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FEAR OF FALLING AS A RISK FACTOR FOR FALLS IN THE ELDERLY POPULATION

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Abstract: *Falls are the most common event in the elderly population and have a special significance in public health. Fear of falling is one of the biggest concerns of older people and should not be underestimated. It is an internal psychological phenomenon of concern or anxiety about falling. It has been described as both a cause and a consequence of falls. The aim of the research is to examine the influence of various factors on the occurrence of fear of falling as a risk factor for falling in the elderly population. The prospective study included 60 subjects of both sexes over the age of 65 who did not fall previously, divided into two groups based on body mass index (BMI). For research purposes, we used a sociodemographic questionnaire, body mass index (BMI) and FES-I (Falls Efficacy Scale – International). Descriptive statistics and the χ^2 test were used to analyze the obtained data. The fear of falling appears in the same activities within both groups The χ^2 test did not show a statistically significant relation between the gender of the subjects and the fear of falling measured by the FES-I test, neither in respondents with BMI<25; χ^2 (2,30)=0.010, Sig.=0.995, CramersV=0.019, nor in respondents with BMI≥25; χ^2 (2,30)=1.158, Sig.=0.561, CramersV.=0.196. Also, in this sample, relation between living status (alone or with family) and the degree of fear of falling assessed by the FES-I test was not established; χ^2 (2,30)=3.684, Sig.=0.159, CramersV.=0.350, both in respondents with BMI<25 and in respondents with BMI≥25; χ^2 (2,30)=0.557, Sig.=0.757, CramersV. =0.136. It is necessary to further investigate which factors lead to the appearance of fear of falling in people who have not experienced it before.*

Keywords: *falls, fear of falling, FESI-I*

Introduction

Aging can be defined as a complex process that causes progressive and most often irreversible physiological changes, regulated by multiple mechanisms, which leads to the state of old age. Old age itself is accompanied by reduced biological function and the ability of the organism to adapt to metabolic stress. [1] Falls as a result of a complex interaction of risk factors are the most common event in the elderly population and injuries and deaths related to falls in the elderly are a major health problem worldwide. A fall is any situation in which a person loses control of an upright posture and falls involuntarily. Approximately 30% of people over the age of 65 fall at least once a year, and half of them fall repeatedly several times during the year. [2,3,4] After falls, old people very often experience a significant reduction in

daily activities due to the fear of falling (FOF) again. [5] Fear of falling is defined as a constantly present and ongoing concern fear of falling, which ultimately limits activities of daily life. [6] Essentially, there are two definitions that explain fear of falling. One definition focuses on fear itself, and the other definition points to the loss of confidence when doing certain activities due to the fear of falling. Fear of falling is one of the major issues relating to the overall health of older adults. Fear of falling leads to physical and psychological problems, and despite the large number of older adults who suffer from the serious consequences of fear of falling, its definition is still vague and warrants clarification. [7] Fear of falling, has been reported to occur in 12% to 65% of adults older then 65, who do not have a history of falling and live independently in the community and. The prevalence of FOF was consistently higher among women than men. Increasing age was correlated with FOF in studies that compared age groups with degree of FOF. Consensus among the studies indicates that increased FOF is associated with decreased quality of life in older adults. The factors contributing to FOF in older adults are numerous, Functional and physical decline and decreased quality of life are closely related to FOF, so that these factors may actually be causes of FOF or are caused by FOF. [8] Fear of falling, whether or not related to a previous fall, can have a major impact on older adults. FOF may be a reasonable response to certain situations, leading elderly persons to be cautious, and can contribute to fall prevention through careful choices about physical activity. [9] Fear represents a reasonable reaction to possible danger and has few negative consequences as long as physical and social mobility remains unaffected. Fear of falling has been associated with negative consequences such as reduced activity of daily living, reduced physical activity, lower perceived physical health status, lower quality of life and increased institutionalization. [10]

The aim of the research is to assess fear of falling as a risk factor for falling in elderly people living in the community.

Materials and methods

Prospective study included 60 subjects of both sexes over the age of 65 from Prijedor who live in the community. The subjects were separated into 2 groups of 30 subjects according to the value of the body mass index (BMI): group G1 with subjects whose BMI<25, and group G2 with subjects whose BMI≥25. Inclusion criteria were: age ≥ 65, live in a community in a flat or a house, can walk independently (including usage of walking aids), haven't experienced fall so far and have signed an informed consent. Exclusion criteria were: age<65, elderly people who have fallen, people who cannot understand and follow the instructions, immobile people, people with acute neurological, orthopedic and cardiovascular conditions or with chronic diseases that are not under control (diabetes, hypertension) people with visual and hearing impairment and people with dementia. The research lasted 6 months, from June to October 2022, and was conducted at College of Health Sciences Prijedor, at Occupational Therapy department. Consent to conduct the research was given by the Ethics Committee of College of Health Sciences Prijedor. The subjects were invited through the Association of Pensioners Prijedor and using social networks (messenger,

viber). The research was conducted respecting all rights based on voluntariness, privacy and protection of personal data contained in the form of informed consent. The instruments used in the research were sociodemographic questionnaire, anthropometric measurements of body weight (BW) and body height (BH), BMI, and the Falls Efficacy Scale – International (FES - I). Sociodemographic questionnaire was created for research purposes and included gender, year of birth, age, anthropometric measurements BH, BW, BMI, place of residence, living status, marital status. The questionnaire consisted of 10 questions, 7 closed type questions with provided answers and 3 open type questions. BW and BH were measured on a GIMA brand scale. BMI is a height-weight indicator of an individual's nutrition and is valid for all people over the age of 20. It is calculated by dividing a person's body mass in kilograms by the square of their height in meters (kg/m^2). According to the criteria of the World Health Organization (WHO), BMI is classified as: malnutrition (<18.5 kg/m^2), normal nutrition (18.5-24.9 kg/m^2), pre-obesity (25.0-29.9 kg/m^2) and obesity (> 30.0 kg/m^2) [11,12].

The International Fall Risk Scale (Falls Efficacy Scale - International - FES - I) is a short and simple test that assesses the fear of falling during social and physical activities inside and outside the home, as well as whether the person actually performs physical activity. Respondents are asked to rate their fear of falling while performing 16 different activities on a four-point Likert scale. The answers offered are: not at all concerned, somewhat concerned, fairly concerned, very concerned. Each item is rated on a scale from 1 (not at all concerned) to 4 (very concerned). To obtain the overall score for the FES-I, the results on all items are added together, and the total score ranges from 16 to 64. A score of 16-19 points represents low concern, 20-27 points moderate concern, 28-64 points high concern for fall risk. The reliability of the FES-I was confirmed in a study by Delbaere et al. [3, 13-16] The research was carried out by a research team: one main researcher - occupational therapist, and two assistants - 4th year occupational therapist students. Before the research started, main researcher conducted the training of assistants who measured BH, BW and BMI. The main researcher conducted FES-I and filled out the survey questionnaire. Subjects came only once and stayed aproximately 30 minutes.

Complete statistical data processing was done with the SPSS 26.0 statistical software package. The results of the descriptive analysis are presented in textual and tabular form as frequency (%) of individual categories. In the case of continuous data, variables are presented as mean ± standard deviation (SD), minimum and maximum values. The statistical significance of the differences between groups was checked by Pearson's Chi square (χ^2) test of independence and one-way analysis of variance (ANOVA). Statistically significant results were results whose p value was less than 5% ($p < .05$) when testing for significance.

Results

Sociometric characteristics of subjects in relation to groups and descriptive indicators of the subjects' anthropometric measures in relation to the BMI value were presented in Table 1 and 2. Table 3 shows distribution of subjects according to the FOF assessment based on the total value of the FES-I test and the BMI value. Table 4 presents the frequency of answers to questions P1-P16 of the FES-I test in the sample in relation to the value of the BMI in the sample. The comparision of tendency to fall, measured by FES-I in relation to the life status of subjects among groups and Pearson's Chi-square (χ^2) test was presented in Table 5

Table 6 presents descriptive indicators of the average score values of the subjects in relation to the BMI value using one-way analysis of variance (ANOVA)

Table 1.Sociometric characteristics of subjects in relation to groups in relation to BMI

Group according to BMI	Gender	Frequency	Percentage
BMI < 25	male	9	30.0
(Group G1)	female	21	70.0
	total	30	100.0
BMI ≥25	male	14	46.7
(Group G2)	female	16	53.3
	total	30	100.0
Place of residence			
BMI < 25	flat	15	50.0
(Group G1)	house	15	50.0
	total	30	100.0
BMI ≥25	flat	15	50.0
(Group G2)	house	15	50.0
	total	30	100.0
Live with...			
BMI < 25	alone	7	23.3
(Grupa G1)	family union	23	76.7
	total	30	100.0
BMI ≥25	alone	5	16.7
(Group G2)	family union	25	83.3
	total	30	100.0
Marital status			
BMI < 25	married	18	60.0
(Group G1)	divorced	2	6.7
	widow/widower	9	30.0
	single	1	3.3
	total	30	100.0
BMI ≥25	married	20	66.7
(Group G2)	divorced	1	3.3
	widow/widower	9	30.0
	total	30	100.0

The subjects were divided into two groups with 30 (50%) subjects in relation to BMI:

- Group G1, subjects with BMI<25,
- Group G2, subjects with BMI≥25.

Within group G1 (BMI<25), there were 9 (30%) men and 21 (70%) women, 15 (50%) of them lived in a flat, and 15 (50%) in a house, 7 (23.3%) lived alone, and 23 (76.7%) in some form of family union. Among subjects from group G1, 18 (60%) were married, 2 (6.7%) were divorced, 9 (30%) were widows/widowers and 1 (3.3%) was single. (Table 1) Within G2 group (BMI≥25), there were 14 (46.75%) men and 16 (53.3%) women; 15 (50%) lived in a flat and 15 in a house; 5 (16.7%) lived alone, and 25 (83.3%) in some form of family union; 20 (66.7%) were married, 1 (3.3%) was divorced, while 9 (30%) were widowed (Table 1).

The average value of BMI in G1 group was Me=22,913. with SD=1.838, and Std error=0.336, and the average age is Me=70.83 years, SD=4.069, Std.error=0.743. The average value of BMI in group G2 was Me=29.183, SD=2.334, Std.error=0.426, and the average age was Me=72.00, with SD=4.426 and Std.error =0.808 (Table 2).

Table 2. Descriptive indicators of the subjects' anthropometric measures in relation to the BMI value.

Group according to BMI		**N**	**Min.**	**Max.**	**Mean**		**Std. Dev.**
					Statistic	**Std. Error**	
BMI < 25 (Group G1)	BMI	30	18.70	24.90	22.913	0.336	1.838
	SD	30	65	82	70.83	0.743	4.069
	TV	30	158	192	170.70	1.800	9.862
	TT	30	50	90	66.97	1.847	10.118
BMI ≥ 25 (GroupG2II)	BMI	30	25.20	34.00	29.183	0.426	2.334
	SD	30	65	81	72.00	0.808	4.426
	TV	30	152	186	169.63	1.788	9.793
	TT	30	63	105	84.37	2.194	12.016

Index: BMI-body mass index, AG-age, BW-body weight, BH-body hight, Min-minimum, Max-maximum, Std.Dev-standard devition, Std.error-standard error

The results in Table 3 show that among the 27 (45%) subjects who have low concern while performing activities given in FES-I test, 13 (48.1%) of them are subjects with BMI<25, and 14 (51.9%) are subjects with BMI≥25. Out of 18 (30%) subjects who have moderate concern while performing the activities given in the FES-I test, 10 (55.6%) of them are subjects with BMI<25, and 8 (44.4%) with BMI≥25. Among subjects who have high concern about falling while performing FESI-I activities, higher percentage of them, 53.3%, have a BMI≥25, compared to 46.7% of subjects with a BMI<25. (Table 3)

Among 27 (45%) subjects who have low concern about falling while performing activities given in FES-I test, 21.7% are subjects with BMI<25 and 23.3% are subjects with BMI≥25. Out of 18 (30%) subjects who have moderate concern, 16.7% subjects are with BMI<25 and 13.3% subjects are with BMI≥25. 11.7% subjects with BMI< 25 and 13.3% subjects with BMI≥25 have high concern about falling. (Table 3)

The analysis of the overall results of the FES-I test showed that:

- within group G1 (BMI<25), 13 (43.3%) subjects have low concern, 10 (33.3%) subjects have moderate concern and 7 (23.3%) subjects have high concern about falling,
- within group G2 (BMI≥25), 14 (46.7%) subjects have a low concern, 8 (26.7%) have moderate concern, and the same number declared that they have high concern about falling while performing activities given in FES-I (Table 3)

Tabela 3. Distribution of subjects according to the fear of falling assessment based on the total value of the FES-I test and the BMI value.

INTSKORFES score interval * INTITM225 BMI (Interval) Crosstabulation

			BMI		Total N=60
			BMI < 25.00 N=30; 50%	BMI>=25.00 N=30; 50%	
Total score FES-I	<= 19.00 "low concern"	Count	13	14	27
		% within FES-I	48.1%	51.9%	100.0%
		% within BMI	43.3%	46.7%	45.0%
		% of Total	21.7%	23.3%	45.0%
	Od 20.00 do 27.00 "moderate concern"	Count	10	8	18
		% within FES-I	55.6%	44.4%	100.0%
		% within BMI	33.3%	26.7%	30.0%
		% of Total	16.7%	13.3%	30.0%
	28.00 i više "high concern"	Count	7	8	15
		% within FES-I	46.7%	53.3%	100.0%
		% within BMI	23.3%	26.7%	25.0%
		% of Total	11.7%	13.3%	25.0%

Regarding to the type of activity about which subjects expressed the greatest concern, the results are as follows: Out of a total of 30 interviewed subjects from group G1 with BMI<25, the greatest concern during performance the activity is expressed for: walking on a slippery surface - P11 (33.3%), going to the store - P5 (6.7%), walking uphill and downhill - P15 (6.7%), walking on uneven ground - P14 (6.7%), dressing and undressing - P2 (3.3%), bathing or showering - P4 (3.3 %), getting up from and sitting on a chair - P6 (3.3%), walking through a big crowd - P13 (3.3%) (Table 6). In the G2 group with BMI≥25, the greatest concern is expressed while performing the following activities: walking on a slippery surface - P11 (20%), walking uphill and downhill - P15 (10%), walking on uneven ground - P14 (6.7 %), walking through a big crowd - P13 (3.3%), going to social events, P16 - (3.3%) (Table 4).

Among subjects in group G1 with BMI<25, in a group of 7 (23.3%) subjects who live alone, 42.9% feel a low concern about falling while performing the activities from FES-I test, 57.1% have moderate concern, while there are no subjects with high concern about falling. Among 23 (76.7%) subjects who live in some form of family union, 43.5% of them have low concern, 26.1% have moderate concern and 30.4%

have high concern about falling. Thus, almost equal percentage (42.9% and 43.5%) of subjects who live alone and those who live in some form of family union have a low concern about falling, while moderate concern have far greater percentage of subjects who live alone (57.1%) than those who live in some form of family union (26.1%). However, high concern among subjects with a BMI<25 was recorded only among subjects who live in some form of family union. (Table 5) Furthermore, among 13 (43.3%) subjects who expressed low concern about falling, 23.1% live alone, and 76.9% live in some form of family union, while among 10 (33.3%) subjects who have moderate concern about falling, 4 (40%) of them live alone, and 6 (60%) live in a family union. All subjects who have high concern about falling live in a family union. There are no subjects who live alone and have high concern about falling. Thus, in the group G1 with BMI<25, there is a greater concern about falling among respondents who live in some form of family union than among respondents who live alone (Table 5).

Among 30 subjects with BMI≥25, out of 5 (16.6%) sujects who live alone, 40% have low concern about falling, 20% have a moderate concern, while 40% of them have high concern about falling regrading the activities given in FES-I test. Among the other 25 (83.3%) subjects with BMI≥25 who live in some form of family union, 12 (48%) have low concern, 7 (28%) have moderate concern, and 6 (24%) high concern about falling. Therefor, among subjects with BMI≥25, subjects who live alone (40%) have higher concern about falling than respondents who live in a community (24.0%). (Table 5) In this sample, the χ^2 test of independence did not determined that there is a relation between the status of living in a family union and the degree of fear of falling assessed by the FES-I test; $\chi^2(2,30)=3.684$, Sig.=0.159, CramersV.=0.350, both in subjects with BMI<25, and with BMI≥25; $\chi^2(2,30)=0.557$, Sig.=0.757, CramersV. =0.136. (Table 5)

The analysis of descriptive indicators of fear of falling by FES-I test shows that in the group of respondents with BMI<25 who live alone, the average score on the test was (Me=22.14; SD=3.48, with Std.Error=1.455, and 95% CI: from 18.58 to 25.70) and with an interval of values from Min.=17 to the maximum Max=27) was lower than the average value of the score achieved by respondents living in a family union (Me=25.09, SD=9.981, Std. Error=2.081, and 95%CI: from 20.77 to 29.40 and range of values from Min.=16 to Max.=54).

Table 4. The frequency of answers to questions P1-P16 of the FES-I test in the sample in relation to the value of the BMI in the sample.

Grupe	Kategorije	P1 N (%)	P2 N (%)	P3 N (%)	P4 N (%)	P5 N (%)	P6 N (%)	P7 N (%)	P8 N (%)	P9 N (%)	P10 N (%)	P11 N (%)	P12 N (%)	P13 N (%)	P14 N (%)	P15 N (%)	P16 N (%)
Grupa I BMI < 25	Uopšte nisam zabrinut/a	20 66.7%	27 90%	27 90%	20 66.7 %	21 70%	27 90%	19 63.3%	23 76.7%	14 46.7%	25 83.3%	2 6.7%	20 66.7%	17 56.7%	7 23.3%	17 56.7%	21 70%
	Malo sam zabrinut/a	7 23.3%	1 3.3%	1 3.3%	8 26.7 %	6 20%	2 6,7%	6 6.7%	5 16.7%	13 43.3%	5 16.7%	14 46.7%	7 23.3%	9 30%	16 53.5%	9 30%	7 23.3%
	Prilično sam zabrinut/a	3 10%	1 3.3%	2 6.7%	1 3.3%	1 3.3%	0 0	5 16.7%	2 6.7%	3 3.3%	0 0%	4 13.3%	3 10%	3 10%	5 16.7%	2 6.7%	2 6,7%
	Veoma sam zabrinut	0 0%	1 3.3%	0 0%	1 3.3%	2 6.7%	1 3.3%	0 0%	0 0.%	0 0%	0 0%	10 33.3%	0 0%	1 3.3%	2 6.7%	2 6.7%	0 0%
	Ukupno	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
Grupa II BMI>=25	Uopšte nisam zabrinut/a	21 70%	27 90%	28 93.3%	27 90%	24 80%	22 73.3%	20 66.7%	25 83.3%	16 53.3%	26 86.7%	5 16.7%	23 76.7%	20 66.7%	9 30%	15 50%	21 70%
	Malo sam zabrinut/a	5 16,7%	3 10%	1 3.3%	2 6.7%	3 3.3%	7 23.3%	8 26.7%	3 10%	11 36.7%	4 13.3%	12 40.0%	5 16.7%	5 16.7%	12 40%	8 26.7%	5 16.7%
	Prilično sam zabrinut/a	4 13.3%	0 0%	1 3.3%	1 3.3%	3 3.3%	1 3.3%	2 6.7%	2 6.7%	3 3.3%	0 0%	7 23.3%	2 6.7%	4 13.3%	7 23.3%	4 13.3%	3 6.7%
	Veoma sam zabrinut	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 05	0 0%	0 0%	6 20 %	0 0%	1 3.3%	2 6.7	3 10%	1 3.3%
	Ukupno	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30

Index: P1 Cleaning the house, P2 Dressing and undressing, P3 Preparing simple meals, P4 Bathing or showering, P5 Going to the store, P6 Getting up from and sitting on a chair, P7 Climbing / descending stairs, P8 Walking around the neighborhood, P9 Retrieving objects above head or from the floor, P10 Answer the phone before it stops ringing, P11 walking on a slippery surface, P12 visiting friends or relatives, P13 walking through a big crowd, P14 walking on uneven ground, P15 walking uphill and downhill, P16 going to social eve

Table 5. The comparision of tendency to fall, measured by FES-I in relation to the life status of subjects in Gropu G1 (BMI <25) and Group G2 (BMI≥25).

			FES-I			Total
			≤ 19.00 low concern N=13; 43.3%	20.00 - 27.00 moderate concern N=10; 33.3%	≥28.00 high concern N=7; 23.3%	
BMI < 25.00 (Group 1)						
Live within community	live alone N=7, 23.3%	Count	3	4	0	$\chi^2(2,30)= 3.684$; Sig.=. 0.159 CramersV.=0.350
		% within community	42.9%	57.1%	0.0%	
		% within score FES-I	23.1%	40.0%	0.0%	
		% of Total	10.0%	13.3%	0.0%	
	live in a family union N=23, 76,7%	Count	10	6	7	
		% within community	43.5%	26.1%	30.4%	
		% within score FES-I	76.9%	60.0%	100.0%	
		% of Total	33.3%	20.0%	23.3%	
BMI ≥25 (Group 2)						
			FES-I			
			≤ 19.00 low concern N=14; 46.7%	20.00 - 27.00 moderate concern N=8; 26.7%	≥28.00 high concern N=8; 26.7%	
Live within community	live alone N=5, 16,7%	Count	2	1	2	$\chi^2(2,30)= 0.557$; Sig.=. 0.757 CramersV.=0.136
		% within community	40.0%	20.0%	40.0%	
		% within score FES-I	14.3%	12.5%	25.0%	
		% of Total	6.7%	3.3%	6.7%	
	live in a commu nity N=25, 83.3%	Count	12	7	6	
		% within community	48.0%	28.0%	24.0%	
		% within score FES-I	85.7%	87.5%	75.0%	
		% of Total	40.0%	23.3%	20.0%	

One-factor analysis of variance was used to examine the influence of family life status on the level of the score achieved on the FES-I test. No statistically significant difference was found, at the p=.005 level, in the scores of the group living alone and the group living in a family union, i.e. the difference between the mean values of the achieved score for respondents with a BMI<25 was not statistically significant: F(1,28)=0.571 Sig.=0.456. (Table 6) Average values of the achieved score

for respondents with BMI≥25, in the group of subjects who live alone (Me=27.20, SD=12.071, Std.Error=5.398, and 95% CS: from 12.21 to 42.19 and a range of values from Min.=17 to Max.=44) is higher than the average value of the score (Me=22.56, SD=6.404, Std.Error=1.281, and 95% CI: from 19.92, to 25.20 and the range interval from Min.=16 to Max.=41) subjects living in a family union (Table 6). Though even in this case the one-factor analysis did not establish a statistically significant influence of the status of living in a family union on the value of the achieved score, which assessed the fear of falling; F(1,28)=1.603, Sig.=0.216, at the level of significance p=0.05 (Table 6).

We notice that for subjects with a BMI≥25, and who live alone, the average value is almost very close to the category of high concern about falling, which would partially confirm that subjects who live alone have greater fear of falling than respondents who live in a family union, which can also be seen in the graphic representation in Figure 1.

Table 6. Descriptive indicators of the average score values of the subjects in relation to the BMI value

Grups		N	Mean (Me)	Std. Dev (SD)	Std. Error	95%Confidence Interval for Mean		Min.	Max
						Lower Bound	Upper Bound		
BMI < 25	live alone	7	22.14	3.848	1.455	18.58	25.70	17	27
	live in a family union	23	25.09	9.981	2.081	20.77	29.40	16	54
	Total	30	24.40	8.958	1.636	21.05	27.75	16	54
ANOVA		F (1,28)=0.571, Sig.=0.456							
BMI ≥ 25	live alone	5	27.20	12.071	5.398	12.21	42.19	17	44
	live in a family union	25	22.56	6.404	1.281	19.92	25.20	16	41
	Total	30	23.33	7.558	1.380	20.51	26.16	16	44
ANOVA		F (1,28)=1.603, Sig.=0.216							

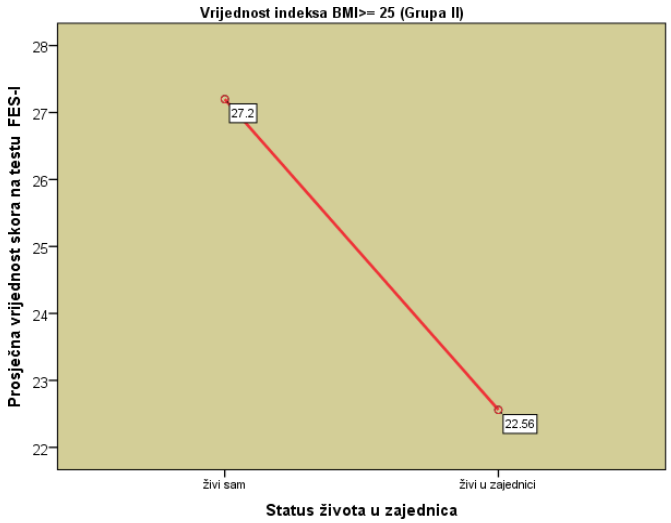

Figure 1. Average score values on the scale of FES-I in relation to the status of life in the community, in persons living alone and in the familiy union in respondents with BMI≥25.

Discusion

Fear of falling is an internal psychological phenomenon of concern or anxiety about falling [17]. It is described as both a cause and a consequence of the fall. [18] Results of a study conducted among an elderly population living in an urban area in India [19] show that the prevalence of fear of falling is 33.2%, i.e. among people who have not experienced a fall 33–46% and 25.9% of people had a fear of falling even though they did not experience it, which shows that elderly people have a fear of falling regardless of whether they experienced a fall or not. Fear of falling has been shown to be an important risk factor for falls among the elderly population living in urban India. [20] Lavedan et al. [20] determined by Cox regression analysis that people who reported fear of falling had twice the chance of experiencing a fall than those who had no fear. The prevalence of fear of falling in the study was 41.5%. On the other hand, Weijer et al. [21] found no evidence that high concern about falling increased the likelihood of falling in the past month or year, and cannot recommend a fear of falling assessment for use in their models for fall prediction, nor as a target in fall prevention programs targeting older adults who had less fall concern and no history of falling. In a study from 2020, Merchant et al. [22] used a bivariate analysis to examine the relationship between demographic factors, comorbidities, weakness and fear of falling. They noticed that the fear of falling is more prevalent in women, people over 75 years old, divorced and widowed people, and people with a lower level of formal education. Those respondents who were married showed a greater fear of falling than people who were never married, and the greatest fear was shown by people who were divorced, separated or whose spouses passed away. Social isolation was a significant factor associated with fear of falling. De Roza et al. [23] state that people who are divorced or widowed are more socially isolated. Those respondents

who have never been married are more independent when they were young and therefore have less fear of falling. The connection between marital status, social isolation and fear of falling can be the basis for further research. In our research, partially was confirmed that people who live alone have greater fear of falling than respondents who live in a family union. Gazibara et al. [24] using multiple logistic regression analysis showed that the presence of fear (odds ratio = 4.14, 95% confidence interval: 1.22-14.08, P = 0.02) and female gender (odds ratio = 2, 10, 95% confidence interval: 0.97-4.53 , P = 0.05) were independent risk factors for falls in the elderly. Araya and Iriarte [25] noted in their research that climbing and going down stairs, picking up objects from surfaces above the head or from the floor, walking uphill/downhill are listed as the activities for which respondents report the greatest fear of falling and that there was no significant difference regardless of whether it was more or less active elderly people. Mortazavi et al. [26] state that, among the activities included in the FES-I, the fear of falling is most often associated with slippery surfaces (9/32%) and least often with putting on and taking off clothes (1.3%). These studies confirm the results we obtained from our research. When it comes to the connection between fear of falling and obesity, Neri et al. [27] state that the fear of falling is positively related to obesity, that is, obese people are less physically active, which contributes to the connection between obesity and falls. In our research, there was no significant difference between the groups when it comes to fear of falling.

Conclusion

The research was conducted on a small sample of subjects who did not previously fall and who were relatively healthy, without serious associated diseases, and who are probably represented in a smaller percentage in the general population. In order to get a more accurate picture of whether and to what extent the fear of falling affects the risk of falling, it is necessary to conduct additional research on a larger sample of respondents and include other factors that influence the appearance of the fear of falling.

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STRAH OD PADA KAO FAKTOR RIZIKA ZA PAD KOD STARIJE POPULACIJE

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***Sažetak**: Padovi predstavljaju najčešći događaj u populaciji starih osoba i imaju poseban javno-zdravstveni značaj. Strah od pada jedna je od najvećih briga starijih ljudi i ne treba ga podcjenjivati. To je unutrašnji psihološki fenomen zabrinutosti ili anksioznosti zbog pada. Opisan je i kao uzrok i kao posljedica padova. Cilj istraživanja je ispitati uticaj različitih faktora na pojavu straha od pada kao faktora rizika za pad kod starije populacije. Prospektivna studija je obuhvatila 60 ispitanika oba pola starijih od 65 godina koji nisu doživjeli pad, podijeljenih u dvije grupe na osnovu vrijednosti indeksa tjelesne mase (BMI). Za potrebe istraživanje korišten je sociodemografski upitnik, indeks tjelesne mase (BMI) i FES-I (Falls Efficacy Scale – International). Za analizu dobijenih podataka korištena je deskriptivna statistika i χ^2 test. Unutar obje grupe, imenuju se iste aktivnosti prilikom čijeg izvođenja se javlja strah od pada. χ^2test nije pokazao statistički značajnu vezu između pola ispitanika i straha od pada mjerenog testom FES-I, kako kod ispitanika tjelesne mase BMI<25; χ^2 (2,30)=0.010,Sig.=0.995,CramersV=0.019, tako i kod ispitanika sa indeksom BMI>=25; χ^2 (2,30)=1.158, Sig.=0.561,CramersV.=0.196. Takođe, u ovom uzorku nije utvrđeno, da postoji veza statusa življenja (sami ili sa porodicom) sa stepenom straha od pada ocijenjenog testom FES-I; χ^2 (2,30)=3.684, Sig.=0.159, CramersV.=0.350, kako kod ispitanika sa indeksom tjelesne mase BMI<25,tako i u grupi ispitanika sa indeksom tjelesne mase BMI>=25; χ^2 (2,30)=0.557, Sig.=0.757, CramersV. =0.136. Potrebno je dodatno istražiti koji faktori dovode do pojave straha od pada kod osoba koje ga ranije nisu doživjele.*

***Ključne riječi**: padovi, strah od pada, FESI-I*