

Prevalence of Elder Abuse Among Shiraz Education Retirees: A Cross-sectional Study

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Abstract

Objectives: To investigate the prevalence of elder abuse and its related factors among retirees of the Department of Education.

Design: A cross-sectional study.

Setting(s): The current study was conducted in Shiraz, the capital of Fars province, Iran.

Participants: A sample of 280 (157 females and 123 males) community-dwelling older adults aged ≥ 60 were selected using a systematic random sampling method.

Outcome measures: The data were collected through a demographic questionnaire and the Domestic Elder Abuse Questionnaire (DEAQ). Demographic characteristics, including age, gender, marital status, living arrangement, household size, number of children, disease and its type, health status, education level, income, and house ownership, were examined to evaluate their impact on elder abuse. In addition, the prevalence of elder abuse and its subscales (i.e., emotional neglect, care neglect, financial neglect, curtailment of personal autonomy, psychological abuse, physical abuse, financial abuse, and abandonment) was also measured.

Results: Approximately 40% of participants underwent at least one type of abuse. Financial abuse (32%) and physical abuse (3.9%) were reported as the most and least frequent types of abuse, respectively. Moreover, there was a statistically significant relationship between some demographic variables (e.g., age, presence of disease, duration of disease, health status, and income level) and the total abuse index. Additionally, some variables had statistically significant relationships with various subscales of abuse.

Conclusions: Findings highlight the need to develop efficient policies to prevent elder abuse. Further research is thus recommended to determine influencing factors and appropriate interventions.

Keywords: Older adults, Elder abuse, Family, Prevalence, Iran

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Introduction

The decline in birth rates, increased life expectancy, and improved living conditions have accelerated aging globally, especially in Iran.^{1,2} According to the World Health Organization (WHO) statistics, the increase in the world's aging population is an undeniable fact reflecting the crisis of aging. The number of elder people is expected to increase from 900 million in 2015 to 2 billion in 2050, so their proportion will be nearly doubled from 12% to 22% between 2015 and 2050.³ Iran is following a similar trend, and based on the nationwide census in 2006, older people comprised 7.27% of the population, which seems to reach 24.9% in 2050.⁴ On the other hand, the increase in the aging population is accompanied by numerous

consequences in various dimensions of health, social welfare, economy, and social development.⁵

One of the major growing concerns in both developed and developing countries is elder abuse.⁶ The WHO defines elder abuse as a single or repetitive act or failure to take appropriate action in a relationship where trust is expected, and causing harm to older person leading to their dissatisfaction.⁵ According to the Center for Disease Control and Prevention (CDC), elder abuse is intentional acts or failure to act by a caregiver or other persons, causing harm or creating risk of harm to an older adult.⁷ The best definition of elder abuse is a harmful act committed by a person who is trusted by older people.⁸ The abuse can be physical, psychological, financial, and sexual, and it is also



possible to manifest in the form of neglect.⁹

The WHO reports that at least one in six older people in the community experienced elder abuse in the past year.⁵ Compared to developed countries, higher rates of elder abuse have been reported in developing or less developed countries. This difference is attributed to the existence of monitoring systems in developed countries.¹⁰ For example, the prevalence of elder abuse in some developed countries is as follows: Germany 54.1%,¹¹ USA 11.4%,¹⁰ Canada 8.2%,¹² Brazil 14.4%,¹³ and Japan 12.3%.¹⁴ In developing and less developed countries such as Nepal, India, and Turkey, the prevalence of elder abuse was 50.3%,⁶ 40.94%,¹⁵ and 3.5%,¹⁶ respectively. The prevalence of elder abuse in Iran has been reported to vary across various cross-sectional studies. This rate has been reported to be 31.1% in urban areas of Ilam and 34.2% in rural areas,¹⁷ 51.4% in Kerman,¹⁸ and 80% in Kashan.¹⁹ Based on a systematic review conducted in 2017 by Molaei et al, the overall prevalence of elder abuse in Iran was estimated at 56.4%, with the highest prevalence of elder abuse at 87.8% in Tehran and the lowest at 17.1% in Shahrekord.²⁰

The most prevalent types of elder abuse in the world are related to psychological or emotional abuse, ranging from 35.7 to 86.0%, while the least common is attributed to sexual abuse with roughly 7.1%.¹⁰ In developed countries, psychological abuse and neglect are the most common, whereas financial and physical abuse are the least prevalent ones.^{10,12} In developing countries, the highest rate of abuses is attributed to the verbal and psychological subscales and the lowest to the financial subscale.^{15,16} A systematic review conducted in Iran in 2019 by Abdi et al indicated that the highest prevalence of elder abuse is related to care neglect at 38.4% and the lowest to non-admission at 11%.²¹

It seems that during critical situations such as the COVID-19 pandemic, in which the access of older people to healthcare and social welfare services was limited, the older people spent more time with their families, and their dependency on the family to receive care increased. Additionally, factors such as reduced social support due to social distancing and decreased income have increased elder abuse, especially in terms of neglect and financial abuse during the pandemic.^{22,23} The studies have reported different rates of elder abuse due to differences in demographic characteristics.²⁴ On the other hand, the development of elder abuse in the pandemic was a real concern,² suggesting the need for studies devoted to specific aging populations.

Iran is a country with great ethnic, socioeconomic, and cultural diversity,²⁰ which may contribute to different rates of elder abuse reported in different studies.^{20,21} Moreover, the prevalence of elder abuse varies between older people living in the community and those living in institutions,^{25,26} necessitating targeted investigations in specific population groups.

The Education Department is one of the largest social organizations in Iran. Although education retirees may

be subject to elder abuse due to factors such as financial independence and education level, they have been targeted scarcely by researchers. To the best of our knowledge, no studies have been done on elder abuse among education retirees. Consequently, the present study was conducted to investigate the prevalence of elder abuse and its related factors among Shiraz education retirees.

Methods

This cross-sectional study was conducted on 280 older adult Iranian men and women in Shiraz, the largest city in southern Iran, in 2021. The target population included people aged 60 and over who were under the auspices of the Shiraz Education Retirement Association. The sample size was calculated to be 210 people according to a 95% confidence level and 6% precision through the Whitney and Bal formula (2002).²⁷ Considering a probable attrition rate of 15%, the sample size increased to 280 people.

In brief, a random sample was selected as a representative of the elderly of Shiraz Education Retirement Association using a systematic random sampling method. For this purpose, a list of retirees covered by the center served as a sampling framework. According to the sample size and the existing list, the first person was randomly selected, and the sampling proceeded systematically until reaching the desired sample size. After selecting each person from the sampling list, the eligibility to participate in the research was checked. If a selected individual was not eligible, the person before or after him on the list was selected. The inclusion criteria were: being 60 years and over, a membership in the Shiraz Education Retirement Association, being willing to participate, providing informed consent, and having the ability to communicate. Older people who were unable to participate in the study due to physical or cognitive impairment were excluded from the study.

Data were collected using two questionnaires: the Demographic Information Questionnaire and the Domestic Elder Abuse Questionnaire. Due to the constraints caused by the COVID-19 pandemic, the questionnaires were completed through telephone interviews.

The demographic questionnaire included information on gender, age, marital status, education level, number of children, living arrangement, the presence of chronic diseases, medication status, health status, health insurance, home ownership, and income level.

The Iranian Domestic Elder Abuse Questionnaire consists of 49 items divided into eight subscales: care neglect (11 items, statements 3–13), psychological abuse (8 items, statements 28–35), physical abuse (4 items, statements 36–39), financial abuse (6 items, statements 40–45), curtailment of personal autonomy (10 items, statements 18–27), abandonment (4 items, statements 46–49), financial neglect (4 items, statements 14–17), and emotional neglect (2 items, statements 1–2). The questions were responded as “Yes”, “No”, or “No relevance”.

The choice “No relevance” is selected when the item has no relevance to the respondent's living conditions. To calculate the score of each subscale, the sum of “Yes” answers was divided by the total number of statements minus the total number of “No relevance” answers in the same subscale, and finally, it was multiplied by 100. The total questionnaire score was calculated similarly, that is, the total number of “Yes” answers were divided by the total number of statements in the questionnaire minus the total number of “No relevance” answers and then multiplied by 100. Scores range from 0 to 100, with higher scores indicating higher levels of abuse and a score of 0 indicating no abuse. The psychometric properties of the questionnaire were examined, showing formal, content, and structure validity. The Cronbach's alpha coefficient ranges from 0.90 to 0.975, and stability assessed through retesting was found to be 0.99.²⁸

The data were analyzed using SPSS software version 26 (IBM). To determine the normality of the data distribution, the Kolmogorov-Smirnov test was used, and given that the significance level was greater than 0.05, the data distribution was considered normal, allowing the use of parametric statistical tests. In addition, frequency distribution tables were used to show descriptive results (i.e., percentage, frequency, mean, and standard deviation). An analysis of variance (ANOVA) test was also used to compare abuse scores across multi-level independent variables. Additionally, an independent-sample *t* test was employed to compare abuse scores across two-level independent variables. The significance level for all tests was set at less than 0.05.

The final selected individuals were informed about the study's objectives and benefits, their willingness to participate or leave the study, and the necessity of providing informed consent. They were also assured that the collected information would remain confidential and the findings would be collectively analyzed and reported without disclosing personal information.

Results

The mean age of the participants was 67.73 ± 5.57 years, with the majority of the participants (65%) being in the 60-69 age group. All participants had health insurance, and most of them were women (56.1%), and 58.6% hold an Associate Degree. The majority of participants were married and lived with their spouses (76.4%). Most of them (54.6%) described their income level as average. Moreover, about 63% of the studied cases suffered from one disease and 21% from more than one. Furthermore, 43% of the participants evaluated their health status as good. Table 1 presents additional demographic information.

The total prevalence of abuse was reported at 39.6%, and the highest and the lowest rates of various subscales were financial abuse (32.1%) and physical abuse (3.9%), respectively (Table 2).

The mean total abuse index was 5.71 ± 9.04 in men and 6.59 ± 8.62 in women. Gender and literacy level had no

statistically significant relationship with any of the studied abuse subscales in the total abuse index. However, there was a significant relationship between suffering from a disease in older adults and the incidence of elder abuse, with more elder abuse being reported in those with the disease ($P < 0.001$).

Furthermore, elderly people owning homes experienced

Table 1. Demographic Characteristics of the Studied Participants

Variables	Categories	Statistics n (%)
Age	60-69	182 (65)
	70-79	90 (32/1)
	≥ 80	8(2/9)
Gender	Female	157 (56.1)
	Male	123 (43.9)
Marital status	Widow	66 (23.5)
	Married	214 (76.4)
Living arrangement	Living with spouse	214 (76.4)
	Living with children	43 (15.4)
	Living alone	13 (4.6)
	Living with the others	10 (3.6)
Household size	≤ 5	160 (57.1)
	≥ 6	120 (42.9)
Number of children (daughters)	0-2	185 (66.1)
	3-5	91 (32.5)
	≥ 6	4 (1.4)
Number of children (sons)	0-2	201 (71.8)
	3-5	79 (28.2)
	≥ 6	0 (0)
Disease	Yes	174 (62.9)
	No	106 (37.9)
Type of disease	Hypertension	52 (18.6)
	Osteoporosis	6 (2.1)
	Heart disease	18 (6.4)
	Arthritis	15 (5.4)
	Diabetes	22 (7.9)
	Immune disease	4 (1.4)
	Comorbidity	59 (21.1)
Health status	Very good	111 (39.6)
	Healthy	121 (43.2)
	Both good and bad	48 (17.1)
Education level	Diploma	15 (5.4)
	Associate degree	164 (58.6)
	Bachelor degree	95 (33.9)
	Master	6 (2.1)
Income	Low	5 (1.8)
	Medium	153 (54.6)
	Good	112 (40.0)
	Very good	10 (3.6)
Home ownership	Owner	278 (99.3)
	Rented	2 (0.7)

Table 2. Descriptive Statistics of Types of Abuse/Neglect of the Studied Older Adults

Subscales	Abuse No. (%)	No Abuse No. (%)	Mean $\pm$ SD
Emotional neglect	81 (28.9)	199 (71.1)	23.39 $\pm$ 38.99
Care neglect	80 (28.6)	200 (71.4)	5.59 $\pm$ 10.65
Financial neglect	41 (14.6)	239 (85.4)	4.91 $\pm$ 14.37
Curtailement of personal autonomy	75 (27.7)	205 (73.3)	5.76 $\pm$ 11.43
Psychological abuse	86 (30.7)	194 (69.3)	6.42 $\pm$ 11.29
Physical abuse	11 (3.9)	296 (96.1)	0.98 $\pm$ 4.86
Financial abuse	90 (32.1)	190 (67.9)	9.70 $\pm$ 16.21
Abandonment	13 (4.6)	267 (95.4)	1.16 $\pm$ 5.26
Total	111 (39.6)	169 (60.4)	6.21 $\pm$ 8.80

significantly greater financial abuse than their counterparts without homes. The mean score of abuse in the studied samples with a home was 9.77 ± 16.25 which is significantly more than ($P < 0.000$) older people without a home with a mean abuse index of 5.10 ± 7.21 .

Additionally, there was no statistically significant relationship between marital status and the total abuse index and its subscales, except for care neglect and curtailment of personal autonomy. Moreover, the widows were found to be more prone to abuse. The mean care neglect was 4.59 ± 9.85 for married people and 8.95 ± 12.49 for widowed people ($P = 0.013$). The mean value was 4.58 ± 10.35 and 9.76 ± 13.86 for married and widowed individuals in the subscale of curtailment of personal autonomy, respectively ($P = 0.005$).

There was no statistically significant relationship between the duration of loneliness and the total abuse index or any of its subscales. However, care neglect, emotional neglect, and curtailment of personal autonomy had a statistically significant relationship with living with a spouse, child, or other people. Those living with their spouses and alone experienced the least and the most levels of abuse in these subscales, respectively. The mean score of abuse for emotional neglect was 73.07 ± 38.81 for those living alone, compared to 20.79 ± 37.21 for those who lived with their spouses ($P < 0.000$). The mean scores of abuse for the curtailment of personal autonomy among individuals living alone and those living with their spouses were 8.63 ± 10.89 and 4.58 ± 10.35 , respectively ($P = 0.011$). In the care neglect subscale, the mean scores were 9.79 ± 12.00 for older adults living alone and 4.59 ± 9.85 for those living with their spouses ($P = 0.034$).

There was a statistically significant relationship between the family size and the experience of certain types of abuse. In addition, the mean scores for care neglect were 3.98 ± 8.28 in families with five members and less and 7.72 ± 12.89 in families with six members and more ($P = 0.006$). These values were 0.31 ± 2.78 and 1.87 ± 6.61 for the subscale of physical abuse ($P = 0.016$), respectively. The number of sons had a significant relationship with care neglect ($P = 0.008$), psychological abuse ($P = 0.035$), and physical abuse ($P = 0.00$), with an increase in the

number of sons leading to higher mean scores of abuse in these subscales.

Furthermore, a statistically significant relationship was observed between some demographic variables and the total abuse index and its various subscales, as illustrated in Table 3.

Discussion

The findings of this study highlighted the need to conduct investigations on the epidemiology of elder abuse across different population groups even within the same country. This study demonstrated a considerable prevalence of elder abuse among studied retirees.

The highest rate of abuse reported in this study was financial abuse. This can be due to the fact that all participants in the study were retired and financially independent. In addition, the industrialization of societies, the inflation growth in recent years, and economic problems can influence this problem.^{29,30} Although the prevalence rate of financial abuse in the current study is similar to some other investigations, it is not the most frequent type of abuse in those surveys compared to the present research.^{29,31} On the other hand, financial neglect was not significant in the present study, but it has been remarkable in some other studies so that its severity was reported to be much higher than that of financial abuse.^{17,32} Factors such as the financial dependence of older adults on family members, insufficient income, and the reduction of financial support from children can lead to financial neglect.

Following financial abuse, psychological abuse and emotional neglect were the next most prevalent types of abuse. The results of most studies indicated that most older adults experience high levels of psychological abuse and emotional neglect.^{23,26,30} The presence of emotional bonds and attachments between children and parents, their mutual expectations, and the transition from traditional life to modern lifestyles, which leads to the lack of time for children to pay attention to their parents, can be considered possible reasons for these types of abuse.

Care neglect is another subscale of abuse experienced by older adults. It ranked fourth in prevalence in the present investigation, whereas it ranked highest in many studies.^{29,31,32} and the lowest in some other studies.^{30,33} Social changes such as urbanization, the migration of young people, and the reduction of their commitment to care for older adults increasingly expose older adults to care neglect. In contrast, older adults who have received services from some associations experienced care neglect to a lesser extent due to the supportive care provided by these organizations, which can explain the lower prevalence of care neglect in this study.

In addition, the subscales of curtailment of personal autonomy, abandonment, and physical abuse had the lowest prevalence, respectively. In Rahimi's study, after care neglect, curtailment of personal autonomy had the highest prevalence,²⁹ while it had the lowest prevalence

Table 3. Comparison of the Mean Scores of Abuse/Neglect in Terms of Demographic Variables

Variable	Subscale	Types of Abuse/Neglect (Mean $\pm$ SD)								Total
		Emotional Neglect	Care Neglect	Financial Neglect	Curtailment of Personal Autonomy	Psychological Abuse	Physical Abuse	Financial Abuse	Abandonment	
Age (y)	60-69	22.25 $\pm$ 38.79	4.15 $\pm$ 9.26	5.08 $\pm$ 15.03	4.09 $\pm$ 9.38	5.42 $\pm$ 10.12	0.54 $\pm$ 3.67	9.24 $\pm$ 16.66	1.37 $\pm$ 5.71	5.29 $\pm$ 7.95
	70-79	21.11 $\pm$ 37.45	6.96 $\pm$ 11.48	4.72 $\pm$ 13.45	8.43 $\pm$ 14.34	7.22 $\pm$ 12.56	1.38 $\pm$ 5.75	9.44 $\pm$ 14.57	0.55 $\pm$ 3.70	7.00 $\pm$ 9.73
	≥ 80	75.00 $\pm$ 26.72	22.72 $\pm$ 14.57	3.12 $\pm$ 8.83	13.75 $\pm$ 9.16	20.31 $\pm$ 13.25	6.25 $\pm$ 1.15	22.91 $\pm$ 19.79	3.12 $\pm$ 8.83	18.14 $\pm$ 7.49
<i>P</i> value ^a		0.001	0.000	0.921	0.002	0.001	0.003	0.064	0.274	0.000
Disease	Yes	25.86 $\pm$ 39.76	7.00 $\pm$ 11.86	6.03 $\pm$ 16.33	7.73 $\pm$ 13.06	7.54 $\pm$ 11.62	1.43 $\pm$ 5.83	10.34 $\pm$ 15.15	1.58 $\pm$ 6.01	7.44 $\pm$ 9.48
	No	19.33 $\pm$ 37.52	3.27 $\pm$ 7.78	3.06 $\pm$ 10.17	2.53 $\pm$ 7.04	4.59 $\pm$ 10.53	0.23 $\pm$ 2.42	8.64 $\pm$ 17.85	0.47 $\pm$ 3.41	4.18 $\pm$ 7.16
<i>P</i> value ^b		0.175	0.002	0.062	0.000	0.030	0.017	0.397	0.052	0.001
Time of disease	<1	70.00 $\pm$ 44.72	23.63 $\pm$ 21.89	45.00 $\pm$ 51.23	8.22 $\pm$ 13.09	12.50 $\pm$ 15.30	10.00 $\pm$ 13.69	13.33 $\pm$ 21.73	10.00 $\pm$ 13.69	18.88 $\pm$ 12.45
	2-5	28.75 $\pm$ 40.38	7.72 $\pm$ 12.61	5.93 $\pm$ 15.53	10.04 $\pm$ 14.61	8.28 $\pm$ 12.25	0.93 $\pm$ 4.77	11.87 $\pm$ 15.95	0.62 $\pm$ 3.92	8.35 $\pm$ 9.69
	6-10	23.07 $\pm$ 39.22	5.71 $\pm$ 9.84	4.48 $\pm$ 10.46	5.57 $\pm$ 10.99	6.89 $\pm$ 10.78	1.60 $\pm$ 6.16	9.17 $\pm$ 14.12	1.92 $\pm$ 6.70	6.29 $\pm$ 8.66
	>11	3.33 $\pm$ 12.90	2.42 $\pm$ 7.26	0.00 $\pm$ 0.00	4.44 $\pm$ 11.72	3.33 $\pm$ 9.98	0.00 $\pm$ 0.00	4.44 $\pm$ 11.72	1.66 $\pm$ 6.45	2.77 $\pm$ 7.49
<i>P</i> value ^a		0.007	0.003	0.000	0.130	0.329	0.005	0.292	0.007	0.004
Health status	Very good	21.62 $\pm$ 39.09	5.17 $\pm$ 10.68	5.85 $\pm$ 18.75	3.01 $\pm$ 8.02	5.51 $\pm$ 11.14	0.90 $\pm$ 4.68	9.75 $\pm$ 18.32	1.35 $\pm$ 5.67	5.45 $\pm$ 8.40
	Healthy	26.44 $\pm$ 38.76	7.06 $\pm$ 11.70	4.33 $\pm$ 10.54	9.73 $\pm$ 14.37	8.47 $\pm$ 12.41	1.03 $\pm$ 4.99	11.43 $\pm$ 15.37	0.41 $\pm$ 3.20	7.88 $\pm$ 9.48
	Both good and bad	19.79 $\pm$ 39.59	2.84 $\pm$ 6.53	4.16 $\pm$ 10.73	2.13 $\pm$ 5.13	3.38 $\pm$ 7.17	1.04 $\pm$ 5.04	5.20 $\pm$ 11.98	2.60 $\pm$ 7.71	3.73 $\pm$ 7.10
<i>P</i> value ^a		0.503	0.058	0.672	0.000	0.016	0.975	0.079	0.045	0.011
Income	Low	0.00 $\pm$ 0.00	0.00 $\pm$ 0.00	0.00 $\pm$ 0.00	0.00 $\pm$ 0.00	0.00 $\pm$ 0.00	0.00 $\pm$ 0.00	0.00 $\pm$ 0.00	0.00 $\pm$ 0.00	0.00 $\pm$ 0.00
	Medium	15.35 $\pm$ 32.07	3.26 $\pm$ 8.18	1.96 $\pm$ 7.32	4.25 $\pm$ 10.06	5.06 $\pm$ 10.67	0.32 $\pm$ 2.84	5.88 $\pm$ 12.45	0.49 $\pm$ 3.47	4.00 $\pm$ 7.40
	Good	34.37 $\pm$ 44.53	9.18 $\pm$ 12.95	9.37 $\pm$ 20.16	8.42 $\pm$ 13.25	8.48 $\pm$ 11.65	1.78 $\pm$ 6.46	13.24 $\pm$ 15.84	2.23 $\pm$ 7.16	9.30 $\pm$ 9.80
	Very good	35.00 $\pm$ 47.43	3.63 $\pm$ 6.35	2.5 $\pm$ 7.90	2.00 $\pm$ 4.21	7.50 $\pm$ 15.81	2.50 $\pm$ 7.90	33.33 $\pm$ 36.85	0.00 $\pm$ 0.00	8.47 $\pm$ 7.85
<i>P</i> value ^a		0.000	0.000	0.000	0.011	0.053	0.071	0.000	0.049	0.000

Note. ^a ANOVA: One-way analysis of variance; ^b Independent-samples t-test.

in Esmat Saatlou and colleagues' study.²⁵ Similar to the present study, numerous studies rank this subscale of abuse lower than some subscales such as psychological, financial, care, and emotional neglect abuse.^{30,31,33} The abandonment subscale is placed in the lower level of abuse prevalence. In Rahimi and Kashfi's study, abandonment was the least common type of abuse.^{29,33} Although it has a lower prevalence in most research compared to many other subscales,^{25,30,31} the prevalence rate of this subscale has been reported to be worrying in some studies. The reason for this variation may be attributed to different study populations. For example, older adult in nursing homes may experience higher levels of abandonment abuse because when older adults leave nursing homes, the feeling of abandonment increases in their peers who remain in the center.

The lowest prevalence was related to physical abuse which has been reported to be the lowest prevalent abuse in numerous studies.^{23,32,34} Many people regard physical violence as immoral, and they are reluctant or even afraid to commit it out of respect for the elderly. This can be a reason for a low rate of physical abuse.

The results also showed the relationship between abuse and demographic variables. In this study, the prevalence of abuse in men and women was not statistically significant, which is consistent with the results of the study by Morowatisharifabad et al.²⁶ However, most studies indicated a significantly higher prevalence of abuse in women than in men, even when the studied women population was less than men or only slightly higher than men in some studies.³⁵⁻³⁷ This may be due to the cultural, religious, and customary context of Shiraz, which treats men and women as equals and does not consider women as inferior, leading to no significant gender-related abuse. In Khalili and colleagues' study, men experienced more elder abuse than women.¹⁹ These differences may be due to the differences in sampling methods and the larger male population in the aforementioned study. Moreover, the greater responsibilities or activities of women at home might make them get more respect they deserve.

The results of the present study did not display a statistically significant relationship between education level and the rate of abuse, which can be related to the high homogeneity of literacy among participants. Conversely, the results of Kulakçı Altıntaş and Korkmaz Aslan's study indicated a significant relationship between literacy level and emotional abuse, with illiterate people being more exposed to emotional abuse than others.³⁴ Likewise, Ramalingam et al showed that people with higher literacy levels experience lower rates of abuse³⁸ because high literacy levels lead to healthier lifestyles, better self-care, and more authority in older adults, thus making them less prone to abuse.

In this study, a statistically significant relationship was found between age and the total abuse index and most of its subscales, indicating that the rate of abuse increases as the person gets older. Similarly, in Park's study, the rate of

emotional abuse increased with age.³⁹ The study by Santos et al demonstrated that age is a significant factor in elder abuse. In other words, as the individuals age, the rate of abuse may increase across various subscales.⁴⁰ In general, age is considered a risk factor for elder abuse while in some studies, contrary to the above results, no statistically significant relationship was observed between age and abuse. However, the results of the present study indicated that the abuse rate tends to rise with increasing age.^{36,37}

The results also indicated a statistically significant relationship between income level and the total abuse index and all its subscales, except psychological and physical abuse, with financial abuse increasing significantly as income goes up. However, most studies reported a higher prevalence of abuse in people with lower incomes.^{35,41} The financial independence of the older adults in this study may cause family members to consider their income at an appropriate level, potentially neglecting them without being informed enough of their actual income.

Additionally, the results of the present study illustrated that older adults who lived alone experienced significantly higher levels of abuse than those living with their spouses. Many studies demonstrated that elderly people living alone are significantly more likely to be abused than those living with family members such as spouses or children because social support can serve as a protective factor against elder abuse.^{17,36,38} On the other hand, larger family sizes led to increased care neglect and physical abuse. The results of some studies demonstrated that living alone or with a spouse makes the older adult less likely to be abused¹⁴ because the higher number of people living with the older adult may increase the variety of thoughts, attitudes, and expectations that result in the elderly abuse.

The results also revealed a statistically significant relationship between the presence and duration of disease and the abuse prevalence in the total index and some subscales of elder abuse. Specifically, having at least one disease increases the abuse possibility. Additionally, a prolonged duration of the disease leads to an increase in the rate of elder abuse. Similarly, the results of Pak's study showed that chronic and psychological diseases expose older adults to more abuse.³⁷ Seutodan Hagh et al also found that people with the disease experience higher levels of abuse⁴² as people with diseases, especially those with comorbidity, face more financial burden of affording medication and medical care. Therefore, they suffer from disability and restrictions caused by illness, which imposes a burden on families and leads to higher abuse.^{37,40}

Limitations

This study was conducted among retirees of the Department of Education, so the findings may not be generalizable to retirees in other sectors such as industry and agriculture. Moreover, older adults with cognitive impairments and physical disabilities were not included in

the current investigation. Therefore, the prevalence may be underestimated. Additionally, given that a self-report questionnaire was used in this study, there is a possibility of bias in the provided responses. Moreover, since this study was cross-sectional, causal inferences between abuse and other demographic variables should be interpreted with caution.

Conclusions

Elder abuse had a relatively high prevalence in the studied population. The total score of elder abuse and most of its subscales can be influenced by factors such as age, disease and its duration, health status, and income. Moreover, factors such as marital status, living arrangement, and family size could affect some subscales of elder abuse. The findings of this study can serve as a guide for future analytical and experimental research. Hence, further research is recommended to be done to determine the prevalence of elder abuse and its related factors. Additionally, the obtained results support the need for making policies and planning to prevent elder abuse such as family counselling services and the development and allocation of welfare services for retirees.

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Data availability statement

The corresponding author will provide the datasets used and/or analyzed during the current work upon reasonable request.

Ethical approval

The study proposal was scientifically and methodologically reviewed and approved by the Research Council (19619) of Shiraz

University of Medical Sciences. In addition, the ethical aspects of the present study were reviewed by the Research Ethics Committee of this university and approved by the code of ethics with the number (IR.SUMS.REC.1399.284).

Consent for publication

Not applicable.

Conflict of interests

The authors declared no conflict of interests.

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