



AKADÉMIAI KIADÓ

Assessment of the knowledge and attitudes of nurses and social caregivers in relation to falls among elderly patients in healthcare settings in a Hungarian county

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ABSTRACT

Purpose: The aim of this descriptive study was to evaluate the knowledge and attitudes of nurses and social caregivers in relation to falls among elderly patients. *Materials/Methods:* A total of 442 nurses and social caregivers working in acute or chronic care settings participated in our study. Data were gathered on the participants' general characteristics, the characteristics of their workplace, and their levels of knowledge in relation to risk factors and types of falls. Our questionnaire also included a survey of attitudes towards fall prevention. Data were analysed using IBM SPSS software. *Results:* Our results showed a significant correlation between the participants' level of knowledge and age, level of professional education, workplace localisation, form and type of care, risk evaluation scale score, and the existence of a healthcare protocol at the workplace. Participants demonstrated a positive attitude towards fall prevention: the mean value for attitude was 48.03 out of 65 points. Participants who experienced a lower number of falls among elderly patients at their workplace demonstrated a significantly more positive attitude to prevention compared to those experiencing falls more frequently. *Conclusions:* In our professional opinion, trainings focusing on fall prevention are required. In addition to knowledge transfer, these should emphasise the formation of attitudes, especially in the context of chronic healthcare, among professionals working in institutions in smaller towns.

KEYWORDS

falls, nurses, knowledge, attitudes, elderly patients

INTRODUCTION

Falls are regarded as a severe public health problem: they affect one-third of the population over 65 years of age, and, with an increasingly aging population, the rate may eventually reach 50%. In an older person, a fall is defined as an unintentional event that results in the part of the body above the knees coming to rest at a lower level (e.g., on the ground or floor). Falls may result in minor or severe injuries in 20–30% of cases, potentially jeopardising an elderly person's self-sufficiency and independence in everyday life [1, 2]. The nursing and care of elderly people may be carried out either in their own homes or in an institutional setting, such as a nursing home or during a stay in hospital. In a literature review related to the incidence of, and risk factors for, falls in nursing homes, a meta-analysis of 18 studies found that the mean incidence of falls in nursing homes was 43% [3]. According to data published in the NEVES reporting system (used to report falls in healthcare settings in Hungary), in 74.1% of falls that occurred in hospitals, the individuals concerned were 65 years of age or older [4].

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Falls may be caused by a number of extrinsic and intrinsic factors. Intrinsic factors are those related to the elderly person, such as aging, multimorbidity, a history of previous falls, sensory impairments (vision and hearing), reduced muscle strength, balance problems, and cognitive deficits [5]. The treating of comorbid conditions with multiple medications (polypharmacy) significantly increases fall-related injuries, especially if the therapy includes drugs that increase the risk of falls [6]. Fall-risk-increasing drugs (FRIDs) include psychotropic drugs, antidepressants, anticholinergics, diuretics, oral antidiabetics, antiepileptics, and drugs prescribed for urgent incontinence and a hyperactive bladder [7]. Among the extrinsic risk factors for falls, numerous studies have highlighted environmental conditions, such as poor lighting, uneven or slippery ground, poorly fitted carpets, unstable furniture, and high-risk activities [8, 9].

The World Health Organization pays particular attention to promoting active and healthy lifestyles among elderly people. This includes ensuring that elderly people remain mobile and reducing the number of falls as far as possible [1]. To achieve this goal, it is essential for present and future caregivers to have the appropriate knowledge, attitudes, and skills to prevent falls [10].

An assessment carried out by Harris [11] drew attention to the fact that, in terms of preventing falls among elderly people, it is not enough to focus on the individual's condition and the care environment. A positive attitude on the part of the nursing staff towards elderly people and towards their own work, and the presence of a positive organisational culture, are also very important. In her review, Dempsey [12] underlined how nurses' personal beliefs and attitudes influenced the realisation of fall-prevention programmes and activities. In areas where, according to the nurses' personal beliefs, the occurrence of falls was inevitable and nothing could be done to prevent them, the incidence of falls proved to be higher. In the context of fall-prevention activities, it is important to focus on the elderly person's individual needs, and to act accordingly. This requires a caring attitude on the part of the nurse, who regards the patient as a member of their own family [13]. According to Patton et al. [14], the involvement of nurses in a risk-based evaluation of falls, and in the subsequent development of steps for caring, is a key feature in fall prevention. The authors emphasised how important it is for nurses to believe that falls among elderly people can be prevented. Fall prevention must be considered a priority in the care of elderly people in any hospital or institutional setting, while it must also be addressed in the context of the patient's own home.

In Hungary, care for elderly people takes place at different levels in several different settings, where nurses with a variety of healthcare or social qualifications look after elderly patients and perform fall-prevention activities. The aim of our study was to examine nurses' and caregivers' knowledge in relation to falls and risk factors for falls, as well as their attitudes to falls and fall prevention. We therefore analysed general and workplace characteristics, and assessed fall-related attitudes and knowledge against these characteristics.

MATERIALS AND METHODS

Our descriptive study identified knowledge and attitudes related to falls, risk factors for falls, and fall prevention among nurses, nursing assistants, and caregivers involved in looking after elderly patients. The study was carried out in one Hungarian county.

Method

We used a structured questionnaire divided into the following sections: general characteristics; falls knowledge; attitudes towards fall prevention; and the need for training on fall prevention. Knowledge assessment was based on the test developed by Kim [15], which was modified by Kim et al. [16]. The falls knowledge test consisted of 15 questions, in which 'yes' responses received 1 point and 'no' or 'not known' responses received 0 points. Items 5, 8, 10, 12, 13, and 14 were reversed. The scale was from 0 to 15 points, where a higher score indicated greater falls knowledge. In Kim's study, Cronbach's alpha was 0.76; in the present study, it was 0.77.

The Attitudes towards Falls Scale developed by Kim was used to assess participants' attitudes by means of 13 questions. Responses were scored on a 5-point Likert scale (from 1 = *strongly disagree* to 5 = *strongly agree*). Items 2, 9, 11, and 12 were reversed. The scale was from 13 points to a maximum of 65 points, where the higher number of points indicated a more positive attitude on the part of the participants towards fall prevention. In Kim's study, Cronbach's alpha was 0.77; in the present study, it was 0.63.

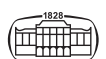
The translation of the scales into Hungarian was performed in three steps: 1) translation from English into Hungarian was carried out by three people; 2) a reverse translation was produced and assessed with the help of a professional translator; and 3) a test of the translation was carried out with the help of 20 people.

Study sample

Completion of the questionnaire was voluntary and entirely anonymous; participants could not be identified in any way. The questionnaire was delivered online to nurses, social caregivers, and carers in Csongrád-Csanád County through the official online mailing system of the Hungarian Chamber of Healthcare Professionals (MESZK) and the Csongrád-Csanád County institutions of the General Directorate of Social and Child Care. The inclusion criterion was being actively involved in the care of older people in the county, with at least a basic qualification in nursing or social care. The questionnaire was filled out by 453 individuals, 442 of whom met the inclusion criterion. Study participants represented both basic and specialised social care and worked in both acute and chronic healthcare settings. Data collection took place between 1 December 2022 and 16 February 2023.

Data analysis

Data analysis was performed using the statistical program SPSS 24. To analyse sociodemographic characteristics, falls



knowledge, and attitudes towards fall prevention, we calculated frequency, mean, and standard deviation. Knowledge and attitudes were assessed against sociodemographic variables. To test for any differences, Welch's *t*-test, a more robust version of the independent samples *t*-test, was used, as well as one-way ANOVA with Bonferroni test as a post hoc test.

RESULTS

The study included 442 participants, 92.8% ($N = 410$) of whom were female. The mean age of the sample was 42.8 ± 10.8 years. Participants enrolled in the study included 337 individuals (76.2%) from the healthcare sector, and 105 individuals (23.8%) from the social care sector (see Table 1).

Nurses' falls knowledge

As shown in Table 2, respondents gave correct answers to an average of 10 out of 15 questions (range 0–15 points, $M = 10.12$ points, $SD = 3.07$, $\min = 2$, $\max = 15$). In the falls knowledge test, 34.7% of all respondents scored over 80% (12 points), while 8.6% completed the test without any errors. However, 19% of the participants failed to achieve 50% on the test. The scores achieved on the knowledge test were also assessed against general and workplace characteristics and the results are summarised in Tables 3 and 4. The assessment of the knowledge test scores against general and workplace characteristics revealed significant differences according to the participants' age ($F = 4.967$, $P = 0.002$), level of professional education ($F = 29.153$, $P < 0.001$), workplace location ($t = 3.274$, $P = 0.001$), care sector ($t = 3.097$, $P = 0.002$), and form of care ($t = 4.981$, $P < 0.001$) (see

Table 2. Results of the falls knowledge test ($N = 442$)

Items	<i>n</i>	%
Recurrence rate is high among those who have already experienced a fall.	360	81.4
Falls occur most frequently during safety incidents in hospitals/institutions.	305	69.0
Falls increase the death rate among elderly patients.	313	70.8
Hip fractures are caused by falls.	398	90.0
<i>Sliding is not falling.</i>	374	78.5
The more medicines you take, the higher your risk of falling.	150	33.5
The more diseases you have, the higher your risk of falling.	269	60.9
<i>Depression is not related to falls.</i>	226	51.1
Someone with a visual impairment is at greater risk of falling.	407	93.1
<i>Numbness in the limbs is not related to falls.</i>	371	83.9
Dysuria is a risk factor for falls.	218	49.3
<i>Hearing impairment is not related to falls.</i>	257	58.1
<i>Taking medicine for diabetes is not related to falls.</i>	213	48.2
<i>Taking medicine for blood pressure is not related to falls</i>	346	78.3
Falls occur more often when getting in and out of bed in hospitals/institutions.	296	67.0

Notes. Reversed items are written in italics. Correct responses are shown as percentages.

Table 3). Falls knowledge among participants younger than 35 years of age proved to be significantly higher than among participants between 45 and 54 years of age ($P = 0.045$) and those over 55 years of age ($P = 0.002$). Participants with a basic and secondary level of professional education achieved lower scores compared to those with higher levels of

Table 1. General and workplace characteristics ($N = 442$)

General characteristics				Workplace characteristics related to falls			
		<i>n</i>	%			<i>n</i>	%
Sex	Male	32	7.2	Experienced any falls at workplace	Yes	337	76.2
	Female	410	92.8		No	105	23.8
Age	<35 years	124	28.0	Frequency of falls at workplace	Frequently: daily – monthly	197	44.5
	34–44 years	86	19.5		Rarely: quarterly – half-yearly	162	36.7
	45–54 years	170	38.5		Never or quite rarely: yearly – never	83	18.8
	>55 years	62	14.0				
Professional education	Primary school	83	18.8	Received information on fall prevention	Yes	365	82.4
	Secondary school	219	49.5		No	77	17.4
	Higher education and above	140	31.7				
Care sector	Healthcare system	337	76.2	Presence of a fall risk factor scale	Yes	208	47.0
	Social care system	105	23.8		No	167	37.8
Form of care	Acute	262	59.3		Uncertain	67	15.2
	Chronic	180	40.7	Presence of a fall prevention protocol	Yes	199	45.0
Professional experience	<5 years	160	36.2		No	158	35.7
	5–20 years	161	36.4		Uncertain	85	19.3
	<20 years	121	27.4	Functioning fall-reporting system	Yes	277	62.7
Workplace localisation	County capital	296	60.9		No	95	21.5
	Other town	173	39.1	Uncertain	70	15.8	



Table 3. Results of the knowledge test by general and workplace characteristics (N = 442)

Factors	Categories	Mean ± SD	F/t	P	post hoc
Sex	Female	10.085 ± 3.101	1.034	0.200	
	Male	10.718 ± 2.630			
Age	<35 ^a	10.903 ± 2.420	4.967	0.002	a > c,d*
	35–44 ^b	10.058 ± 3.122			
	45–54 ^c	9.941 ± 3.297			
	>55 ^d	9.177 ± 3.231			
Level of professional education	Basic ^a	9.240 ± 3.090	29.153	<0.001	c>a,b*
	Secondary ^b	9.479 ± 2.960			
	Higher ^c	11.664 ± 2.640			
Professional experience	<5 years ^a	10.081 ± 2.794	0.037	0.964	
	5–20 years ^b	10.130 ± 3.396			
	>20 years ^c	10.181 ± 2.989			
Workplace localisation	County capital	10.565 ± 2.866	3.694	<0.001	
	Other town	9.445 ± 3.258			
Care sector	Healthcare	10.376 ± 2.947	3.097	0.002	
	Social care	9.323 ± 3.329			
Form of care	Acute	10.732 ± 2.755	4.981	<0.001	
	Chronic	9.244 ± 3.294			

Notes. *Post hoc test = Bonferroni test.

Table 4. Results of the knowledge test by workplace characteristics (N = 442)

Factors	Categories	Mean ± SD	F/t	P	post hoc
Experienced any falls at workplace	Yes	10.123 ± 3.129	−0.07	0.945	
	No	10.150 ± 2.634			
Frequency of falls at workplace	Frequently	10.304 ± 2.922	0.719	0.488	
	Rarely	9.913 ± 2.993			
	Almost never or never	10.120 ± 3.545			
Received information on fall prevention	Yes	10.065 ± 3.101	−0.379	0.704	
	No	10.177 ± 3.052			
Presence of a fall risk factor scale	Yes ^a	10.389 ± 2.989	7.708	0.001	c < a, b*
	No ^b	10.330 ± 3.096			
	Uncertain ^c	8.791 ± 2.962			
Presence of a fall prevention protocol	Yes ^a	10.065 ± 3.101	8.664	<0.001	c < a, b*
	No ^b	10.765 ± 2.897			
	Uncertain ^c	9.082 ± 3.048			
Functioning fall reporting system	Yes	10.068 ± 3.128	0.231	0.794	
	No	10.31 ± 3.193			
	Uncertain	10.100 ± 2.681			

Notes. *Post hoc test = Bonferroni test.

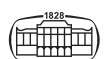
professional education ($P < 0.001$). Participants working in the county capital gave a higher number of correct answers ($M = 10.565$, $SD = 2.866$) than those working in smaller towns ($M = 9.445$, $SD = 3.258$). Furthermore, a significant difference was found based on the sector of care: participants working in the healthcare sector showed a higher level of knowledge ($M = 10.376$, $SD = 2.947$) compared to those working in the social care sector ($M = 9.323$, $SD = 3.329$); and participants working in the acute care sector proved to have a higher level of knowledge ($M = 10.732$, $SD = 2.755$) than those working in chronic care ($M = 9.244$, $SD = 3.294$).

In terms of the relationship between the scores achieved in the knowledge test and workplace characteristics (see Table 4), there was a significant correlation between knowledge test scores and participants' level of certainty regarding the presence of a fall risk scale ($F = 7.708$, $P = 0.001$) or a

fall prevention protocol ($F = 8.664$). Participants who were uncertain about the presence of a fall risk scale at their workplace showed a lower level of falls knowledge compared to participants who were certain that they had never come across such a scale ($P = 0.001$), and compared to those who were certain that they did have a fall risk scale at their disposal at the workplace ($P = 0.001$). Similar results were obtained with respect to levels of knowledge and the existence of a protocol (uncertain versus certainly having come across one, $P = 0.037$; uncertain versus certainly never having seen one, $P < 0.001$).

Participants' attitudes towards fall prevention

The mean score achieved by participants on the scale evaluating attitudes towards fall prevention was 48.03 ± 6.035



(min = 27, max = 64), or 73.8%. The results are summarised in Table 5. Attitudes to fall prevention were assessed against the general characteristics (see Table 6). There was a significant correlation between attitude and participants’

level of professional education ($F = 7.257, P = 0.001$), workplace localisation ($t = 3.274, P = 0.001$), sector of care ($t = 2.097, P = 0.037$), and form of care ($t = 3.288, P = 0.001$). Participants with a basic or secondary level of professional education showed more negative attitudes towards fall prevention compared to those with a higher level of professional education ($P = 0.005$ and $P = 0.002$ respectively). In terms of workplace location, participants working in the county capital showed a more positive attitude ($M = 49.055, SD = 5.865$) than those working in smaller towns ($M = 47.132, SD = 6.126$). Participants working in the healthcare sector proved to have a more positive attitude to fall prevention ($M = 48.638, SD = 5.937$) than those working in social care ($M = 47.228, SD = 6.248$), and participants working in an acute setting reported a more positive attitude to fall prevention ($M = 49.095, SD = 5.632$) than those working in chronic healthcare ($M = 47.150, SD = 6.421$). In terms of the relationship between participants’ attitudes towards falls and workplace characteristics (see Table 7), significant differences were found depending on how frequently the participants had experienced falls among their patients ($F = 3.908, P = 0.021$), and on whether they were aware of the presence of a protocol at their workplace. Participants who had frequently experienced falls among the elderly patients at their workplace had a significantly more negative attitude towards fall prevention ($P = 0.002$) than participants who had experienced falls among elderly patients at their workplace once a year or not all. With respect to attitude and the existence of a protocol, participants who were uncertain about the existence of a fall prevention protocol at their workplace showed significantly more negative attitudes towards fall prevention ($P = 0.018$) than participants who were certain they had never come across a protocol at their workplace.

Table 5. Participants’ attitudes towards falls ($N = 442$)

Items	<i>n</i>	%	Mean ± SD
I am concerned about patients’ falls.	380	85.8	4.41 ± 0.842
<i>I think falls among patients/clients are unavoidable.</i>	227	51.3	3.6 ± 1.08
I think nurses are responsible for patients’ falls.	62	14.1	2.45 ± 1.091
I think fall prevention is a high priority in nursing.	336	76.0	4.14 ± 1.066
I have a concern about nursing interventions for fall prevention.	69	15.6	2.60 ± 1.059
I think nurses should provide nursing care for fall prevention.	314	71.0	4.06 ± 1.013
I think nurses should assess fall risk for patients/clients.	381	86.2	4.42 ± 0.989
I think the currently provided client education is effective in preventing falls.	192	43.4	3.30 ± 1.190
<i>I think falls occur because of the status of the patients/clients.</i>	244	55.2	3.71 ± 0.907
I think nurses should respond immediately when patients ask for help to move.	398	90.0	4.52 ± 0.777
<i>I think physical injuries are not severe when patients fall.</i>	326	73.8	4.18 ± 0.957
<i>I think institutional environments are safe in terms of falls.</i>	170	38.5	3.32 ± 1.172
I feel guilty if my patients/clients fall.	234	54.9	3.59 ± 1.254

Notes. Reversed items are written in italics. Positive responses are presented as percentages.

Table 6. Results of the attitude scale by general characteristics ($N = 442$)

Factors	Category	Mean ± SD	<i>F/t</i>	<i>P</i>	post hoc
Sex	Female	48.324 ± 6.005	−0.247	0.807	
	Male	48.031 ± 6.507			
Age	<35 ^a	48.879 ± 6.060	0.804	0.492	
	35–44 ^b	47.814 ± 6.434			
	45–54 ^c	47.988 ± 6.163			
	>55 ^d	48.693 ± 4.993			
Level of professional education	Basic	47.277 ± 6.734	7.257	0.001	c < a, b*
	Secondary ^b	47.689 ± 5.798			
	Higher ^c	49.871 ± 5.692			
Professional experience	<5 years ^a	4.356 ± 5.650	1.039	0.355	
	5–20 years ^b	47.826 ± 7.068			
	>20 years ^c	48.867 ± 4.932			
Workplace localisation	County capital	49.055 ± 5.865	3.274	0.001	
	Other town	47.132 ± 6.126			
Care sector	Healthcare	48.638 ± 5.937	2.097	0.037	
	Social care	47.228 ± 6.248			
Form of care	Acute	49.095 ± 5.632	3.288	0.001	
	Chronic	47.150 ± 6.421			

Notes. *Post hoc test = Bonferroni test.



Table 7. Results of the attitude scale by workplace characteristics (N = 442)

Factors	Category	Mean ± SD	F/t	P	post hoc
Experienced any falls at workplace	Yes	48.120 ± 5.994	−1.676	0.090	
	No	49.641 ± 6.223			
Frequency of falls at workplace	Frequently ^a	47.649 ± 6.445	3.908	0.021	a < c*
	Rarely ^b	48.308 ± 5.465			
	Almost never or never ^c	49.843 ± 5.877			
Received information on fall prevention	Yes	48.311 ± 5.873	0.027	0.097	
	No	48.293 ± 6.177			
Presence of a fall risk factor scale	Yes ^a	48.750 ± 5.669	2.145	0.118	
	No ^b	48.269 ± 6.331			
	Uncertain ^c	47.000 ± 6.278			
Presence of a fall risk factor protocol	Yes ^a	48.311 ± 5.873	3.817	0.023	c < b*
	No ^b	48.075 ± 5.885			
	Uncertain ^c	46.847 ± 6.474			
Functioning fall reporting system	Yes	48.516 ± 6.046	0.793	0.453	
	No	48.273 ± 5.952			
	Uncertain	47.500 ± 6.123			

Notes. *Post hoc test = Bonferroni test.

DISCUSSION

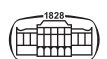
Fall events among elderly people are preventable. Nurses and caregivers have a very important role in fall prevention in both the healthcare and social sector, since they make an active contribution to care, nursing, health development, and fall prevention programmes among elderly patients. To be effective in terms of fall prevention, nurses and caregivers need sufficient up-to-date knowledge of types, risk factors, and potential points of intervention in both institutional and community care. In the present study, we assessed participants’ knowledge and attitudes in relation to fall prevention among elderly patients in both the healthcare and social care sector.

In the present study, the participants’ mean score for falls knowledge was 10.16 points (out of 15), or 67.5%. Scores for participants’ falls knowledge proved to be higher (M = 12.86 points, 85.7%) in the assessment carried out by Kim et al. [16]. This may be because participants in the latter study were college students and younger in age, while in the present study most of the participants had a secondary level of professional education and represented an older age group. This hypothesis is supported by the fact that in the present study, younger participants with a higher level of healthcare education had a significantly higher level of knowledge compared to older participants with a lower level of professional education. An earlier Korean study [15] carried out among nurses working in acute hospital care, and an Indian study [17] exploring knowledge among nurses working in tertiary care, yielded similar results to the present study. The Korean nurses scored an average of 8.6 points out of 14, which is equivalent to 61.4%; while in the Indian study, the score for nurses’ knowledge was 62.8% (M = 10.05 points out of 16).

Cho et al. [18] conducted a study focusing on fall-prevention knowledge among nurses working in small and

medium-sized hospitals (fewer than 300 beds). The nurses obtained a score of 48.9% (M = 6.8 points out of 15). The researchers explained their results by reference to the fact that in these small and medium-sized hospitals, trainings for nurses were not as available as in larger institutions. Our study also highlighted that participants working in smaller towns had a lower level of knowledge compared to those working in the county capital. In addition, our study revealed that knowledge among participants working in acute care was at a higher level than among participants working in a chronic care setting, although still far below the result published by Han et al. [19], who reported that nurses working in long-term care hospitals scored 83% (11.7 points out of 14) on a knowledge test. We hypothesise that in Han’s assessment, a significant number of nurses (85.5%) had been given training on fall prevention in the previous year; by comparison, only 37.7% of the participants in our study had taken part in a training since acquiring their qualification.

The present study highlighted that participants had incomplete knowledge regarding the relationship between polypharmacy, comorbidity, FRIDs, and falls. This statement is in accordance with several earlier studies [16–17, 20]. In the study published by Albasha et al. [21], professionals working in hospitals offering long-term care showed incomplete knowledge of the significance of psychotropic drugs and regular drug reviews in relation to fall prevention. In our study, participants’ knowledge regarding urinary disorders as a fall risk factor was far below the results reported in the above-mentioned studies. Moon et al. [22] published a meta-analysis summarising 38 research studies, highlighting that urinary incontinence is an important risk factor for falls (OR 1.62; 95% CI 1.45–1.83). According to the study conducted by Jung et al. [23], the frequency of falls increased to 2.82 in a hospital environment in the presence of a urinary disorder. In the present study,



the mean value for participants' attitudes towards fall prevention was 3.69 points (73.8%), indicating a relatively positive attitude. This result is slightly below the values found in earlier studies (76%–77.2%) [15–16, 18], while Ganabathi et al. [20] reported an even lower but still mostly positive attitude (57.2%). Our study is in accordance with the studies described above, in that it highlights how nurses and caregivers consider fall prevention to be a high priority and believe that prevention steps should be performed actively during nursing and care activities. Furthermore, participants demonstrated a strongly positive attitude in relation to requests from older patients for assistance with mobility. A contradiction typically found in numerous earlier studies was also identified in our results: although participants had strong concerns in relation to potential falls among their patients, and felt guilt after falls occurred, they nevertheless did not consider elderly patients' falls to be their responsibility. This may be due to a fear of potential legal consequences, and of being judged negatively by employers and the media [24–25]. On the other hand, there is no consensus in Hungary among the individual care sectors regarding the competence limits of the different levels of nursing, which might exacerbate the problem and heighten a sense of responsibility [26]. No significant correlation was found between the participants' experience of falls among their elderly patients and their attitudes towards fall prevention. However, we identified a significant correlation between participants' attitudes and the frequency of falls occurring at the workplace. Where falls occurred more frequently at a participants' workplace, participants showed a more negative attitude towards fall prevention. One possible reason for this could be that frequent unexpected events generate disillusionment and a feeling of guilt in nurses and caregivers, reinforcing their belief that falls cannot be prevented. This can further reduce their motivation with respect to fall prevention, contributing to a failure to engage in preventive activities [12, 27–28].

In the present study, participants who had information concerning the presence or absence of a fall prevention protocol at their workplace achieved a higher score in the knowledge test and demonstrated a more positive attitude towards fall prevention compared to those who were uncertain about the existence of a protocol. This also indicates that nurses and caregivers are interested and open-minded when it comes to information on fall prevention.

In line with earlier research [17], a significant correlation was found in the present study between the score for attitude and level of education, a higher level of education being associated with a more positive attitude regarding fall prevention. Our results indicate that in Hungary, education and the duration of training play a significant role in the formation of attitudes towards patient safety, preventive activities, and fall prevention. Earlier studies [16, 18] have produced opposite results, identifying no significant differences in attitude according to the level of professional education. To explain this contradiction, we argue that in the earlier studies, participants were more homogeneous in terms of level of education, while the present study included

a significant number of participants with primary and secondary school healthcare and social education, in parallel with participants with a higher level of professional education. In our study, participation in training did not significantly affect attitudes towards fall prevention; however, it should be noted that only a low number of respondents had participated in such trainings. In the study by Cho et al. [18], frequency of participation in training on fall prevention had a positive effect on nurses' attitudes towards fall prevention. Nurses who had taken part in at least five trainings showed a significantly more positive attitude compared to those who had participated only once or twice. In our study, employers had tried to provide participants with information on fall prevention (82.4%). As a positive finding, the majority of respondents (70%) stated with complete confidence that they would soon take part in a training on fall prevention, while only 5.6% showed no interest in such an opportunity.

Limitations

One of the limitations of the present study is that, following the adaptation of the scales from the original language into Hungarian, we did not carry out internal consistency testing, external validation with another questionnaire, or test–retest testing, which may be a source of potential bias in the results.

CONCLUSIONS

This cross-sectional study contributes to an understanding of fall-related knowledge and attitudes among nurses and social caregivers actively caring for elderly patients in healthcare and social care settings. The study involved 442 participants from one Hungarian county. Participants proved to have a low level of knowledge with respect to comorbidity, polypharmacy, and dysuria as risk factors for falls. Participants demonstrated a positive attitude towards fall prevention. However, in comparison to international studies, feelings of responsibility for falls among elderly patients were still at a low level. In our study, the participants' level of professional education affected their attitudes towards fall prevention: participants with a higher level of professional education demonstrated a more positive attitude. In the context of technical training in both healthcare and social care settings, study material on risk factors and fall prevention should be given greater emphasis, alongside the related practical aspects. Such trainings should focus not only on conveying knowledge but also on forming attitudes. Our study highlighted a significant need for post-graduate training, especially in the context of chronic patient care, while training of this kind should also be made available to professionals working in institutions in smaller towns.

Authors' contributions: Study planning: EB, ZB; study implementation and data collection: EB; data analysis: EB; collection of research articles for the manuscript and



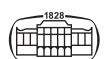
creation of tables summarising the theoretical background: EB, ZB finalised the text, reviewed the manuscript, and made the final amendments.

Ethical approval: Ethical approval number: ETT TUKEB BMEÜ/2884- 1/2022/EKU. The study was performed in accordance with the Declaration of Helsinki.

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