SCANDINAVIAN JOURNAL OF PRIMARY HEALTH CARE, 2017
VOL. 35, NO. 3, 247–255
https://doi.org/10.1080/02813432.2017.1358438

Taylor & Francis
Taylor & Francis Group

RESEARCH ARTICLE

OPEN ACCESS Check for updates

Elderly users of fall-risk-increasing drug perceptions of fall risk and the relation to their drug use – a qualitative study

Hege Therese Bell[a,b], Aslak Steinsbekk[b] and Anne Gerd Granas[c]

[a]Department of Pharmacy, Faculty of Health Sciences, Nord University, Namsos, Norway; [b]Department of Public Health and General Practice, Norwegian University of Science and Technology, Trondheim, Norway; [c]School of Pharmacy, University of Oslo, Oslo, Norway

ABSTRACT

Objective: The aim of the study was to explore how home-dwelling elderly who use fall-risk-increasing drugs (FRIDs) perceive their fall risk and how they relate this to their drug use.

Design, setting and subjects: A qualitative study with 14 home-dwelling elderly FRID users between 65 and 97 years in Central Norway participating in semi-structured individual interviews. The data were analyzed thematically by using systematic text condensation.

Results: The main finding was that the informants did not necessarily perceive the use of FRIDs to be a prominent risk factor for falls. Some informants said they did not reflect upon drug use whatsoever and said they fully trusted their physician's choices. When either experiencing dizziness, fall episodes or by reading the patient information leaflet the informants said to either adjust their drug use or to contact their physician. Some felt rejected due to not getting their point across or their wish to alter the drug was not granted by the physician.

Conclusions: Elderly FRID users did not necessarily relate their drug use to fall risk or struggled to present their perceived drug-related problems. Physicians need to regularly inform, monitor and assess the drug treatment when treating elderly with FRIDs.

ARTICLE HISTORY
Received 16 January 2017
Accepted 27 June 2017

KEYWORDS
Fall risk; elderly patients; fall-risk-increasing drugs; physicians

Introduction

Elderly persons are more prone to falls [1] and falls are a prominent cause of unintentional injury [2]. More than every third person above 65 years fall each year and the frequency increases with age and frailty level and falls account for 40% of all injury deaths [2]. The underlying causes of falls are multifaceted, including a combination of biological and environmental factors [3], e.g. aging [4], different diseases [5] and the use of drugs [6].

The aging process involves changes that lead to reduced homeostatic reserves and make the person vulnerable to dizziness and other fall risk factors [4]. However, when asked, persons between 60 and 96 years old associated older age with physical and mental decline, but did not necessarily consider themselves as old except in periods when experiencing physical decline [7].

Dizziness increases the risk of falls [5] and in elderly over 75 years dizziness is a frequent reason for visiting the family physician, accounting for one of 10 visits during one year [8]. Prevalence of dizziness has been reported by 17.5% for the age group 60–80 years and 31.0% for those above 80, with a higher prevalence in women [9]. Studies of elderly's experiences of living with dizziness found that they fought to live a normal life [10], to understand the causes [8] and also to get accurate information in order to handle or control the dizziness [11].

Studies on fall-related knowledge among community-dwelling elderly show that the elderly recognize fall-risk factors, especially exterior factors like rugs, furniture and pavements, but do not consider themselves susceptible to falling [12]. When asked to recognize factors that affect the recognition and reflection of fall risk, the elderly mentioned alarming experiences, gradually growing insight, sharing mutual experience and public information [13]. Older people often support fall-prevention advice for others, but not for themselves [14].

Dizziness and the risk of falling significantly increase with the number of drugs [3] especially when using fall-risk-increasing drugs (FRIDs) like psychotropic drugs and some drugs affecting the cardiovascular system [6,15]. FRIDs are associated with impaired postural

CONTACT Hege Therese Bell hege.t.bell@nord.no Skjermvegen 60a, 7023 Trondheim, Norway

control and adverse effects like orthostatic hypotension [15]. We have not been able to find studies investigating whether elderly persons link FRID or drug use in general with risk of falling due to, e.g. dizziness and how they handle their drug use if they perceive there to be a connection. The aim of the study was therefore to explore how home-dwelling elderly FRID users perceive their fall risk and how they relate this to their drug use.

Materials and methods

This was a qualitative study with individual semi-structured interviews. The data collection took place in an urban municipality in Central Norway from May 2013 to October 2014. The Regional Committees for Medical and Health Research Ethics of Central Norway approved the study (2012/2163).

Setting

All residents in Norway are entitled to a regular general practitioner (GP) for providing general healthcare [16] and 99.6% of the population are registered with a GP [17]. Home-dwelling elderly receive their medical service from their GP [17], but might be prescribed FRIDs from other physicians like hospital physicians and other specialist physicians [17]. Norway had by April 2016 14.1% aged 67 years or older [18]. Fall injuries are ranked as the sixth most important contributor to burden of disease in Norway ranked over cardiovascular disease [19]. According to the Norwegian Prescription Database [20], 573,000 persons above 65 years use a vasodilator drug (ATC-C01, C02CA, C08, C09A-D). The corresponding number for neuroleptic drugs (ATC-N05) is 258,000, respectively.

Informants

The aim was to include elderly persons living at home, above the age of 65 that used FRIDs. To ensure variation, we included informants with a registered fall but also elderly that both did and did not self-report a fall or experienced dizziness. In addition, we strived to get a variation in gender, age and FRID.

To recruit informants, several approaches were used. The first author presented the study and distributed the information letter to the unit for Health and Social Care at the municipality and to different senior associations. To increase the chances of getting informants who had registered a fall, an employed pharmacist at the orthopedic department at the University Hospital informed eligible patients about the study and handed out information letters. In addition, the word was spread throughout the authors' local networks of elderly.

Data collection

Data were collected using individual face-to-face semi-structured interviews [21] at the homes of the elderly except one interview conducted at a recovery nursing home. Before the interviews started, more detailed information was given and the written consent was signed. The interviews lasted from 21 to 87 minutes.

The first author performed the interviews according to a preset topic guide to ensure that all aspects of interest were covered in all the interviews. The participants were also encouraged to talk freely about related topics. The main questions in the interview guide were as follows:

- 'Have you experienced dizziness or falls? Can you explain to me what happened?'
- 'Can you tell me which medicines you are taking and what information you have received from your physician?'
- 'Do you associate the use of your medicines with dizziness and falls? Please explain'.

Data analysis

The interviews were digitally recorded, transcribed verbatim and analyzed using the method of systematic text condensation (STC) [22]. STC is suitable for descriptive transversal analysis of phenomena [21]. The method consists of an iterative four-step process starting with making four to eight preliminary topics based on a total impression of the data. To do so, the first author read all the transcripts and chose the three richest transcripts, according to the aim of the study, that were read by all authors. In the second step, the first author went through all the data and identified and sorted meaning units that elucidated the study question into the preliminary topics. Then these topics with subtopics were adjusted, refined and renamed as a result of discussions between the three authors. This was done in several stages. In the third step, the first author wrote a condensate for every subtopic. The condensate is an artificial quotation maintaining the original terminology used by the participants. In the last step, the first author produced an analytic text for each subtopic based on the condensates to ensure closeness to the original wording used by the informants. In this step, the text is reconceptualized and the synthesized results reflect the validity and wholeness

Table 1. Demographic characteristic of the participants.

	Number
Gender	
Female	7
Male	7
Age	
Age range women in years (mean)	79–97 (87)
Age range men in years (mean)	66–85 (76.7)
Handling drugs themselves	12
Dizziness and fall injuries	
Reported dizziness	4
Reported fall injuries	4
None of the above	6
Drugs	
Range number all drug women (mean)	3–14 (7.4)
Range number all drug men (mean)	2–9 (4.7)
FRIDs	
Range all FRID women (mean)	1–4 (2.4)
Range all FRID men (mean)	1–4 (2.3)
	(Number of appearance among informants)
Drug classes FRIDs	β-blockers (5), A II-blockers (5), Ca blockers (5), Diuretics (5), Z-hypnotics (4), antidepressant (3), ACE inhibitors (2) and α-β-blockers (1)

of their original context [22]. There were regular inputs from the co-authors during all steps of the analyses. During the whole process, the authors went back to the transcripts to ensure that the analysis was based on them. The themes and the analysis were also discussed in an extended research group to ensure validity.

Results

A total of 14 home-dwelling elderly FRID users were interviewed. There was an equal distribution of gender with a mean age of 81 years. Their mean total number of drugs and FRIDs was 6.1 and 2.1, respectively. Further characteristics of the participants are listed in Table 1. The findings were categorized into three main themes that sum up the participants' perception of fall risk and the relations to drug use (Table 2). The themes are as follows:

'It is not related to drug use'

The main impression from the interviews was that the informants did not perceive to have a particular risk of falling. If they did, they did in general not relate this to their drug use. None of the informants used the word risk of falling, but rather spoke of dizziness, unsteadiness and similar terms.

Other risk factors perceived as more prominent

Some informants did not see themselves as having any personal risk for falling whatsoever.

> I do not feel dizzy. I have a very good balance. I actually do. (Woman 84 not dizzy/no falls)

When asked elaborating questions, some of these informants said that in certain situations, they could feel dizzy or unsteady. However, these informants said that they did not necessarily perceive their fall risk as a particularly prominent challenge. On the contrary, it was emphasized how much they still were capable to manage in their daily life. When asked to give more details of what they saw as possible risks for falling, they listed factors like worsening eyesight, different diseases, slippery surface due to wearing socks indoors or icy ground outdoors, weaker muscles and the perception of a rigid body which hindered steadiness, stumbling due to, e.g. furniture standing in their way or being in a hurry.

> I fell once out on the balcony. I was wearing my slippers. It was a thin layer of ice. There was nothing related to drug use. (Woman 85 not dizzy/no fall injury)

Adapting everyday life instead of bothering the physician

The informants talked about how they adapted their everyday life to handle their fall risk. This was done through showing a little more caution when getting out of bed in the morning or rising from a chair, to use stair railings or to stop performing certain activities like cross-country skiing or other sports. The reason for doing so was the effort of getting up from the floor or the ground if they had fallen.

> When I get up in the morning I have to wait for the head to get on place before I stand up. I walk like a one year old – I guess that is how it is when you are getting old. (Male 84, not dizzy/no fall injury)

Table 2. Overview of findings.

Main theme	Subthemes
'It is not related to drug use'	Other risk factors perceived as more prominent
	Adapting everyday life instead of bothering the physician
Suspecting the drug	Information about drug as a fall risk factor
	Adjusting drug use by themselves
Communication with the physician about drug use	'I trust my physician when it comes to drugs'.
	Feeling rejected by the physician when presenting a problem
	The trade-off between the effect and side effect

These informants said to hold back contacting a physician when experiencing dizziness or other symptoms related to fall risk. When asked to give grounds for why they refrained to address their problems, the informants perceived the physicians as too busy or they got the impression that they were only allowed to express one problem at a time during their consultation. One informant said that she did not think the physicians always had the answer to all types of questions.

> I do not know if that is something to trouble the doctor about. (Woman 79, fall injury)

Suspecting the drug

There were informants who said they were afraid of falling and they connected this mainly to dizziness. These informants did not settle down with the explanation of their dizziness and/or fall episode(s) to be an accident or caused by aging. None of the informants were familiar with the term FRID and therefore spoke about their drugs in general. They talked about how they after experiencing repeated dizziness or fall episodes had eliminated other plausible causes and then the idea of the drug causing the problems had emerged. Examples of this were, e.g. having a hangover feeling of being heavy headed the morning after using a sleeping pill. One informant described two scary fall episodes two nights in a row when heading for the toilet which made him anxious and unwilling to continue taking sleeping pills. Another informant using an antihypertensive gave a rich description on how he almost fainted when bending down to tie his shoes. Informants experiencing similar episodes expressed a wish to understand the causes of their perceived dizziness or unsteadiness since this gave rise to fear of new fall episodes or stress due to not being able to predict the next episode.

> It is the dizziness that bothers me the most (…) I believe for sure that it has to do with the drugs. (Man 78, dizzy)

Information about drug as a fall risk factor

One of the informants said that he could recall his GP informing him about dizziness as a side effect of the FRID and to regularly ask him whether he felt dizzy. However, to be informed by physicians of other side effects like addiction from, i.e. sleeping pills was more common.

Regardless of information from their physician, most patients always read the patient information leaflets (PILS). This information was at times frightening and gave rise to new questions, especially for those who expressed concerns about side effects. One informant explained how he always read through the information leaflets when he was prescribed a new drug in search of description of dizziness. For informants talking about an association between dizziness and drug use, the role of the PILS was central, but they did not necessarily have a clear opinion of what came first. They could either read the leaflet and then becoming aware of their dizziness, or they felt dizzy and then connected this to information in the PILS.

> It is not the smartest thing to read the information leaflets, because they can scare you to not dare to take any medicine. What I have found out about side effects I have read myself…. (Man 70, dizzy/fall injury)

Some informants mentioned their local pharmacist or someone from their social network using the same drug as the ones making them aware of drugs as a risk factor for falls. When suspecting the drug to be the cause and presenting this as a problem at the pharmacy, the pharmacist was said to come forward as an information source confirming their suspicion and to elaborate the information from the drug leaflet. One informant underlined that you cannot necessarily trust information about side effects in your social network since all experience drugs differently.

Adjusting drug use by themselves

There were informants who said they modified their drug use without contacting their physician when suspecting their drug. One informant said she had started taking her antihypertensive at bedtime instead of in the morning to avoid feeling tired during the day when reading in the PILS that the drug could cause drowsiness. Another informant described how he felt unwell and confused after using a psychotropic drug for his sleeping problems and therefore had to stop

taking the drug. The same informant was later prescribed another type of sleeping pill where he after a while adjusted the dose without informing his physician mainly due to the wish of sleeping naturally, but also because of feeling heavy headed in the morning.

> The morning after taking a sleeping pill (…) it can be like when you drink alcohol and gets too much of it and then when you get up the next morning. (Man 79, dizzy)

Communication with the physician about drug use

There were informants who said they did not talk specifically about the drugs with the physicians because they trusted their physician, while others wished for their prescriber to always go into details about the drug's potential side effects. It was variation in how much they said they knew about the purpose of their drugs, ranging from the ones who took what was prescribed without knowing specifically or had misconceptions to why the drug was prescribed to those that had detailed knowledge. The informants did not always know the name of their FRID, neither brand name nor generic name, but did recognize the drug's therapeutic category like, e.g. 'high blood pressure' or 'sleeping pill'.

> I am not sure if it is for my heart – is it? (Woman 97, fall injury)

I trust my physician when it comes to drugs

The reason given for trusting their physician was that physicians are well educated and this makes their choices trustworthy. Furthermore, to prescribe and treat was said to be the physician's responsibility and not theirs. They therefore accepted a drug even though they not always understood why treatment was initiated. They did not necessarily have that many expectations of any additional information about their drug during the consultation beyond the written instruction on the label that was perceived as enough information.

> I guess I get the information I need, but maybe I should have asked more questions…. I have just accepted it, because I fully trust my GP. I do not have an opinion (…) because that is up to the GP to decide. It is his responsibility. (Woman 79, fall injury)

As the citation shows, there were also informants who said that it might not solely be the physician's job to inform during the consultation but just as well their responsibility to ask more questions.

Feeling rejected by the physician when presenting a problem

The informants said it sometimes was difficult to get your point across when presenting a diffuse bodily discomfort perceived to affect their quality of life to the physician or when asking more specifically whether their drug could cause their fall risk. Sometimes the physician refrained to make any changes, arguing there were no alternatives. Informants perceived this as being rebuffed and were not satisfied with the answer or the argumentation given. In particular, this concerned informants using statins that caused muscle pain and restless legs perceived to affect their balance. One of them felt rejected by his GP when he asked whether his statin could cause his muscle aches. He thereby asked his local pharmacist who encouraged him to present the symptoms to the GP once again. The other patient, taking a maximum dosage of a statin, said she had failed to make her GP understand why she had a tingling and stinging pain in her feet and therefor said she had given up to resolve her symptoms. This informant said she did not feel dizzy and emphasized that it was her body and not her head that had caused her two fall injuries.

> I asked my GP once 'Can you please explain to me why I get this stinging feeling in my legs? It feels like there is something walking around in my veins'. He could not give me an answer and then he did not talk more about it. It might just be aging, but I find it strange that it moves around and stop when I touch my leg. (Woman 79, fall injury)

The trade-off between the effect and side effect

When the physicians did acknowledge the informants' complaints as drug related, the physician either reduced the dose straight away or left it to the patient to reduce the dose or to stop the drug altogether. The physician could ask the patients whether they still were in need of their drug when experiencing severe side effects. When asked the same question during the interview, there were informants that pointed at the contrast of a perceived need of the drug to be able to live their lives but at the same time the unpleasant experience of the drug to affect their risk of falling.

> I believe that if I had not taken sleeping pills I would have felt worse in the morning. (Woman 89, fall injury)

In some cases, the informants said they were asked by their physician to themselves regulate the dose to balance effect and side effect. One informant described the relief he felt when his drug calmed his galloping heart allowing him to sleep at night, but at

the same time how he struggled with dizziness during daytime. This patient did not appreciate to be given such a responsibility and therefore perceived the trade-off between the wanted effects against the unpleasant side effect as a dilemma.

> When the hospital physician called me back I told him that the metoprolol is affecting my quality of life and make me anxious about when the dizziness will emerge. (…) He understood me and said 'that is why we need to do something about it'. He told med I could reduce the dose to 25 mg, but it was up to me. (…) I want to discuss it with my GP first so that I don't have to make the decision entirely on my own. (Man 66, dizzy)

Discussion

The overall impression was that the informants saw aging and external factors as more plausible risk factors for falls than drugs. Those who suspected their drug to affect their fall risk said the suspicion had grown upon them after either experiencing severe dizziness or fall episodes or after reading the PILS. It was rarely connected to being informed by health personnel or someone in their social network. It was common to trust the physician and to not reflect much upon drugs and drug use. However, when presenting either with a wish to find a cause, alter or discontinue the drug a feeling of rejection could occur when they felt, they did not get their point across. It was also perceived as a dilemma to be given the responsibility to be the one to balance effect and side effect by choosing themselves how much medicine they should take.

Strength and limitations

We found both new perspectives and confirmations in the literature of our findings that ensured the validity of our results. Furthermore, the narrow aim and the diversity of eligible informants regarding gender, age and number of drugs in addition to comprise informants who both had and had not experienced dizziness and falls gave this study sample a high information power [23]. However, only four of the informants had experienced fall injury and an additional four reported dizziness that can be perceived as a limitation of the sample. Additionally, the interviewees had an interest in the subject that might affect the transferability of the findings due to the limitation in the diversity of the perspectives. However, all interviews, except one, were conducted at the elderlies' homes in addition to the interviewer being a pharmacist with long experience talking to elderly patients that contributed to a relaxed atmosphere assuring good quality dialogues. The analysis was performed by three researches with different backgrounds that contributed to different perspectives. In addition, the results were discussed in an extended research group that also strengthened the validity.

In need of information – perception of fall risk and knowledge of drugs

The main finding was that the informants in our study did not consider drug use to be a prominent factor for fall risk, but recognized other causes to be more plausible. The underlying causes of falls are multifaceted [2] and the informants identified known risk factors like aging [4], muscle and neurological diseases [3], and environmental factors like furniture, carpets and slippery surface [2] as risk factors for falls. To not consider themselves susceptible to falls and to mainly recognize exterior factors to cause falls [12] and to fight for a normal life style when occasionally feeling dizzy have also been found by others [10]. This is in line with the finding that some of our informants downplayed their fall risk [13] or dizziness [8] since they were eager to emphasize what they still managed in everyday life. Another reason might be that some of them did not remember having fallen [24]. Even if several informants did not see themselves at risk of falling when first asked, they did take precautions through making physical adaptions in everyday life or gave up certain activities. Thus, at least when asked elderly persons have an awareness of fall risk, but based on this study do not consider drugs to be a prominent factor.

Between 60 and 70% of elderly outpatients above 65 years have been found to be aware of their drug's name and purpose [25–27]. However, the knowledge of the side effects is found to be poorer with 4–12% [26–28] correctly identifying them. This is one possible reason for why the informants in our study did not think of drug use as a risk for falling. The expressed need for information of side effects was not particularly present in our study and is in contrast to others' findings, where all patients mentioned a wish for a full disclosure of information of side effects [29]. Some of the informants who showed little interest in why they took their drugs said to fully rely on their physician's treatment decisions, indicating a wish for a physician-directed style of care [30]. This could constitute a problem as patients who are not familiar with side effects of their drugs have a higher risk of serious complications [27]. This is in addition to some of our informants who said that the PILS that follows the medicine package could evoke fear [31] and

anxiety [32]. Since such fear can lead to the elderly consulting their GP for assistance and a wish for individual judgment [31], it is important that patients regularly get individualized information of their drugs' common side effects so that they know when to seek help, e.g. experiencing dizziness when using FRIDs.

How to unveil whether the FRID causes problems

Even if our informants did not identify drugs in general or FRIDs in particular as increasing fall risk, there is good documentation of such a connection. Psychotropic drugs like benzodiazepines [33], neuroleptic drugs [6,34] and hypnotic z-drugs [35,36] have been linked to falls even when adjusted for chronic disease status [37,38]. In addition, vasodilator drugs increase the risk of falls [39,40]. However, statins that were said by some of our informants to be the cause of their unsteadiness are in some literature not linked to fall risk [41]. However, there is suggestive evidence that these drugs may affect muscle strength in older patients [41]. According to the Norwegian guidelines for treatment and rehabilitation, the effectiveness of statin treatment for elderly above 80 years is weak and individual assessment is recommended [42]. Regardless the drug being known as causing fall risk, physicians need to be alert when patients reports complaints perceived to affect their fall risk.

Some of our informants said they struggled to get their point across when presenting their bodily discomfort to their physician [43]. Elderly also often present complex problems [44,45] and in one-third of the consultations of older patients, the physician did not recognize the patient's complaints or gave other health problems a higher priority than the patient [45]. If patients then both do not relate drug use to fall risk and in addition struggle to describe and present what could be a side effect of FRIDs during consultations, there is a need for physicians to be aware of these challenges.

We have in a previous qualitative study found that general practitioners rarely consider fall risk when issuing repeat prescriptions of FRIDs unless patients report symptoms like dizziness or falls [44]. When this is considered in light of the present study where our informants did not connect drugs and fall risk and also struggled to present what could be a side effect, it raises the question about how the connection between drugs and fall risk then can be noticed. One answer is for physicians to systematically use evidence-based guidelines and tools like START/STOPP criteria where there is a specific section (section K) that lists drugs that predictably increase risk of falls [46]. Not all general practitioners are familiar with the START/STOPP criteria [44,46] and barriers to use the tool have been identified by GPs [47].

Another solution to the challenge of systematically identifying drugs that increases risk of falling could be to encourage the physicians to perform regular and thorough drug assessment like systematic drug reviews as described in the integrated medicine management (IMM) model [48]. A thorough anamnesis, regular blood pressure control and regular drug reviews have been suggested to be obligatory tasks to prevent falls in all parts of the healthcare system [49]. Especially, interprofessional drug reviews with mulitidisciplinary case conferences where the different professions meet and discuss the physician can get decision support through increased knowledge and critical reflections on the ongoing drug treatment [50].

Elderly FRID users do not necessarily relate their drug use to fall risk. Some struggle to verbalize their perceived drug-related problems to their physician. Physicians should regularly inform, monitor and assess the drug treatment when treating elderly with FRIDs to make sure they recognize side effects like dizziness and falls.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Ethical approval

The Regional Committees for Medical and health Research Ethics of Central Norway approved the study, and the participating elderly persons signed written consent.

Funding

The study was funded by Nord University.

Notes on contributors

Hege Therese Bell, MPharm and PhD-student of Nord University, Namsos, and NTNU (Norwegian University of Science and Technology), Trondheim, Norway

Aslak Steinsbekk, Professor of behavioural sciences in medicine and health research, NTNU (Norwegian university of Science and Technology), Trondheim, Norway

Anne Gerd Granas, Professor in social and clinical pharmacy, UiO (University of Oslo), Oslo, Norway

References

[1] Deandrea S, Lucenteforte E, Bravi F, et al. Risk factors for falls in community-dwelling older people: a

systematic review and meta-analysis. Epidemiology. 2010;21:658–668.
[2] World Health Organization (WHO). Global report on falls prevention in older age [Internet]. 2007 [cited 2017 Jan 13]. Available from: http://www.who:int/ageing/publications/Falls_prevention7March.pdf
[3] Ziere G, Dieleman JP, Hofman A, et al. Polypharmacy and falls in the middle age and elderly population. Br J Clin Pharmacol. 2006;61:218–223.
[4] Wyller TB. Geriatri – en medisinsk laerebok. 1st ed. Oslo: Gyldendal Norsk Forlag AS; 2011.
[5] Schlick C, Schniepp R, Loidl V, et al. Falls and fear of falling in vertigo and balance disorders: A controlled cross-sectional study. J Vestib Res. 2016;25:241–251.
[6] Woolcott JC, Richardson KJ, Wiens MO, et al. Meta-analysis of the impact of 9 medication classes on falls in elderly persons. Arch Intern Med. 2009;169: 1952–1960.
[7] Clarke A, Warren L. Growing older – the good, the bad and the ugly: subjective views of aging. Int J Disabil Human Dev. 2006;5:61–67.
[8] Stam H, Harting T, Sluijs M, et al. Usual care and management of fall risk increasing drugs in older dizzy patients in Dutch general practice. Scand J Prim Health Care. 2016;34:165–171.
[9] Olsson Moller U, Midlov P, Kristensson J, et al. Prevalence and predictors of falls and dizziness in people younger and older than 80 years of age–a longitudinal cohort study. Arch Gerontol Geriatr. 2013; 56:160–168.
[10] Olsson Moller U, Hansson EE, Ekdahl C, et al. Fighting for control in an unpredictable life – a qualitative study of older persons' experiences of living with chronic dizziness. BMC Geriatr. 2014;14:97.
[11] Mendel B, Lutzen K, Bergenius J, et al. Living with dizziness: an explorative study. J Adv Nurs. 1997;26: 1134–1141.
[12] Braun BL. Knowledge and perception of fall-related risk factors and fall-reduction techniques among community-dwelling elderly individuals. Phys Ther. 1998;78:1262–1276.
[13] Pohl P, Sandlund M, Ahlgren C, et al. Fall risk awareness and safety precautions taken by older community-dwelling women and men – a qualitative study using focus group discussions. PLoS One. 2015;10: e0119630.
[14] Hughes K, van Beurden E, Eakin EG, et al. Older persons' perception of risk of falling: implications for fall-prevention campaigns. Am J Public Health. 2008;98: 351–357.
[15] de Groot MH, van Campen JP, Moek MA, et al. The effects of fall-risk-increasing drugs on postural control: a literature review. Drugs Aging. 2013;30:901–920.
[16] The Norwegian Directorate of EHealth (ND). Rett til fastlege helsenorge [Data from the right to a doctor] [Internet]. [cited 2016 Aug 8]. Available from: http://helsenorge.no/fastlege/rett-til-fastlege
[17] Statistics Norway. GPs and emergency primary health care [Internet]. 2015 [cited 2016 Aug 4]. Available from: http://www.ssb.no/en/helse/statistikker/fastlegetj
[18] Statistics N. Key figures for the population [Internet]. 2016 [cited 2016 Aug 4]. Available from: http://www.ssb.no/en/befolkning/nokkeltall/population
[19] Folkehelseinstituttet. Sykdomsbyrde i Norge 1990–2013 [Global burden of disease, Norwegian Institute of Public Health] [Internet]. 2016 [cited 2016 Dec 22]. Available from: http://www.fhi.no/globalassets/migrering/dokumenter/pdf/rapport-20161-pdf.pdf
[20] The Norwegian Prescription Database: Folkehelseinstituttet [Internet]. [cited 2016 Sep 9]. Available from: http://www.norpd.no
[21] Malterud K. Kvalitative metoder i medisinsk forskning – en innføring. 3rd ed. Oslo: Universitetsforlaget; 2011.
[22] Malterud K. Systematic text condensation: a strategy for qualitative analysis. Scand J Public Health. 2012; 40:795–805.
[23] Malterud K, Siersma VD, Guassora AD. Sample Size in Qualitative Interview Studies: Guided by Information Power. Qual Health Res. 2015.
[24] Hale WA, Delaney MJ, Cable T. Accuracy of patient recall and chart documentation of falls. J Am Board Fam Pract. 1993;6:239–242.
[25] Spiers MV, Kutzik DM, Lamar M. Variation in medication understanding among the elderly. Am J Health Syst Pharm. 2004;61:373–380.
[26] Modig S, Kristensson J, Ekwall AK, et al. Frail elderly patients in primary care – their medication knowledge and beliefs about prescribed medicines. Eur J Clin Pharmacol. 2009;65:151–155.
[27] Chan FW, Wong FY, So WY, et al. How much do elders with chronic conditions know about their medications? BMC Geriatr. 2013;13:59.
[28] Barat I, Andreasen F, Damsgaard EM. Drug therapy in the elderly: what doctors believe and patients actually do. Br J Clin Pharmacol. 2001;51:615–622.
[29] Nair K, Dolovich L, Cassels A, et al. What patients want to know about their medications. Focus group study of patient and clinician perspectives. Can Fam Physician. 2002;48:104–110.
[30] Levinson W, Kao A, Kuby A, et al. Not all patients want to participate in decision making. A national study of public preferences. J Gen Intern Med. 2005; 20:531–535.
[31] Herber OR, Gv Schwappach D, Thürmann P, et al. Patient information leaflets: informing or frightening? A focus group study exploring patients' emotional reactions and subsequent behaviour towards package leaflets of commonly prescribed medications in family practices. BMC Fam Pract. 2014;15:163.
[32] Young A, Tordoff J, Smith A. 'What do patients want?' Tailoring medicines information to meet patients' needs. Res Social Adm Pharm. 2016.
[33] Huang AR, Mallet L, Rochefort CM, et al. Medication-related falls in the elderly: causative factors and preventive strategies. Drugs Aging. 2012;29:359–376.
[34] Hill KD, Wee R. Psychotropic drug-induced falls in older people: a review of interventions aimed at reducing the problem. Drugs Aging. 2012;29:15–30.
[35] Mets MA, Volkerts ER, Olivier B, et al. Effect of hypnotic drugs on body balance and standing steadiness. Sleep Med Rev. 2010;14:259–267.

[36] Shuto H, Imakyure O, Matsumoto J, et al. Medication use as a risk factor for inpatient falls in an acute care hospital: a case-crossover study. Br J Clin Pharmacol. 2010;69:535–542.
[37] Lawlor DA, Patel R, Ebrahim S. Association between falls in elderly women and chronic diseases and drug use: cross sectional study. BMJ. 2003;327:712–717.
[38] Leipzig RM, Cumming RG, Tinetti ME. Drugs and falls in older people: a systematic review and meta-analysis: I. Psychotropic drugs. J Am Geriatr Soc. 1999;47:30–39.
[39] Aronow WS. Treating hypertension in older adults: safety considerations. Drug Saf. 2009;32:111–118.
[40] Verhaeverbeke I, Mets T. Drug-induced orthostatic hypotension in the elderly: avoiding its onset. Drug Saf. 1997;17:105–118.
[41] Krishnan GM, Thompson PD. The effects of statins on skeletal muscle strength and exercise performance. Curr Opin Lipidol. 2010;21:324–328.
[42] Helsedirektoratet. Nasjonale faglige retningslinjer [Data from National guidelines, Directorate of Health] [Internet]. 2016 [cited 2016 Dec 13]. Available from: http://www.helsebiblioteket.no/retningslinjer/hjerne-slag/sekundarforebygging/lipidsenkende-behandling
[43] Morgan R, Pendleton N, Clague JE, et al. Older people's perceptions about symptoms. Br J Gen Pract. 1997;47:427–430.
[44] Bell HT, Steinsbekk A, Granas AG. Factors influencing prescribing of fall-risk-increasing drugs to the elderly: a qualitative study. Scand J Prim Health Care. 2015;33:107–114.
[45] Scheuer E, Steurer J, Buddeberg C. Predictors of differences in symptom perception of older patients and their doctors. Fam Pract. 2002;19:357–361.
[46] O'Mahony D, O'Sullivan D, Byrne S, et al. STOPP/START criteria for potentially inappropriate prescribing in older people: version 2. Age Ageing. 2015;44:213–218.
[47] Dalleur O, Feron JM, Spinewine A. Views of general practitioners on the use of STOPP&START in primary care: a qualitative study. Acta Clin Belg. 2014;69:251–261.
[48] Andersen A, Wekre L, Sund J, et al. Evaluation of implementation of clinical pharmacy services in Central Norway. Eur J Hosp Pharm. 2014;21:125–128.
[49] Smebye KL, Granum S, Wyller TB, et al. Medical findings in an interdisciplinary geriatric outpatient clinic specialising in falls. Tidsskriftet. 2014;134:705–709.
[50] Kaur S, Mitchell G, Vitetta L, et al. Interventions that can reduce inappropriate prescribing in the elderly: a systematic review. Drugs Aging. 2009;26:1013–1028.