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CHAPTER 8

GENERAL DISCUSSION

INTRODUCTION

Over 15% of the population in the Netherlands is older than 65 years. Falls pose a serious health problem for older persons, occurring in 30% of adults aged 65 and older and 40% of those aged 80 years and older. Falls are the leading cause of unintentional mild and serious injuries, which ranks as the sixth leading cause of death in older people. In addition, falls lead to functional deterioration, changes in health status, hospitalization, loss of independence or even institutionalization. The cost of falling to healthcare and allied services in terms of resources and bed occupancy is high.[1] Falls may also induce psychosocial effects such as reduction in going outside or fear of falling. Also loss of confidence, loss of independence, and impaired social interaction, all leading to a lower quality of life, have been described as psychosocial effects of falls.[2,3]

Fear of falling is also common in older populations and can be part of a vicious fall-associated circle as it can lead to fear-induced activity restriction and the tendency to adapt to a sedentary life style, further decline in physical functioning, greater fall risk, reduced quality of life and even admission to institutional care.[4] Fear of falling imposes also a burden on public expenditure with greater use of health care. It is therefore of both human and clinical interest to predict the probability of developing fear of falling in older adults and to introduce interventions for groups with high-risk of falls and fear of falling.

This final chapter also reflects on limitations and methodological issues of studies reported in this thesis. First, the main findings will be described shortly. Second, the consequences of the presented studies are discussed. Finally, implications for practice and further (nursing) research are provided.

MAIN FINDINGS

The general aim of this thesis was to explore several aspects of fear of falling in community-dwelling older persons. We found fear of falling to be prevalent in older persons after sustaining a fall, but also in older adults without a fall-history. Many different constructs have been used in the measurement of fear of falling,

leading to many measurement instruments. We developed a Visual Analogue Scale for Fear of Falling, and found support for using this instrument to measure fear of falling after a fall. We described the validation of another nurse-led instrument, the Delirium Observation Screening Scale, as an instrument to measure severity of delirium, since a hip-fracture can be a severe consequence of a fall with postoperative delirium as a common consequence. In a cross-sectional study we assessed fear of falling in a group without fall-history and in groups with a first or recurrent falls. In the group without fall-history, 8.2% reported fear of falling and we found balance- and mobility disorders, urinary incontinence, high risk of osteoporosis and female sex to be independently associated with fear of falling in this group. A randomized controlled trial was conducted to evaluate the effects of a mobile safety alarm on the mobility of older persons in terms of frequency of going outside. Secondary outcomes were fear of falling, feelings of unsafety and quality of life. We found no added value of this mobile safety alarm compared to the home-based alarm. No significant differences were found between the intervention and the control group regarding the primary and secondary outcomes.

METHODOLOGICAL ISSUES

All studies described in this thesis have their own specific methodological issues, strengths and limitations that are discussed in the discussion paragraphs of Chapters 2-7. For that reason, the current paragraphs will mainly focus on general considerations regarding the methodology of studies on fear of falling in elderly subjects.

MEASUREMENT ISSUES

The results of our systematic review stipulate several methodological issues concerning the measurement of fear of falling. Important issues are consensus on a standard classification for fear of falling, and on a measurement instrument. Evidence form the published literature does not point out to one unanimous solution to the measurement of the fall-related psychological construct of fear of falling.[5] The studies described in our review showed different results in terms of

composition of measurement instruments, sample size and characteristics of the studied populations. Also the risk factors that might predispose to fear of falling are defined and measured in different ways, and, in view of the many consequences of fear of falling, it may be difficult to develop an instrument that fully reflects a broad view and contain all the aspects of the concept /construct of fear of falling.[6]

Fall-related psychological issues are an important endpoint for clinical fall prevention trials in older adults.[3] While physical and socioeconomic consequences of falls are relatively easy to identify and measure, the subsequent psychological effects of falling are more ambiguous and harder to quantify.[7] Measuring the true content of fear of falling is difficult, because it is partly a subjective notion and also multifactorial including more objective aspects like cognitive, physical, sensory and behavioural factors. Tinetti and colleagues[8] have argued that 'an efficacy measure rather than a fear measure should be considered for use in (falls) epidemiologic and intervention studies'. However, the findings in a review by Moore et al. (2008)[7] pointed out correctly that fifteen years later several fall-related psychological measures are used to measure other constructs than instruments were originally designed for. For example, the Falls Efficacy Scale, which was designed to measure the construct of falls efficacy, has been used extensively to measure the concept 'fear of falling' and nowadays efficacy is used synonymously for fear of falling. However, since the development of the FES, several authors have demonstrated that fear of falling and falls efficacy are two different constructs[8,9] and therefore, the FES should be used to measure a more specific confidence in ability to perform activities without falling, not fear of falling.[7] Identification of standardized outcome measure(s) for each specific fall-related psychological construct is needed to facilitate comparisons between studies and appreciate outcomes of interventions.[7] By employing (different) measures that can characterize fall related psychological constructs, like fear of falling, falls efficacy, balance confidence, and avoidance of activities, appropriate strategies aimed at reducing fear of falling and other negative consequences of falls can be used.[7]

THE CONTENT OF FEAR OF FALLING: MEASURING EFFICACY VS. MEASURING FEAR

An easy to apply and reliable instrument that measures solely fear of falling was currently lacking and there was an obvious need for. Our studies with the VAS-FOF showed that it is a measure of fear of falling with good psychometric properties and discriminates between groups differentiated by age and fall history. The VAS-FOF uses a numeric scale (1-10) to measure the self-reported and self-perceived fear of falling after a fall. The features of the VAS-FOF as a convenient, easy and rapidly administered measurement strategy render it an attractive measurement option for both patients and daily clinical practice. We argued that, to reflect the multidimensionality of fear of falling, the VAS-FOF should be used in conjunction with other instruments, but that the measure is a reliable and valid instrument to assess experienced fear of falling after a fall. This thinking was endorsed by Denkinger et al.[10], who stated that there is room for the use of a short screening instrument like the VAS-FOF preferably in an emergency setting, where time is limited, and that use of the VAS-FOF in combination with a self-efficacy scale could be an option for inpatient and outpatient settings. Another argument lies in the recent study of Oh-Park concerning subtypes of fear of falling by showing differences between persistent fear of falling and transient fear of falling.[11] In this study it was shown that fear of falling experienced by older persons is a dynamic process, with frequent transitions between states of fear of falling and no fear of falling.[11] The results of this study also showed depressive symptoms and gait abnormality to be associated both with transient and persistent fear of falling. A fall history was a predictor of persistent but not transient fear of falling. These findings suggest that the negative effect of falls on emotional function is long lasting.[11]

Understanding the dynamic nature of fear of falling and of risk factors will help identify high-risk groups and design future intervention studies. Visual analogue scales have been described as a useful measurement strategy in a wide variety of human clinical and psychological research settings to assess subjective states.[12] In previous studies visual analogue scales have been found to be valid and reliable for the assessment of various kinds of subjective conditions such as depression,

anxiety, and mood disturbances.[13] The features of the visual analogue scale makes it an attractive measurement option for the clinical and nurse researcher, concerned with maximizing the amount of data collected in relationship to subject demand.[12] However, there are some limitations to using a visual analogue scale. Several investigators have reported problems with the subject's ability to conceptually understand the method itself. Careful instruction and repeated use of the visual analogue scale, as in longitudinal studies, can eliminate this problem. Another conceptual dilemma involves the lack of experiential grounding for the maximal descriptor.[12] 'No fear of falling' can be easily understood by subjects, whereas 'extreme fear of falling' has no absolute value. Therefore, the number chosen by a subject that best reflects the intensity of fear of falling experienced is dependent upon the subject's unique interpretation of the maximal value. Also, when using a visual analogue scale in repeated measures designs, subjects' experience with the construct may lead to the adjustment of maximal values by the individual subject, a concept called response shift.[14] In view of these limitations, each researcher must evaluate if the single-item, easy-to-use visual analogue scale will adequately represent the construct to be measured in relation to the research question. Using a then-test in studies with long periods of follow-up could shed light on changes in interpretation of maximum outcomes.[15] Additionally, further study of the conceptual and psychometric properties of the visual analogue scale is necessary, especially its nature in time, taking the concept of persistent and transient fear of falling in consideration. The sensitivity (for example responsiveness) of the visual analogue scale and other fall-related measures, which is the ability of an instrument to detect differences between two points in time[7], has not been established yet. Evidence of sensitivity is necessary is needed to aid in the selection that will be sensitive to change in a specific context, for example when evaluating the effectiveness of an intervention.[7]

Research, which addresses questions regarding reliability and validity of measurement instruments is needed to determine which instrument is the most appropriate to use in different clinical and scientific settings. Use of reliable and valid scales is crucial if improvements are to be made in assessment of fear and

falling and in interventions aimed at reducing fear of falling. However, in daily clinical practice, where time is an important factor, and missing values are to be reduced to a minimum, it is also preferable and defendable to use measurement instruments that are easily and rapidly applied to identify groups with different *a priori* chances of a certain characteristic that needs to be measured or further diagnosed. It is not always feasible to implement optimal reliable measurements in practice, and professionals should strike a balance between instruments that are practical to use, achievable to administer, and cost-effective, and instruments that are highly reliable merely to apply in research settings.

OBSERVATIONAL STUDIES

The cross-sectional study design as applied in parts of this thesis, as all cross-sectional studies, leaves conclusions subject to alternative interpretations of causal order, as is always the case with this type of studies. The included studies in our systematic review well demonstrate the correlation between falls and fear of falling, but the temporal relationship between these two syndromes in population-based samples remains unclear. From the 28 studies in our review only nine studies were prospective, and reported a substantial loss to follow-up. There is still a lack of prospective, longitudinal follow-up studies on fear of falling and outcome of fall prevention. This also counts for the relation between (modifiable) risk factors and recurrent falling. This correlation has well been demonstrated,[16] but the temporal relationship is less clear. More than one order of relations could explain the correlation between risk factors and recurrent falling: risk factors, like for instance mobility disorders, may cause fall incidents, or the mentioned risk factors are a consequence of frequent fall incidents. It is certainly plausible that each condition may lead to the other and are mediators. Many risk factors for fear of falling have been described, both non modifiable and modifiable risk factors. Since modifiable risk factors are risk factors that can be improved or removed by an intervention[16], efforts aimed at secondary prevention for fear of falling and recurrent falls, as well aimed at primary prevention for injury of falls and fear of falling, should focus on modifiable risk factors.

SELF-REPORT

Self-reported measures on health and mental issues play an important role in medical outcomes research because objective measures are not available or desirable, or the use of objective measures would require considerable resources in terms of costs or extra burden for participants.[17] The two broad self-report categories are questionnaires and interviews. Most studies in this thesis relied on self-reports by questionnaires as well. A key advantage of the questionnaire method is feasibility. Questionnaires are relatively easy to administer, are low-cost, require limited personnel, have the potential to reach a dispersed sample and can be used to assess sensitive self-report issues (e.g. urinary incontinence).[18] Validity and reliability of self-reported data can be influenced by several factors: respondents' characteristics and cognitive processes, as well as the general format and wording of the questionnaire.[18] When relying on self-reported data, respondent characteristics, such as age, gender, race/ ethnicity and education are factors to consider, but the validity of the data can also be affected by perceived lack of anonymity, cues from the external environment or noise in the environment. In case of self-report regarding fall incidents, the quality of this self-report can be dependent on the consequence of the fall. A trip incident with no injuries will lead to more recollection bias than a fall incident, leading to serious consequences as a hip fracture and/ or admission to hospital. Individuals with the disease or outcome of interest are more likely to remember relevant exposures than are healthy controls. Also, the period of time between the fall incident and filling in the questionnaire can lead to recollection bias. Studies on self-reported alcohol intake showed a rapid deterioration of recall of self-reported alcohol intake.[19,20] It seemed problematic to recall alcohol intake even when the recall period is as short as one week.[20] For this study, data were collected from adults aged 16 years and older. In our studies, however, adults aged 65 years and older were included, in which cognitive complaints are more present, what could have led to deterioration of recall even concerning recent fall incidents. One approach that is recommended to address recall bias is to have a control group affected by a

disease different from that of the cases that introduces a similar bias toward recall of exposure, that can be checked easily.[21]

By improving the methods of administration, we tried to enhance possible flaws in reliability and validity of the self-reported data in our studies, which could be an example to optimize reliability of self-reported data. First, we used questionnaires and measurement instruments that, according to literature, showed adequate to good psychometric properties. Second, we encouraged participants to ask for assistance from e.g. proxies to fill in the questionnaires or measurement instruments. Third, participants were contacted when questionnaire of measures were unreturned or incomplete to ensure complete data. Last, we ensured participant confidentiality and anonymity by minimizing the use of personal identifiers. Since self-reported data will continue to play an important and meaningful role in medical and nursing outcomes research, the researcher has to be aware of the strengths and weaknesses of this kind of assessment method.

GENERALIZABILITY

When assembling a study population selection processes are necessary to estimate effects for specific populations. Generalization of findings may however be limited and threaten internal validity. In our studies participants with severe cognitive impairment and participants admitted to the ICU or Department of Neurology were excluded as they might have important difficulties with recall issues due to existing impairments or a prolonged hospital stay. This however requires some caution when generalizing of the results to these patients. This is not uncommon in clinical studies in elderly. Especially very old persons, with cognitive impairment or with certain comorbidities, are often excluded from clinical studies introducing a selection bias and problems with generalizability. They may have different risk factors or respond differently to interventions than younger or not impaired subjects, as was showed in a pilot-study on the effect of treatment of hypertension in the oldest old. 'Improved' treatment of hypertensive adults aged 80 years and over showed even a possible increase in cardiovascular mortality.[22] Excluding older persons from studies, therefore, might not only limits the generalizability of

findings, but also result in failure to target those who most need and would most benefit most from tailored interventions for prevention.[23] We may conclude from this that the population of older persons of 65 years and over is a very diverse population, in which evidence of treatment and prevention strategies in different subgroups is required.

RESPONSE

Another issue concerns the high rate of non-responders in studies with elderly subjects. In our studies we found a high response as between 65-70% of the participants returned the questionnaire. A study by Eaker et al. found percentages between 40% and 56%, depending on the method applied.[24] Another study on response rates to mail surveys published in medical journals found a response rate of approximately 60%.[25] Response rates can be increased by sending a reminder[26] or by contacting non-responders by telephone, such as done in our studies. Health related issues or lack of interest can be reasons for older persons to non-respond to a mail survey, and these might be related to important confounders of results.[24] Old age is considered to be the strongest determinant of nonresponse.[24] In our studies, information on non-responders was limited to age and gender, showing that non-responders were likely to be older than responders.

SELECTION OF PARTICIPANTS

A further issue concerns finding and selection of participants for a randomized controlled trial. Public health policy has made the discovery of effective interventions to prevent or delay disability in older persons a priority.[23] Most likely to benefit from such interventions, for example a mobile safety alarm, are older persons who are not yet disabled and those with early disability who are at high risk of progression.[23] Inclusion criteria in trials should identify a population that is likely to benefit from the intervention and is recognized using simple criteria that are feasible in a screening program or clinical practice.[23] An approach regarding exclusion criteria is to consider the cognitive and physical performance required for participation in the trial.

For participation in our randomized controlled trial, participants had to subscribe actively. This might have resulted in a more selected group of participants, who still was going outside and might as well be more interested in using a mobile alarm. By recruiting participants who had the ability to perform the physical performance required for participation, going outside, and who had a positive attitude towards new technology, we attempted to include those older persons that would benefit from using a mobile safety alarm and would have compliance to the intervention.

INTENTION TO TREAT VS. PER PROTOCOL ANALYSIS

Further consideration with regard to older participants is required for the dropout during our trial. The percentage of dropout differed between the two study-groups. This can of course be explained by the type of intervention. All non-compliers were also approached for the follow-up moments and remained included in the intention-to-treat analysis.[27] However, this kind of analysis may cause an underestimation of the intervention effects in compliant participants. A systematic review on dropout in population-based longitudinal studies of older persons showed that individuals who dropped out for reasons other than death tended to be older and were more often cognitively comprised.[28] In our randomized controlled trial, these findings were confirmed, as dropouts were also older and had more often had cognitive impairment. Dropout of participants resulting in missing data is regarded an issue that can cause significant bias regarding intervention effects. Missing data can bias results, reduce generalizability, and limit power.[29] Prevention of missing data should be part of every phase of research by anticipating the challenges of an aging population and implementing strategies to reduce the known risk of missing data. Easily obtainable primary outcomes, giving priority to data collection and anticipating how to maintain participants with health and functional problems in the study are key elements in strategies to prevent missing data.[29] In analysing missing data, the extent and types of missing data should be assessed, mechanisms that contributed to the missing data be explored

and multiple analytical analyses used to assess the effect of the missing data on the outcomes of the study.[29]

Patient recruitment in aging research is recognized as one of the most difficult but challenging aspects of the study process, especially for including elderly subjects in trials.[30] Successful recruitment and retention of (very) elderly persons in research is crucial to inform clinical practice. Successful retention can be achieved by timely screening, identification and approach of eligible patients and careful evaluation whether the intervention is appropriate for the target population and setting.[31] Despite the fact that we attempted to optimize compliance by focusing on the completion of data collection and by analysis of data of drop-outs, recall bias and missing data could not be completely prevented.

IMPLICATIONS FOR DAILY PRACTICE

PREVENTING RECURRENT FALLS

The results of our studies indicate that multiple modifiable risk factors are present in patients presenting with falls, which could be reduced by means of interventions. Many preventive intervention programs based on risk factors for falling have been established and evaluated.[32-35] Interventions to reduce the risk of falling have been successful to a varying degree. Home visits by nurses were found to be ineffective[36], whereas overall, exercise appears to have significant beneficial effects.[35] Multiple component group exercise[37-39], Tai Chi[40] and individually prescribed exercise carried out at home.[39,41] all reduce the risk and rate of falls. There is limited evidence for the effectiveness of interventions targeting medications, for example withdrawal of psychotropic medications.[42] Several guidelines for the prevention of falls in older persons have been developed.[43,44] A systematic assessment and multifactorial treatment of fall risk factors in independently living older adults with a high risk of falling is still recommended. However, regarding the effect of multifactorial prevention strategies, various studies report conflicting results and a number of meta-analyses show inconclusive conclusions.[32,34,35] To assess the clinical effectiveness and cost effectiveness of multifactorial interventions for falling, large scale, randomized controlled trials in

predefined risk groups with targeted treatment goals are needed to find clinically important effects on the number of fall related injuries (both physical and emotional), number of people sustaining (recurrent) falls, rates of falls and quality of life.[34]

PREVENTING FEAR OF FALLING

As most studies focus on secondary prevention of falls, studies on primary prevention, aimed at modifiable risk factors for falling, are necessary as well not in the least to prevent fear of falling as a recent fall is one of the most strong predictors for FOF. In the field of fear of falling, however little evidence is available on what causes this fear, due to a lack of studies that allow conclusions regarding causality or knowledge on causality.[45] Zijlstra and colleagues conducted a systematic review on interventions that could reduce fear of falling in community-living older persons.[46] Some interventions did show reduction in fear of falling. A community-based Tai Chi group intervention showed reduction of fear of falling, measured with a falls efficacy scale, after an eight-week training.[47] Also, a multifactorial intervention program showed a reduction of fear of falling, in terms of falls efficacy[48], or associated restriction in activity levels.[49] In only one study, namely on the effect of a physical therapeutic intervention for balance problems by Wolf et al.[50], a visual analogue scale was used to assess fear of falling. This study found no difference between the intervention- and control group regarding the presence of fear of falling in daily life.

Most reviewed interventions were however not primarily aimed at reducing fear of falling and different fear of falling measures were applied. As mentioned before, the development of a fear-of-falling measure that reflects the different dimensions of fear of falling, physical, functional, psychological and social, is essential. To ensure this, the views of older people on fear of falling should be taken into account. Inclusion of older persons in developing measures on self-report like self-perceived fear of falling is desirable to ensure that items of importance or relevance are incorporated.[51,52]

NEW TECHNOLOGIES

New technology like ICT solutions might provide interesting contributions to prevent undesirable events related to the mobility of older persons as falls and fear of falling. In a society with an aging population and an increased need of care, there are often more needs than there are resources. The development and implementation of new information and communication technology can somewhat balance this gap.[53] New technologies have been introduced mainly in hospitals and nursing homes to contribute to the care of older persons. Electronic sensors, video monitoring, fall detectors, door monitors, bed alerts, pressure mats and smoke and heath alarms can improve patients' safety.[54] This so-called assistive technology can also make an important contribution to the safety, security, independence and quality of life of older persons living at home.[54] Not all older adults however will benefit from new technology aids and devices.[43] Some adults may see this solution as an invasion of privacy, some may find it complex to work with, some cannot afford the equipment or are restricted by visual, auditory or speech disabilities. Therefore, the development of technology for older persons should also be based on the perspective of the users, who should be engaged in all parts of the process. Ignoring this fact, can lead to the development of technology that will isolate and exclude older persons, instead of including and empowering them.[53] In our randomized controlled trial on the effect of a mobile safety alarm we showed some perceived user-unfriendliness of the safety-alarm. Perhaps this could have been avoided if older persons would have been engaged earlier in the process of developing this alarm.

PREVENTIVE SOLUTIONS ON A LARGER SCALE

Prevention of adverse health outcomes for older persons in Dutch society is also important for the Ministry of Health, Welfare and Sports. In the policy document 'Gezondheid dichtbij', prevention activities are called upon to enable older persons to maintain health and independence.[55] Providing health care of high quality on equal terms for all citizens is an important political goal in the Netherlands, meaning that local healthcare services should be accessible, meet client's needs

and be provided in accordance with political priorities. Local authorities are put in the lead to provide elderly care of high quality, to promote self-determination, personal development and social participation of older citizens and to develop products, services and technologies that meet their needs.[56] Nurses' regular, close proximity to community and older persons and their understanding of the care process across the continuum of care give them a unique ability to act as partners of other health professionals and of politicians in developing preventive strategies for this population. With the increasing growth of aged care services, more nurses are required to plan, coordinate and supervise a range of care services for the older population. However, aged care nursing is still seen as a less attractive career option.[57] This is mainly caused by the diminishing opportunity to engage in the skilled nursing role. The intrinsic rewards of the caring role attract nurses to aged care. Essential strategies for recruiting and for retaining nurses for the care for older persons consist of the careful selection of student nurses and their on-going education and the opportunity to train nursing skills.[57] Also in the field of prevention of falls and fear of falling nurses can play an important role. Nurses are uniquely placed in many environments such as health care centres, nursing schools, workplace environments, and community clinics, and have the opportunity to improve awareness of falls and fall prevention. Nurses can contribute to risk assessment, education and health promotion and monitoring medical and lifestyle interventions. In the fall-clinics, nurses are in a key position to enhance multidisciplinary management of falls and to educate older adults and caregivers about risk factors for falling and about which strategies could help prevent to prevent both falls and fear of falling.

FUTURE RESEARCH

Prevention of falls and injuries has been a major focus of research, stimulated by ageing populations and by a growing awareness of the mortality and morbidity resulting from falls. Also, research in the area of fear of falling has evolved in the last decades. Some aspects of (fear of) falling however require further scientific attention. Little is known about the initial onset of fear of falling and the natural

development over time. Is fear of falling transient or persistent? Longitudinal, prospective studies should be conducted to clarify these issues. As mentioned before, different concepts have been used to assess psychological effects of falling.[5] This may be troubling, but there may be also confusion about the meaning of the different constructs and how they can be measured accurately.[5] Studies investigating theoretical aspects of psychological consequences of falling that can identify most clinically important constructs are valuable and should contribute to the selection of an instrument that would be sensitive to change for use in intervention trials.[5] This can support a comprehensive understanding of the physical, psychological and functional influences on fear of falling. Further research can also contribute to further psychometric soundness of self-perceived instruments measuring the fear itself like the VAS-FOF. The natural course of fear of falling, its possible subtypes and the sensitivity to change of the VAS-FOF can be goals for further studies. The identification of appropriate fear of falling measurement strategies for older persons in general, but also for older adults with special needs, such as communication problems, cognitive impairment, and its meaning in diverse cultural backgrounds, is an area with substantial research deficit in which research needs to be focused. Further studies are needed to determine whether efforts aimed at primary prevention, self-maintenance and independence, as well as secondary prevention efforts, can be useful in reducing adverse outcomes. In addition, studies should focus on recruitment of older persons and on retaining them in studies. Nursing research can add significantly in this area of research. Nursing professionals working in clinical practice, but who are also involved in the field of research and in the education of students at nursing schools can bridge the gap between nursing practice, research and education. To achieve this and to provide good nursing care, an extensive 'nursing body of knowledge' is necessary.[58] However, in the Netherlands, the development of this body of knowledge seems to be stagnating, compared to the Scandinavian countries or other EU countries. This is partly caused by a poor infrastructure at nursing schools and universities for developing a body of knowledge, little attention for the knowledge and preferences of patients and a lack of finances for improving and

implementation of quality of care.[58] At this moment, there is still little scientific evidence for nursing care and further development of this evidence is necessary, with special focus on early detection and prevention. Health problems like dementia, mobility disorders, delirium, incontinence, pain, malnutrition and self-management of patients should be the focus of research, as was stated by the Scientific Commission of a large nursing organization in the Netherlands: Verpleegkundigen en Verzorgenden Nederland. An extensive nursing body of knowledge can be achieved by acting on the following activities: experiences of nurses and of patients in the field of health problems made available in publications, making scientific knowledge on the effectiveness of nursing care be the focus of the development of nursing guidelines and making finances for nurses to improve their nursing skills available.[58] These activities are mandatory to make it possible for nurses to contribute significantly to the quality of Dutch healthcare.

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