

Perceptions of the scope of practice of nurse practitioners caring for older adults: level of agreement among different healthcare providers

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Background: Globally, new nurse practitioner roles have been introduced into interdisciplinary teams. Research indicates that agreement among the different healthcare providers regarding one another's role and scope of practice is important for establishing interdisciplinary teamwork. Lack of agreement regarding a new nurse practitioner's scope of practice may hinder collaboration.

Aim: To investigate the level of agreement among advanced geriatric nurses (AGNs), their colleagues and their leaders regarding which activities related to direct and indirect care, teaching/supervision, coordination and research and development work are perceived as appropriate for AGNs.

Design: A cross-sectional descriptive survey.

Methods: The total population of AGNs in Norway ($n = 26$) and a sample of their colleagues, including leaders ($n = 465$), were invited to answer an online questionnaire. Twenty-three (88.5%) AGNs and 195 (42%) colleagues answered the questionnaires. A series of cross-tabulations were conducted to identify the respondents reporting on the appropriateness of different activities.

Results: The respondents identified all of the activities related to coordination, teaching/supervision and research and development work as appropriate for AGNs. Although the respondents considered several of the direct and indirect care activities as appropriate, there were conflicting views on the activities that traditionally fall within the medical field vs. those that traditionally fall within the nursing field. The AGNs saw most of the nursing and medical activities as appropriate, but their colleagues and leaders saw only some of the nursing activities as appropriate. The results also showed that there was high disagreement among the leaders regarding appropriate activities.

Conclusion: The results indicate that healthcare providers agree on which activities related to teaching/supervision, coordination, and research and development work are appropriate to include in AGNs' scope of practice, but that there are conflicting views regarding activities related to direct and indirect care.

Keywords: advanced nursing practice, advanced practice, nurse practitioners, quantitative approaches, scope of practice, survey designs, teamwork.

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Introduction

The increasing complexity of the knowledge and skills needed to provide comprehensive care to frail older adults has resulted in no single healthcare provider being able to fulfil these needs (1). The World Health Organisation (WHO) emphasises how crucial it is for healthcare providers caring for older adults to collaborate in

interdisciplinary teams in order to provide the best possible patient care (2) and coordinate care services (3). Interdisciplinary collaboration in teams has proven challenging (1,4,5), and there is often poor communication among healthcare providers about the care being provided to older adults (6,7). One prerequisite for collaboration is that the different healthcare providers in the team have knowledge of and confidence in one another's competence (4,5,8,9). Another prerequisite is an agreement among the healthcare providers regarding their various roles and scopes of practice (5,8,10).

Several countries have introduced new nurse practitioner roles into interdisciplinary teams to improve access

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to person-centred care and to improve quality of care by allowing for more intensive follow-up and better coordination of the care provided to older adults (11,12). The introduction of a nurse practitioner into a team involves rethinking the collaborators' roles – failure to reassess roles can result in overlaps, redundancies, frustrations (8) and collaboration problems due to unclear role definitions (13). There is strong evidence supporting the need to agree on the role and scope of practice of each member of an interdisciplinary team (8,14,15). Disagreement about a new nurse practitioner's scope of practice can lead to tension and uncertainty about who should perform a given activity (8,14,16), causing healthcare providers to perceive one another as competitors instead of collaborators (16). Unclear roles and scopes of practice or disagreement within a team can negatively affect the integration of nurse practitioners (14). Hence, introducing nurse practitioners into a team must be closely monitored to ensure that the level of agreement among the healthcare providers is high. The current study follows the introduction of the first nurse practitioners in Norway, here labelled 'advanced geriatric nurses (AGNs)'.

Background

The goal of interdisciplinary teamwork is to achieve a dynamic process in which all members of a healthcare team – professionals and nonprofessionals who have complementary educations and fulfil complementary roles – work together to make full use of one another's expertise, knowledge and skills in order to positively impact patient care (1,10,17). In Norway, the teams caring for older adults, which the AGNs are a part of, include a range of practitioners: leaders, physicians, occupational therapists, physical therapists, specialist nurses, registered nurses, auxiliary nurses, assistants and executive officers. The healthcare providers work at different system levels and have different educational backgrounds, which ensures that a variety of skills are available within a team to meet the complex healthcare needs of older adults.

Researchers have highlighted that support from leaders at different hierarchical levels is vital in the establishment of new nurse practitioner roles in interdisciplinary teams (18–20). The leaders are in a position to accommodate nurse practitioner roles in a way that enables the optimal utilisation of the nurses' knowledge and skills (8,14,21,22). Researchers have also shown that leaders play an important role in redesigning activity distribution and establishing new routines when a new nurse practitioner role is introduced into an interdisciplinary team (20).

With many countries undergoing reforms to reduce costs while improving the access to and quality of care, both the role and the scope of practice of nurses working

in interdisciplinary teams have been extended (11,12). The nurse practitioner role is internationally the most common advanced role for nurses (23,24). Their responsibilities are primarily associated with direct and indirect care, but they also engage in teaching/supervision, coordination and research and development work (25–29). The advancement of nursing roles has been accompanied by nurses assuming new types of activities, which often overlap with activities traditionally performed by physicians, such as (independently or under the supervision of a physician) prescribing medication, diagnosing, ordering diagnostic tests and referring patients within the healthcare system (11–12,30). These activities vary among countries, as every country has its own education, licensing and credential requirements (11–12,24). However, these activities can also vary within a country if the regulations are not nationally recognised (23). AGNs practising in the Norwegian healthcare system do not formally have the authority to perform the medical activities described above, and similar restrictions in performing medical activities can be found in several countries where the nurse practitioner role has been newly introduced (30).

Healthcare providers often have different perceptions of nurse practitioners' education and scope of practice, but the specific differences between these perceptions are rarely discussed in the literature (8,13,31–33). Furthermore, the literature on healthcare providers' perceptions of what is appropriate to include in a nurse practitioner's scope of practice is scarce. Therefore, this study provides insight about the perceptions nurse practitioners, their colleagues and their leaders have about a nurse practitioner's scope of practice.

Aim

The aim of this study is to investigate the level of agreement among AGNs, their colleagues and their leaders regarding which activities related to direct and indirect care, teaching/supervision, coordination and research and development work are perceived as appropriate for AGNs. The specific research question is as follows:

- What are the similarities and differences between AGNs, their colleagues and their leaders regarding which activities related to different functions they see as appropriate for AGNs?

Methods

Design

This study used a cross-sectional descriptive survey design (34). The STROBE guidelines were used to report the results (see File S1).

Recruitment and sample

In Norway, there are only 26 AGNs, as the master's degree programme in advanced practice nursing is a rather new form of education (see (35)). In the autumn of 2017, an invitation to participate in this study was sent out by email to the entire AGN population in Norway. The AGNs were asked to provide contact information for their workplaces and leaders so that a formal enquiry to recruit a sample of 30 colleagues, including leaders, to answer questionnaires could be sent. One AGN declined to participate in the study before receiving the questionnaire, and another AGN agreed to be sent the questionnaire but did not provide the requested information. Of the 24 AGNs that provided the requested information, 21 were working in clinical positions at 19 different workplaces. The remaining three AGNs were involved in research or teaching in nursing educational programmes; however, these AGNs had worked in clinical settings after graduating with a master's degree in advanced practice nursing. These three AGNs were included in the current study, but former colleagues from their clinical practice were not invited to participate. The leaders of the AGNs who worked in clinical positions were emailed the formal enquiry, which included the following inclusion criteria:

- Colleagues must be involved in the care of older adults in the municipality/institution where the AGN works.
- The sample should include participants from all system levels and with different job titles.
- A minimum of one to two persons from all healthcare providers involved in the care of older adults at the workplace should be represented.

The inclusion criteria were developed to ensure that the sample included participants from all healthcare provider groups involved in the care of older adults: leaders, physicians, occupational therapists, physical therapists, specialist nurses, registered nurses, auxiliary nurses, assistants and executive officers. Sixteen leaders agreed to collect email addresses from 30 people who were willing to answer our questionnaire (the recruiting leaders were informed that they could also include their own email address on the list). In total, 465 email addresses were collected.

Data collection

In early January of 2018, the first author emailed the online questionnaires to 25 AGNs and 465 other healthcare providers who were willing to answer a questionnaire. The data collection lasted through March of 2018 and included a total of three follow-up emails. Few participants answered the questionnaire before the third

follow-up email was sent out. When the final follow-up email was sent, the recruiting leaders and the AGNs who worked in the same unit as the recruiters were asked to remind the colleagues to respond.

The questionnaires. A thorough literature search did not yield an existing psychometric questionnaire that could be used to collect data for this study. Therefore, the research team developed two questionnaires: one for the AGNs and one for their colleagues and leaders. The questions in the questionnaires were equivalent, but the wording differed depending on the response group.

The questionnaires were divided into three sections. The first section of the questionnaires covered the respondents' gender, age, type of work organisation, job title and years worked in their current position. The AGNs not currently in clinical positions were asked to fill out the questionnaire based on their clinical experience after graduation and the job title they had in that position. The second section of the questionnaires covered the perceived appropriateness of AGNs performing activities related to different functions, along with questions measuring perceptions of the AGNs' use of knowledge and skills related to different functions. The third section covered the integration of AGNs into healthcare settings. The present study has included data from the first and second sections of the questionnaires. The second section asked whether different activities related to different functions were appropriate or inappropriate for AGNs to carry out. The included functions with activities were based upon relevant literature (12,25–28,36–42) as well as previous qualitative interviews with the AGNs (21). Especially, experiences from Scandinavian countries were important in the development of the questionnaires (38–42), as Scandinavian countries have similar healthcare systems with similar nursing scope of practice regulations. The reports from the Scandinavian countries suggested that there is a need for nurses with advanced knowledge and skills to carry out activities related to direct and indirect care, teaching/supervision, coordination and research and development work. After the literature review, a total of 49 activities related to the following five functions were included in the questionnaires:

- Direct care: nursing care for and in the presence of a particular patient, including the guidance/teaching of patients and next of kin (20 activities, Tables 2 and 3).
- Indirect care: nursing care performed away from a patient but for a particular patient, including delegated medical activities (18 activities, Tables 2 and 3).
- Teaching/supervision: teaching and supervision of colleagues and nursing students (five activities, Table 2).
- Coordination: coordination of collaboration within and outside the organisation of employment (two activities, Table 2).

- Research and development work: activities associated with participation in research and development work (four activities, Table 2).

The questionnaires were reviewed by the research team for content and face validity. In addition, they were tested by two AGNs, one leader, one physician, one registered nurse, one auxiliary nurse and one assistant. The testers provided feedback on whether the included activities related to the different functions were appropriate, relevant and comprehensible. The testers were also asked to provide feedback on whether any relevant activities were missing. The validation process is described in detail elsewhere (35) because the questionnaires were used to collect data for another study. The data were not reused because the current study's data originated from different questions with a different focus.

Data analysis

There were no missing data because the respondents had to answer all the questions in order to submit the questionnaires online. All the returned questionnaires were therefore included in the analysis. The first author inspected the data for errors or irregularities before the data were analysed with R version 3.4.4 (43). All the variables were categorical except for two demographic variables – 'age' and 'worked in current position', which were continuous. A descriptive data analysis was performed by calculating the mean and the standard deviation (*SD*) for the continuous variables and the frequency and percentage distribution for the categorical variables.

Consistent with previous research (14,22), the AGNs expressed in a qualitative study that their leaders were in a position to customise the AGNs' positions (21). The leaders were therefore separated from the AGNs' other colleagues in order to distinguish between the two groups' perceptions.

Consensus criteria were established in order to evaluate the level of agreement among the different groups of respondents with regard to whether an activity was considered appropriate for AGNs. Consensus among the AGNs, their colleagues and their leaders was defined as at least 75% of the AGNs, 75% of their colleagues and 75% of their leaders responding that an activity was appropriate. Consensus within one of the specific groups was defined as at least 75% of the respondents within that group confirming that an activity was appropriate. The consensus criteria were based on what is used in Delphi studies to confirm agreement between members of a group (44,45).

A series of cross-tabulations was conducted to assess which of the activities the AGNs, their colleagues and their leaders agreed were appropriate for the AGNs – and which of the activities they had conflicting views about.

This analysis indicated the scope of practice the AGNs, their colleagues and their leaders deemed appropriate.

Results

The questionnaires were answered by 23 (88.5%) AGNs and 195 (42%) colleagues, including leaders. Table 1 presents the demographic details and work characteristics of the respondents. A large proportion of the respondents were female ($n = 196$, 89.9%), aged 40 years or over ($n = 137$, 62.8%) and working in primary care ($n = 206$, 94.5%).

Activities related to different functions that the AGNs, their colleagues and their leaders deemed to be appropriate

The activities that the AGNs, their colleagues and their leaders saw as appropriate for AGNs are shown in Table 2. The analysis revealed that these activities constituted just over one half of all the activities in the questionnaires. A more detailed analysis showed that all the activities related to teaching/supervision, coordination and research and development work; just under one half of the direct care activities; and one-third of the indirect

Table 1 Respondents' demographic and work characteristics ($n = 218$).

Variables	AGNs ($n = 23$)	Colleagues ($n = 157$)	Leaders ($n = 38$)
Gender			
Female	21 (91.3)	140 (89.2)	35 (91.3)
Male	2 (8.7)	17 (10.8)	3 (8.7)
Age [years]	45.4 [9.4]	43.2 [11.8]	48.8 [8.9]
Type of work organisation			
Primary care	21 (91.3)	149 (94.9)	36 (94.7)
Hospital care	2 (8.7)	8 (5.1)	2 (5.3)
Job title			
Leader	1 (4.4)		38 (19.5)
Physician		5 (2.6)	
AGN	9 (39.1)		
Specialist nurse	8 (34.8)	3 (1.5)	
Registered nurse	5 (21.7)	64 (32.8)	
Occupational therapist		18 (9.2)	
Physical therapist		10 (5.1)	
Auxiliary nurse		30 (15.4)	
Assistant		7 (3.6)	
Executive officer		10 (5.1)	
Other		10 (5.1)	
Worked in current position [years] ^a	7.8 [7.7]	6.5 [6.8]	6.3 [5.4]

Values are expressed as mean [*SD*] or n (%).

^aThe AGNs' work experience ranges from 1 to 27 years, colleagues from 0 to 37 years and leaders from 1 to 23 years. The range explains why the *SD* is larger than the average number of years the colleagues had worked in their current positions.

Table 2 Activities that the AGNs, their colleagues and their leaders deemed appropriate for AGNs ($n = 218$).

Activities deemed appropriate for AGNs	AGNs ($n = 23$)	Colleagues ($n = 157$)	Leaders ($n = 38$)
Related to direct care			
Provision of nursing care for patients suffering from an acute health condition/illness	23 (100)	147 (93.6)	32 (84.2)
Provision of nursing care for patients suffering from a subacute health condition/illness	23 (100)	147 (93.6)	34 (89.5)
Provide nursing care for patients with impaired cognitive impairment	23 (100)	134 (85.4)	32 (84.2)
Provide nursing care for chronically ill patients	23 (100)	137 (87.3)	32 (84.2)
Survey patients for risk factors and early signs of disease	23 (100)	151 (96.2)	37 (97.4)
Systematic clinical examination (inspection, palpation, percussion and auscultation)	21 (91.3)	135 (86)	30 (78.9)
Systematic gathering of medical history	21 (91.3)	145 (92.4)	36 (94.7)
Patient guidance/teaching	23 (100)	145 (92.4)	32 (84.2)
Next of kin guidance/teaching	23 (100)	138 (87.9)	32 (84.2)
Related to indirect care			
Helping patients use their right to participate in decisions regarding their own care	21 (91.3)	136 (86.6)	32 (84.2)
Referring patients across service levels (e.g. from primary care to hospitals)	19 (82.6)	135 (86)	33 (86.8)
Referring patients within service levels (e.g. from home care to nursing home)	22 (95.7)	126 (80.3)	29 (76.3)
Use eHealth and care technology	21 (91.3)	124 (79)	32 (84.2)
Perform drug review in collaboration with the patient's physician	19 (82.6)	136 (86.6)	31 (81.6)
Evaluation of patient services	22 (95.7)	135 (86)	35 (92.1)
Related to teaching/supervision			
Teaching colleagues a fixed subject	22 (95.7)	152 (96.8)	38 (100)
Supervise colleagues in specific patient situations	22 (95.7)	151 (96.2)	38 (100)
Supervise nursing students	18 (78.3)	131 (83.4)	32 (84.2)
Supervise nurses who are taking a master's degree or further education in nursing	23 (100)	146 (93)	33 (86.8)
Other types of teaching/supervision functions	22 (95.7)	145 (92.4)	34 (89.5)
Related to coordination			
Coordinate collaboration outside of the organisation	21 (91.3)	135 (86)	31 (81.6)
Coordinate collaboration within the organisation	21 (91.3)	140 (89.2)	33 (86.8)
Related to research and development work			
Participate in research projects	23 (100)	144 (91.7)	32 (84.2)
Work in committees/project groups	21 (91.3)	137 (87.3)	29 (76.3)
Contribute to that routines and procedures are consistent with laws, rules and guidelines	18 (78.3)	137 (87.3)	35 (92.1)
Survey domains/activities where there is a need for increased competence	20 (87)	141 (89.8)	34 (89.5)

Values are expressed as n (%). The table only presents the frequency count of those who responded, 'The activity is appropriate'; the rest of the respondents replied, 'The activity is inappropriate'.

care activities were seen as appropriate by all three groups. Of the direct and indirect care activities that were agreed upon, most fell within the traditional scope of nursing. However, the respondents also agreed that some activities not traditionally in the nursing field, such as systematically gathering medical history and referring patients within and across service levels, were appropriate for AGNs.

Activities related to different functions on which the AGNs, their colleagues and their leaders had conflicting views

The AGNs, their colleagues and their leaders had conflicting views on the appropriateness of several of the activities related to direct and indirect care (Table 3). In

addition to the activities that all three groups deemed appropriate, the AGNs reported that over two-thirds of the remaining activities were also appropriate. A more detailed analysis has shown that one half of the activities were related to direct care and the other half to indirect care. A large proportion of the activities that the AGNs saw as appropriate have traditionally belonged to the medical field with the rest pertaining to the nursing field. The activities that the AGNs did not see as appropriate fell mainly in the medical field, the exception being providing nursing care for patients with psychiatric disorders.

The AGNs' colleagues felt that just under one-fourth of the remaining activities were appropriate for the AGNs. All these activities were also seen as appropriate by the

Table 3 Activities that the AGNs, their colleagues and their leaders have conflicting views regarding appropriateness ($n = 218$)

Activities with conflicting views	AGNs ($n = 23$)	Colleagues ($n = 157$)	Leaders ($n = 38$)
Related to direct care			
Provide nursing care for patients with a psychiatric disorder	17 (73.9)	107 (68.2)	24 (63.2)
Provide nursing care for rehabilitation patients	23 (100)	122 (77.7)	20 (52.6)
Provide nursing care for patients in the palliative phase	19 (82.6)	123 (78.3)	23 (60.5)
Provide nursing care for patients who have wounds	18 (78.3)	108 (68.8)	18 (47.4)
Perform life story interviews and incorporate it in patient treatment	20 (87)	107 (68.2)	15 (39.5)
Echocardiography	13 (56.5)	92 (58.6)	19 (50)
Blood sample collection	20 (87.0)	101 (64.3)	20 (52.6)
Blood gas sample collection	13 (56.5)	86 (54.8)	14 (36.8)
Insert nutritional probe	18 (78.3)	110 (70.1)	27 (71.1)
Insert a permanent catheter	22 (95.7)	108 (68.8)	25 (65.8)
Manage intravenous fluid treatment	20 (87)	119 (75.8)	26 (68.4)
Related to indirect care			
Planning and documenting care and follow-up of patient treatment	16 (69.6)	110 (70.1)	18 (47.4)
Discharge patients from hospitals	8 (34.8)	68 (43.3)	7 (18.4)
Discharge patients from primary care	16 (69.6)	92 (58.6)	19 (50)
Prescribe and assess haemoglobin	23 (100)	118 (75.2)	27 (71.1)
Prescribe and assess C-reactive protein	23 (100)	119 (75.8)	26 (68.4)
Prescribe and assess other blood samples	22 (95.7)	100 (63.7)	24 (63.2)
Prescribe and assess bladder scanning	23 (100)	115 (73.2)	30 (78.9)
Prescribe fluid treatment	19 (82.6)	100 (63.7)	23 (60.5)
Prescribe X-ray	19 (82.6)	78 (49.7)	18 (47.4)
Prescribe ultrasound	15 (65.2)	70 (44.6)	18 (47.4)
Prescribe and order medical supplies	21 (91.3)	96 (61.1)	20 (52.6)
Prescribe a pre-agreed selection of drugs	19 (82.6)	92 (58.6)	21 (55.3)

Values are expressed as n (%). The table only presents the frequency count of those who responded, 'The activity is appropriate'; the rest of the respondents replied, 'The activity is inappropriate'.

AGNs but not by the leaders. The leaders only felt that 'prescribe and assess bladder scanning' was appropriate for the AGNs. This activity was also seen as appropriate by the AGNs but not by their colleagues. The activities that colleagues and leaders felt were appropriate were all typical nursing duties. Overall, the views of the colleague group and the leader group regarding activities that are normally considered to be within the medical field were conflicting.

Discussion

Activities related to different functions viewed as appropriate for AGNs

The AGNs, their colleagues and their leaders agreed that several activities related to different functions were appropriate to include in the AGNs' scope of practice. With regard to the teaching/supervision and coordination functions, all three groups deemed the activities to be appropriate. The results indicated that the colleagues and leaders saw AGNs as suitable teachers/supervisors who are capable of supporting knowledge and skill-development in the workplace. This is highly relevant for

primary healthcare in Norway, as an earlier Norwegian study (46) reported a lack of knowledge among healthcare workers regarding the care of older adults. The AGNs also felt that teaching/supervision functions were appropriate. Previous research has shown that master's programmes in advanced practice nursing can give the graduates a sense of confidence to do their jobs, as the graduates have increased knowledge and skills (47). One interpretation of why the AGNs saw the teaching/supervision function as appropriate for them could be that their education gave them the confidence to teach and supervise others. The results also indicated that both the colleagues and leaders felt AGNs could lead interdisciplinary teams and coordinate the care provided to older adults. The AGNs also saw themselves as coordinators. Healthcare providers caring for older adults seldom communicate with each other (7), which can lead to misunderstandings, unnecessary repetitions of patient assessments and poor information flow between healthcare providers who are caring for the same patient. Recognising that AGNs can be coordinators may be understood as a recognition of the need for a person to coordinate collaboration and follow-up in care of older adults. Internationally, coordinating patient care is a

common function for nurse practitioners (11,26,27). Henni et al. (35) argued that AGNs were not satisfactorily integrated in Norway regarding this function.

Previous research has found that nurse practitioners spend only a small portion of their time on research activities (26,28,29). In this study, however, the AGNs, their colleagues and their leaders saw activities related to research and development work as appropriate for AGNs. The results indicated that the AGNs felt confident about engaging in research and development work, and that all three groups considered research and development work to be an important function for AGNs to perform.

Activities related to different functions of AGNs with conflicting views

Driscoll et al. (48) found that regulations and guidelines can assist nurse practitioners in defining their scope of practice and facilitate the development of practice models at their workplaces. There are no national regulations or guidelines governing the role of nurse practitioners in Norway. A lack of regulations may lead to AGNs being assigned various types of activities (nursing activities, medical activities, etc.) at different workplaces, as found internationally (12,22). In the absence of regulations, it is reasonable to presume that the colleagues' and leaders' views of relevant activities are affected by whether the AGN in their workplace already performs the activity. Therefore, a lack of regulations might explain why the results showed conflicting views between the AGNs, their colleagues and their leaders with regard to some of the activities related to medical and nursing activities.

The medical activities for which the views were conflicting fall within a traditional scope of practice of a physician in Norway. The addition of medical activities to the AGNs' scope of practice may therefore be perceived as competing with the physicians' scope of practice. Internationally and in Norway, there have been public discussions about whether nurse practitioners' scope of practice should include medical activities that are traditionally within the field of physicians (49). Inclusion of these activities to AGNs' scope of practice represents a change in the care provided to older adults, and it might take time to be realised in practice (50). The conflicting views on the medical activities of AGNs may therefore also be explained by the potential change that AGNs represent.

Another possible explanation for the conflicting views on what activities are appropriate for AGNs might be the lack of knowledge other healthcare providers' have about what the education of AGNs actually entails. Previous research has shown that colleagues of newly introduced nurse practitioners are in need of more knowledge about nurse practitioners' education (51). New nursing roles can be difficult to define and explain to others (52). The

other publication from this data set (35) found that the majority of colleagues and leaders reported that the information provided at the workplace about AGNs' role and scope of practice was not sufficient and that the AGNs' scope of practise was not completely clear. Therefore, it seems that the responses to the question of what activities are appropriate for AGNs were the result what is inaccurately thought to be appropriate for an AGN and not what can actually be expected based on the AGNs' education. Lack of knowledge about the AGNs' education among the healthcare providers may therefore be a reason for the conflicting views rather than resistance to transfer medical activities to the AGNs.

Some of the activities about which there were conflicting views were those normally performed by registered nurses in Norway after completing basic nursing education. There were also conflicting views regarding some of the direct care activities within broader patient situations where they may need to perform several activities. These direct care activities are related to several fields and can be performed by several types of healthcare providers, which may lead to confusion and thus different interpretations. Since some of the activities can be performed by several types of healthcare providers, some healthcare providers will not see these activities as appropriate for AGNs because they see them as appropriate for themselves. The present researchers' interpretation aligns with Lovink et al. (16), who also observed that in primary healthcare for older adults, different healthcare providers perform the same activities.

The leaders were further from reaching an agreement on most activities compared to the colleague group and the AGN group, meaning that there was disagreement within the leader group regarding which activities were appropriate for AGNs. One interpretation may be that there were different views among leaders because leaders in healthcare can have different types of education and positions at different levels in the healthcare organisation. There is no requirement for leaders in the Norwegian healthcare system to have a healthcare-focused education. Leaders' perceptions are important because it is they who are in the position to assign nurse practitioners to a role that enables the nurses' proper utilisation of their knowledge and skills (8,14,21,22). When leaders' perceptions differ from those of the AGNs and their colleagues, they may place AGNs in roles that other healthcare providers do not agree with, which can cause conflict. Therefore, it is reasonable to believe that the challenges associated with the establishment of interdisciplinary collaboration may increase when leaders' perceptions differ from the rest of the team. As can be seen, there is a need to further examine how to establish agreement in interdisciplinary teams where the leaders and other healthcare providers have conflicting views on AGNs' scope of practice.

Methodological considerations

It is uncertain whether the recruiters followed the inclusion criteria. As reported in Henni et al. (35), there is no way of knowing whether this study's sample represents the total population of AGNs' colleagues and leaders because fewer persons than expected were recruited, and less than one half of the recruited persons answered the questionnaire. Furthermore, the low number of respondents from some of the occupational groups made it impossible to examine whether there were different views between the occupational groups.

Another limitation is that it is possible to interpret the activity questions in the questionnaires in at least two different ways. One interpretation may be that the respondents based their answers on their considerations of whether the AGNs were capable of performing the activities based on their perceptions of the AGNs' knowledge and skills. Another interpretation is that the respondents based their answers on their perceptions of whether there was a need for a person to perform the activities at the workplace and whether they perceived the AGNs to be the suitable person. Furthermore, some of the activity questions regarded specific activities, whereas others were descriptions of patient situations where it may have been appropriate to perform several activities. The patient situations with a broad scope may have led to some colleagues and leaders answering that the patient situations were not appropriate for AGNs because they did not want the AGNs to 'own' these situations and exclude other healthcare providers from participating.

Conclusion

This study shows that there is a need to develop regulation of the AGNs' scope of practice that is based on identified needs in the healthcare service. Regulating AGNs' scope of practice could help healthcare providers who care for older adults better understand what activities AGNs are able to perform. Based on previous research (8,14–16), it is important to develop a set of regulations that contribute to a common understanding among all of the members of an interdisciplinary team. This study has shown that healthcare providers agree on which activities related to teaching/supervision, coordination and research and development work are appropriate to

include in the AGNs' scope of practice. However, they had conflicting views on the activities within the traditional medical field and on some activities within the nursing field related to direct and indirect care. Based on previous research (5,8,10), it is reasonable to presume that these conflicting views adversely affect the interdisciplinary collaboration associated with the direct and indirect care functions.

The Norwegian Directorate of Health is working to develop regulations for nurse practitioners in Norway. Further research should investigate whether these regulations lead to a role and scope of practice that help to meet the needs of older adults and are considered appropriate by all members of an interdisciplinary team.

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Conflict of interest

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Author contributions

SHH, MK, KA and CF involved in study design; SHH, MK, KA and CF involved in data analysis and interpretation of data; and SHH, MK, KA and CF involved in manuscript preparation.

Ethical considerations

Participation in the study was voluntary. The respondents did not sign a written consent form, but submission of the questionnaires was considered to be consent. The Norwegian Centre for Research Data assessed and recommended the study (project number: 46618).

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