using physical functions in relation to fall risk are needed.

Mild cognitive impairment (MCI) which is considered a transition stage between normal aging and dementia and is associated with two fold increase in falls risk(Snir, Bartha, & Montero-Odasso, 2019) (Ritchie, 2004). Structural changes in grey matter and white matter are common in MCI (Smith et al., 2008) and are associated with declining balance and gait speed (Starr et al., 2003). Some studies associate falls differentially according to cognitive decline severity, but it seems that non-Alzhimer disease dementia is linked more strongly to falls indicating that the type of cognitive impairment defines the relationship to fall risk (Allali et al., 2017). This relationship has not been studied before among Palestinian population.

This study aims to study the association between nutritional status, body composition with fall risk and the relationship between fall risk with cognitive and physical function among randomly selected older adults in southern area of West Bank.

Materials And Methods

Study design

This cross-sectional study was carried out in two villages: *Se'ar* and *Bani Na'em*, Hebron governance, in the south of the West Bank, Palestine. It was conducted between February and April 2019. The random sampling procedure was used to recruit 130 participants using Cochran's (1963) equation for prevalence studies. The prevalence of fall history was taken from similar previous study who found fall history prevalence (35.5%) (Mortazavi et al. 2018). The sample size was increased to 150 participants considering the possible drop out. However, 5 were excluded due to missing data, and finally 145 participants (72 men and 78 women) were included in the final analysis with a 96% response rate.

The inclusion criteria were individuals aged 60 or above, living in the selected areas and agreed to take part in the study. Whereas the exclusion criteria were the presence of acute illness on the days of data collection, current fractures of extremities, having medical conditions that may limit their ability to perform the tests (such as patients with cachexia, sever edema or ascites) and dementia. The researcher verbally informed all the participants about the objectives of the study and gave them written informed consents. Only the participants who signed the consent form included in the study.

Collected data and study instruments

The research team used a pretested, structured questionnaire to collect the data from the participants face to face. The collected data included participants' sociodemographic (i.e. gender, marital status, educational level, monthly income, working status, living status, medical history included the self-reported presence of 15 chronic diseases in addition to previous surgery and fall history in the last year, nutritional status assessment, functional status assessment, cognitive function, and mental health.

The nutritional status assessment was done using anthropometric measurements. Anthropometric indices including (weight, height, mid-upper arm circumference (MUAC), waist circumference (WC), hip circumference (HC) and calf circumference (CC) were used to examine the nutritional status of the subjects according to the standard anthropometric procedures described by Lee & Nieman (2007) (Lee & Nieman, 2007). The height measure was performed using a measuring tape. Body weight was measured using a calibrated electronic sensor scale. Body mass index was calculated as (body in kilogram divided by height squared in meter (kg/m2).

Waist and hip circumferences were measured using a flexible, non-extensible measuring tape. Mid upper arm circumference (MUAC) was measured on the right hand and used to identify subjects with muscle wasting due to malnutrition according to the following cut-off points: < 23 cm for men, and < 22 cm for women. Calf circumference was measured using a measuring tape; and muscle wasting was defined using the following cut-off points: < 30.1 cm for men, and <27.3 cm for women (Lee & Nieman, 2007)..

Physical function assessment was performed by functional status assessment using ADL and IADL. Physical fitness was done using senior fitness tests. The senior fitness test is one of the tools being used in standard fitness assessment for older adults. It is a comprehensive assessment instrument that provides continuous scale measures. In this study the following tests were chosen for physical fitness assessment of the participants: handgrip for upper body strength; 30 seconds chair stand test for lower body strength; back scratch test for upper body flexibility; set and reach for lower body flexibility; 8-ft time up and go for balance; 2-minute step test to assess cardiovascular fitness and endurance; and gait speed. The activity of daily living was assessed using the Katz index scale; and instrumental activity of daily living was assessed using the Lawton scale.

To assess depressive symptoms, a 15-item Geriatric Scale for Depression (GDS-15) was used. This scale was validated with 84% sensitivity and 95% specificity (Prakash, Gupta, Singh, & Nagarajarao, 2009). The Arabic version of Montreal Cognitive Assessment – Basic (MoCA-B) developed to facilitate the detection of mild cognitive impairment in illiterate and lower educated subjects was used. The MoCA-B assesses similar

cognitive domains as the original MoCA including executive functions, language, orientation, calculations, conceptual thinking, memory, visual-perception, attention, and concentration. It is a 30-point score scale where a score below 24 suggests mild cognitive impairment.

Ethics Approval and Consent of Participants

The study was approved by Palestine Polytechnic University in Hebron.

Statistical analysis

The Statistical Package for the Social Sciences SPSS TM, version 21 was used to analyze the collected data, 5% alpha level and 80% power were considered in all of the statistical tests. Descriptive analysis including the means and the standard deviations were used to analyze the continuous data. The categorical data were described by percentages. The Independent Samples t-test was used to determine the significant differences in the mean scores of nutritional status, cognitive function and physical function variables between males and females. The prevalence of fall history was presented in percentages. The association between history of fall and independent categorical variables (i.e. gender, marital status, educational level and medical history) was carried out using the Chi-square test. The independent samples t-test was conducted to examine the relationship between faller participants with non-fallers participants in the following variables: anthropometric measurement, cognitive function, depressive symptoms and physical function tests.

Results

Subjects were selected from two village in Hebron district Sa'er and Bani Na'em. A total of 150 participants were invited to join the study and verbally consent to join the study. One hundred forty five participants were included in the final analysis, 5 participants were excluded due to missing of primary data. As shown in Figure.1. The mean age of the participants was 69.5 ± 5.7 years, ranged from 60–90 years old.

Table (1) shows the subjects' distribution presented in number and percentage, the women composed the majority of the study sample 78%. The majority of the subjects were married 70.3% primary educated 64%, doesn't work 84% and non-smoker 66%, and 96.6% living with family. Around half of the participants 57.7% reported their ability to read, 51.2% to write and 51% able to calculate.

Table 1

Subjects characteristics presented in numbers and percentages

Demographic characteristics	Value	Total Number(n)	Percentage (%)
Gender	Male	70	48.3
	Female	75	51.7
Age			
	< 70 years	95	65.5
	> 70 years	50	34.5
Marital Status			
	Single	22	15.2
	Married	102	70.3
	Widow	21	14.5
Level of Education			
	Primary	65	44.8
	Secondary	25	17.2
	Diploma	3	2.1
	University	9	6.2
	Others	43	29.7
Living status			
	Live with family	140	96.6
	Live alone	5	3.4
Work status			
	Working full time	30	20.7
	Working part time	28	19.3
	Not working	80	55.2
	Retired	7	4.8
Income			
	500–1500	55	35.9
	1501–3000	79	51.6
			10.5

Demographic characteristics	Value	Total Number(n)	Percentage (%)
	3001–5000	16	

The results of the medical history revealed considerable prevalence of cardiovascular diseases among the participants; hypertension was reported among 46.5% of the participates, followed by diabetes mellitus was reported among 28.7% of the participants as shown in Fig. 2.

*significant at p < 0.01 using chi square test\

Table 2, showed the nutritional status, physical and cognitive profiles of the participants according to gender, the results revealed women have higher BMI score as compared to men, while the women cognitive function test MOCA score was significantly lower than men. In regard to physical function the women showed lower level of fitness in the following tests; 2 min step test, TUG, hand grip and back scratch test as compared to men, p < 0.05. Generally, 32.3% of the participants had normal weight, 34.7% were overweight, whilst 37.3% were obese. According to Mini nutrition assessment MNA; 2% of the participant were malnourished, 17.3% are at risk of malnutrition, whilst the majority 80% are well-nourished.

Table 2

Participants nutritional status, cognitive and physical function profile according to gender

		Male (n = 70)	Female (n = 75)	P value
Nutritional status	BMI	27.5 ± 4.4	30.6 ± 7.52	0.004
	MUAC	34.5 ± 3.4	34.8 ± 3.4	0.123
	W:Hip ratio	1.1 ± 1.03	0.98 ± 0.1	0.234
	Calf circumference	33.1 ± 5.3	33.6 ± 6.7	0.324
	No of meals /day	4.2 ± 1.04	3.8 ± 1.24	0.073
	MNA			
Cognitive function	MOCA	17.7 ± 3.5	14.5 ± 2.6	0.001*
Depression symptoms	GDS	5 ± 3.14	5 ± 2.57	0.865
Functional status	ADL	2.1 ± 2.69	1.8 ± 2.51	0.521
	IADL	5.4 + 1.37	5.5 + 2.09	0.774
Physical fitness	2 min step test	126.4 + 38.7	98.1 + 50.6	0.001*
	TUG	15.2 + 5.9	20 + 18.8	0.044*
	Hand grip	24.7 + 10.7	18.6 + 7.02	0.001*
	Back scratch test	26.6 + 17.5	33.5 + 19.1	0.034*
	Set and reach	3.3 + 3.9	3.7 + 4.9	0.549
	Chair stand test	17.5 + 11.6	19.6 + 15.06	0.365
	Gate speed	7.06 + 5.13	8.76 + 6.9	0.097
	Rapid gate	7.7 + 3.7	8.5 + 6.1	0.331

*significant p < 0.05 using independent t-test

BMI: body mass index, MUAC: mid upper arm circumference, WC: waist circumference, HC: hip circumference, CC: calf circumference. MOCA: Montreal cognitive assessment, ADL: activity of daily living, IADL: instrumental activity of daily living, GDS: Geriatric depression scale, 2 min.st: 2 minutes step test,, TUG: time up and go, BST: back scratch test,, CSR: chair set and reach test,, CST: chair stand test, RP: rapid pace

The prevalence of history of fall was 11.7% with significant higher prevalence among women 20% as compared to men 2.9%. Figure 3

*significant p < 0.05 using Chi square test.

The results of the nutritional status profile based on history of fall are presented in Table 3. The means of the BMI and hip circumference were significantly higher in fallers as compared to non-fallers (p < 0.05). the MUAC and CC was lower among fallers as compared to non-faller but these differences were not significant.

Table 3
anthropometric measurements according to fall history and gender (mean ± SD)

	Males			**Females**		
	Fallers	Non Fallers	P value	Fallers	Non fallers	P value
BMI	31.8 ± 2.43	27.4 ± 4.39	0.21	32.3 ± 0.07	30.2 ± 7.6	0.30
MUAC	32 ± 2.82	34.16 ± 3.2	0.47	34.4 ± 5.56	35.6 ± 3.64	0.60
WC	131.5 ± 117.5	117.8 ± 149	0.46	120.6 ± 11.3	109.6 ± 16.34	0.004**
HC	119.5 ± 0.70	114.9 ± 16.5	0.03*	124.2 ± 9	110.2 ± 20.5	0.000**
CC	33.5 ± 3.53	34 ± 5.42	0.65	33.7 ± 4.74	35.06 ± 7.07	0.09
W:H ratio	1.10 ± 0.9	0.98 ± 1.04	0.34	0.99 ± 0.08	0.98 ± 0.11	0.63
*p < 0.05 using Mann-Whitney test, **p < 0.01 using Mann-Whitney test.						
BMI: body mass index, MUAC: mid upper arm circumference, WC: waist circumference, HC: hip circumference, CC: calf circumference.						

As shown in Table 4, among the physical function tests 2 min step test, time up and go and rapid gate had significant relationships (p < 0.05) between fallers and non-fallers. Participants with fall history had a lower physical function performance as compared to non-fallers.. In regards to cognitive function, MOCA scores were significantly higher in normal participants as compared to participants with fall history, but the difference didn’t reached a significant level after the analysis done for males and females separately.

Table 4

Physical and cognitive function characteristics according to fall history and gender

	Total			Men			Women		
	Fallers	Nonfallers	P value	Fallers	Non fallers	P value	Fallers	Non fallers	P value
MOCA	15.5 ± 4.51	18.4 ± 4.99	0.02*	12.5 ± 3.5	19.5 ± 5.31	0.06	15.9 ± 4.6	17.2 ± 4.32	0.33
ADL	0.35 ± 0.9	2.23 ± 2.66	0.000**	1 ± 1.41	2.19 ± 2.7	0.43	0.26 ± 0.79	2.3 ± 2.64	0.00**
IADL	5.05 ± 2.53	5.52 ± 1.62	0.47	1.5 ± 2.12	5.54 ± 1.16	0.00**	5.53 ± 2.23	5.5 ± 2.02	0.95
GDS	4.5 ± 2.4	4.80 ± 3.08	0.60	3 ± 4.24	4.69 ± 3.29	0.7	4.7 ± 2.2	4.93 ± 2.83	0.69
2 min.st	56.2 ± 58.8	119.1 ± 41.3	0.000**	129.1 ± 35.7	129.1 ± 35.7	0.00**	59.1 ± 56.6	107.9 ± 44.5	0.006**
TUG	27.6 ± 21.4	16.4 ± 12.6	0.05*	27.5 ± 17.6	14.9 ± 5.16	0.5	27.6 ± 22.4	18.15 ± 17.6	0.14
BST	35.8 ± 17.0	29.3 ± 17.7	0.15	43.5 ± 19.1	26.4 ± 16.9	0.42	34.8 ± 17.2	32.7 ± 18.2	0.67
CSR	4.41 ± 7.4	3.43 ± 3.6	0.60	4 ± 5.7	3.3 ± 3.9	0.89	4.5 ± 7.8	3.6 ± 3.9	0.68
CST	18.05 ± 23.15	18.7 ± 11.8	0.91	8 ± 2.8	17.8 ± 11.7	0.05*	19.4 ± 24.4	19.7 ± 11.96	0.97
RP	11.5 ± 10.3	7.8 ± 3.80	0.004**	8.5 ± 0.70	7.8 ± 3.8	0.35	11.9 ± 10.59	7.8 ± 3.9	0.01*

(mean ± SD)

*p < 0.05 using Mann- Whitney test, **p < 0.01 using Mann- Whitney test.

MOCA: Montreal cognitive assessment, ADL: activity of daily living, IADL: instrumental activity of daily living, GDS: Geriatric depression scale, 2 min.st: 2 minutes step test,, TUG: time up and go, BST: back scratch test,, CSR: chair set and reach test,, CST: chair stand test, RP: rapid gate.

Discussion

This study is a sample of Palestinian elderly from rural Hebron region who were mostly less than 70 y and had low educational level. Fall history prevalence was 11.7% in total population and is more common in females than males. This rate is lower than what was found in different population where fall history prevalence was higher than 35% in developed countries such as UK and US (Blake et al., 1988; Downton & Andrews, 1991). In a study among Egyptian elder in Suez, 205 out of 340 reported falling at least once

which is higher percent than this reported in our study(Kamel, Abdulmajeed, & Ismail, 2013). The lower rate of fall in our study could be related to the fact that 65.5% of our study participants are less than 70 y, many of them are independent and still working, in addition to family social support they receive as most still live with their families.

Our results were similar to other reports with regards to preference prevalence of fall history in women relative to men (Enriquez de Luna-Rodriguez et al., 2019). Our results show that women in fact have lower cognitive performance as assessed by MoAC. In addition, physical performance tests such as 2 minute step test, TUG, hand grip, and back scratch test all were lower in females than males. In study among Brazilian participants, fall fear was more common among females and was associated with multiple use of medications, hearing impairment, poor gait speed and depression(Malini, Lourenço, & Lopes, 2016). In more than one study, being female was associated with higher risk of falling or fear of fall which is serious health condition that prevent normal life activities (Murphy, Dubin, & Gill, 2003; Vellas, Wayne, Romero, Baumgartner, & Garry, 1997). Definitely having higher risk of falling among women along with the effect of menopause on bone mineral density could lead to higher rate of fracture and injury related mortality. Higher rate of fall among women could be related to the fact women live longer than men.(Greenberg et al., 2016).

Indicators of obesity both central and hip were associated positively with fall history. In women, both hip and waist circumference were higher in fallers than non-fallers, whereas in men hip circumference was higher in fallers relative to non-fallers. The association between obesity and fall could be related to lower functional capacity as related to impaired balance and postural sway(Friedmann, Elasy, & Jensen, 2001). Also obesity is associated with high prevalence of depression and lower quality of life(Katz, McHorney, & Atkinson, 2000). Programs that lead to weight loss were shown to improve postural balance which may lead to decrease in risk of falls (Teasdale et al., 2007). One study reported almost two fold increase in the risk of fall among obese individuals. In this study higher risk of fall in obese people was associated with lower balance, lower quality of life, social function, body pain, and sedentary life and central distribution of fat (Fjeldstad, Fjeldstad, Acree, Nickel, & Gardner, 2008). In addition, it is more likely that obese people will suffer from higher rates of chronic diseases and hence will be taking many medications which could lead to increase in fall risk.

People with cognitive impairment have high rate of fall (60–80%) which is twice the rate of fall in regular elderly (Mary E Tinetti, Mark Speechley, & Sandra F Ginter, 1988). Fall among cognitively impaired people lead to dependence on others, need for care facilities and higher rate of mortality. In addition the cost associated with fall among this group is very high (Montero-Odasso, Verghese, Beauchet, & Hausdorff, 2012). Elderly with cognitive impairment has reduced postural and gait stability (Yogev-Seligmann, Hausdorff, & Giladi, 2008). This decline is linked to structural changes in brain(Rosano, Brach, Longstreth Jr, & Newman, 2006). Mild cognitive impairment is transitional to between aging and dementia. MCI increases to 29% among elderly more than 85 y (Montero-Odasso et al., 2012). Unfortunately intervention studies indicate that elderly with cognitive problems are less responsive to intervention that aim to prevent falls that may include addressing polypharmacy issues, improve balance and strength and hearing and visual correction (Oliver et al., 2007). We used Montreal cognitive impairment (MOCA) test which is used to detect mild cognitive impairment, the suggested normal value for MOCA is 26–30 as taken from 90 healthy

adult with mean age 72.8 y with higher education than our study group(Rossetti, Lacritz, Cullum, & Weiner, 2011). The value of MOCA in this study is lower than normal value, and fall risk seems to have lower MOCA. However normative value for MOCA does not exist for Palestinian population.

In this study there was high prevalence of cardiovascular disease among study participants. Even subclinical level of cardiac damage was associated with twofold increase in fall risk American participants(Juraschek et al., 2019). In another group of patients with cardiovascular disease, increase in fall risk was linked to higher mortality and readmission to hospital risk(Manemann et al., 2018). Balanced training among a group of patients with cardiovascular disease improved TUG ($p < 0.01$); TUG and ADL in the faller participants were lower in non-fallers relative to faller in all study sample. Similar results were found in a group of elderly in veteran home in Northern Taiwan(Chen, Hwang, Chen, Chen, & Lan, 2008). On the other hand, two step test can be used to assess Cardiovascular diseases physical tolerance(Wegrzynowska-Teodorczyk et al., 2016) and at the same time is linked to higher risk of fall as was found in this study. However, we did not find other functional tests to be linked to fall risk among this group may be related to the fact that most of participants were less than 70 y and many of them still working.

Depression was not related to risk of fall in this study group. Mostly this study participants lived with their families. In a study done among a group of Americans over 51, that depression was linked to falls with increasing frailty and admission to nursing home(Lohman, Mezuk, & Dumenci, 2017) .

Conclusion And Limitation

This study was the first study among Palestinians elderly living in Hebron on the risk of falls. We included a r sample of elderly living in rural part of the region which is not studied often, and was assessed many aspects related to risk of fall using validated questionnaires. In this study, we reported very low risk of fall among Palestinian elderly with high prevalence of cardiovascular diseases. Fall history was more common among females and was related to low cognitive impairment, obesity and reduced functional capacity as assessed by two minute step test, TUG and ADL. On the other hand, depression was not associated with fall risk in this study. However, this study is not without limitation including its cross sectional design which is not able to determine the cause and effect relationship between the risk of fall and other variables. The study sample included only two rural areas and didn’t include the other living areas; cities and camps which are the common living areas in Palestine.

Declarations

Acknowledgment

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Conflict of Interest: None

Data Availability

Data is available upon reasonable request.

Funding

None

Authors Contribution

Nihal Natour wrote the manuscript and interpreted results. Alaa Jaradat performed data collection and participated in data analysis. Manal Badrasawi performed data analysis and participated in manuscript writing and designed the concepts of the paper.

Abbreviations:

ADL;activity of daily living. IADL; instrumental activity of daily living. TUG; timed up and go. MUAC; mid upper arm circumference. WC; waist circumference. HC; hip circumference. CC; calf circumference. GDS-15; Geriatric scale of depression. MoCA-B; Montreal cognitive assessment B. 2 min.st; 2 minute step test. BST; back scratch test. CSR; chair set and reach test. CST; chair stand test. RP; rapid pace

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Figures

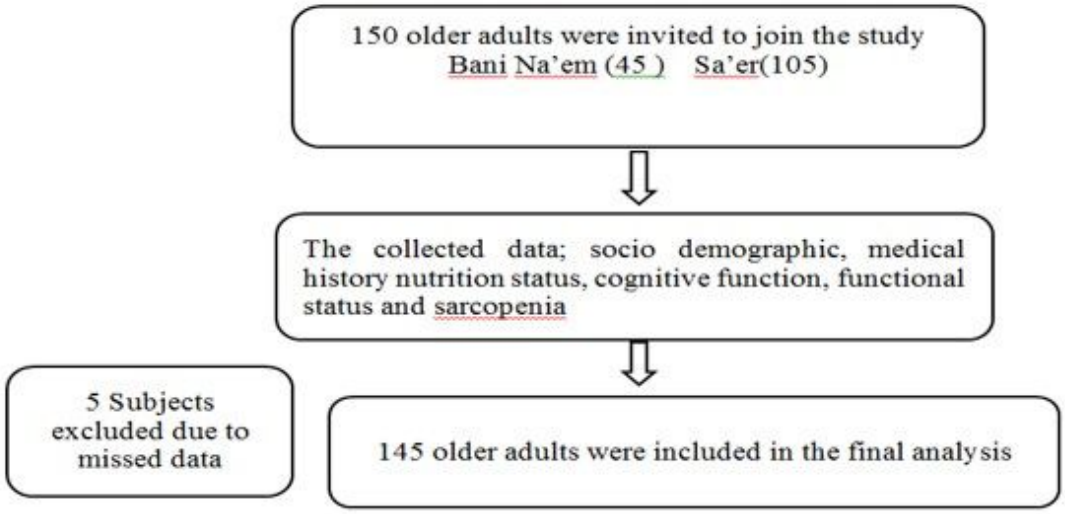

Figure 1

subjects recruitment flow chart

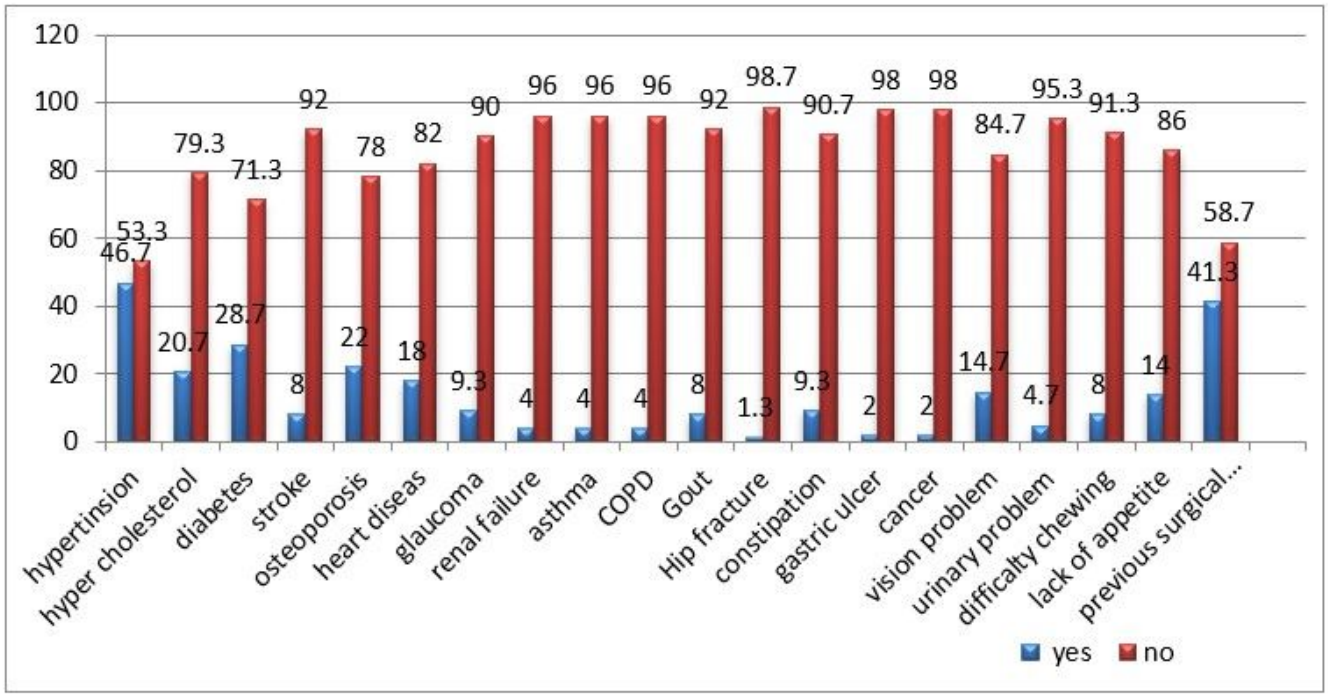

Figure 2

medical history of the participants *significant at p<0.01 using chi square test\

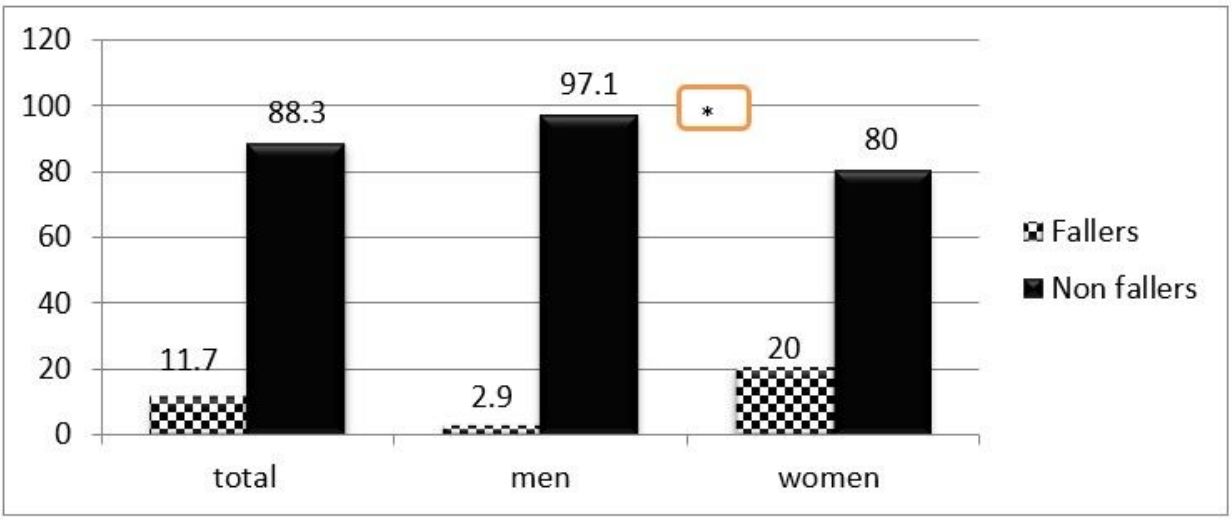

Figure 3

Faller prevalence according to gender *significant p<0.05 using Chi square test.