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# Attitudes towards advanced nursing roles in primary dementia care – Results of an observational study in Germany

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## Abstract

**Aims:** To demonstrate the attitudes of general practitioners (GPs), nurses, persons with dementia, and caregiver towards suitable tasks and qualification needs for and the acceptance and impact of advanced nursing roles in German dementia primary care.

**Design:** Observational study using a questionnaire survey with 225 GPs, 232 nurses, 211 persons with dementia, and 197 caregivers, conducted between December 2017–August 2018.

**Methods:** A questionnaire was generated that includes specific assessment, prescription, and monitoring tasks of advanced nursing roles in dementia primary care as well as qualification requirements for and the acceptance and the impact of advanced nursing roles. Data were analysed using descriptive statistics. Group differences were assessed using the Fisher's exact test.

**Results:** Advanced nursing roles were highly appreciated across all groups. Assessment and monitoring tasks were rated as highly suitable, and prescription authorities as moderately suitable. Nurses felt less confident in assessment and monitoring, but more confident in prescribing as practitioners expected. Patients and caregivers would appreciate a takeover of tasks by nurses; nurses and practitioners preferred a delegation. A dementia-specific qualification was rated as best suitable for advanced nursing roles, followed by 'no specific qualification' if medical tasks that only can be carried out by practitioners were delegated and an academic degree if tasks were substituted. Advanced nursing roles were rated as beneficial, strengthening the confidence in nursing care and improving the cooperation between professionals and the treatment. Practitioners assumed that advanced nursing roles would improve job satisfaction of nurses, which was not confirmed by nurses.

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**Conclusion:** There is an extended consensus towards the enlargement of advanced nursing roles, represented by high endorsement, acceptance, and willingness to reorganize tasks.

**Impact:** Results debunk the common notion that German practitioners would be reluctant towards advanced nursing roles and a takeover of current practitioner tasks, supporting the implementation of advanced nursing roles in Germany.

**KEYWORDS**

advanced nursing practice, advanced nursing roles, Alzheimer's, collaborative care, delegation, dementia, general practitioner, nursing, substitution, tasks

## 1 | INTRODUCTION

The demographic change is characterized by an increase in life expectancy and age-associated illnesses, such as dementia (Alzheimer's Disease International, 2015). Currently, nearly 50 million people are living with dementia (PwD) worldwide. According to current estimates, this number will increase to more than 130 million PwD in 2050. The increasing number of PwD represents a huge social and economic burden (Alzheimer's Disease International, 2015; Michalowsky, Kaczynski, et al., 2019; Prince et al., 2015,2016; Wimo et al., 2017).

The adherence to dementia guidelines is currently poor despite existing evidence that recommended treatments can improve symptoms and delay the progression of dementia (Arlt et al., 2008; Smith et al., 2017). Overall, 99% of PwD and 97% of their caregivers have at least one or more unmet healthcare needs, representing an underserved situation (Black et al., 2013). Several countries have introduced strategies to overcome these challenges (Prince et al., 2016). Collaborative care models emerged as a potential solution to improve postdiagnostic management and support (Austrom et al., 2016; Galvin et al., 2014; Reilly et al., 2015; Somme et al., 2012). These programs are delivered in the community, aiming to assess patients' individual unmet needs more comprehensively and to initiate and coordinate individualized treatment and care (Applebaum & Phillips, 1990). Studies confirmed that these models of care could improve patients' and caregivers' outcomes (Reilly et al., 2015) and reduce healthcare costs for public payers (Michalowsky, Xie, Kilimann, et al., 2019).

In most cases, nurses working in close cooperation with general practitioners (GPs) represent the central component of such collaborative care models. Nurses are often much closer to the patients' homes than GPs, seeing the patient more frequently greedy and have a clear understanding of person-centred care, which is especially important for PwD because of the clinical manifestations of the disease (Dreier-Wolfgramm et al., 2017). In times of an increasing number of PwD, an existing need for individualized person-centred care, and a lack of access to adequate health care, the concept of advanced nursing practice (ANP) expands the roles and tasks of nurses to optimize treatment and care and thus, patients' outcomes (Bryant-Lukosius & Dicenso, 2004; Bryant-Lukosius et al., 2004; Sastre-Fullana et al., 2014; Schober et al., 2008).

### 1.1 | Background

Advanced nursing practice roles were implemented in several countries many years ago. Nurse practitioners are practicing in Canada (Ontario) since the 1960s, although they were not legalized until 1998 (Delamaire, 2010). The nurse practitioners could order diagnostic tests, diagnose, and prescribe medications, which were far beyond the scope of non-physicians in those days. In the United Kingdom, the role of ANP is represented by ANP, initially implemented in 1991 and has developed over the last decades, leading to prescriptive authority and autonomous working (Morgan et al., 2012; Pulcini et al., 2010; Sheer & Wong, 2008). There are many more examples of ANP roles in different countries and care settings. All of them represent new roles for nurses, despite the fact that the range of competences and degree of autonomy vary substantially (Aiken et al., 2016; Bryant-Lukosius & Dicenso, 2004; Bryant-Lukosius et al., 2004; Buchan & Calman, 2005; Delamaire, 2010; Hallberg et al., 2016; Horrocks et al., 2002; Kajander-Unkuri et al., 2014; Lenz et al., 2004; Mundinger et al., 2000; Pulcini et al., 2010; Sastre-Fullana et al., 2014; Satu et al., 2013).

Karimi-Shahanjarini et al. revealed that patients, GPs, and nurses may accept the nurses to deliver services that are usually delivered by GPs and that the acceptance likely depends on the type of services. However, nurses taking on extra tasks want respect and collaboration from the GPs, proper resources, clear roles, adequate incentives, and qualification. Not all of these needs are always met (Karimi-Shahanjarini et al., 2019). But advancing nursing roles would be very useful. Laurent et al. concluded that the delivery of primary healthcare services by nurses instead of doctors probably provide equal or possibly even better quality of care compared with GPs and achieve equal or better health outcomes for patients and higher levels of patient satisfaction (Laurant et al., 2018).

Contrary to this, ANP does not exist in Germany today. There was a lack of need for ANP models due to an oversupply of GPs and

specialists (Sheer & Wong, 2008). However, different initiatives tried to promote the development of structures for the implementation of ANP models (Jeschke, 2010; Lehwaldt, 2013; Robinson, 2007; Sachverständigenrat zur Begutachtung der Entwicklung im Gesundheitswesen, 2007; Ullmann, 2013). However, and besides these efforts, there is no legislative framework to practice APN in Germany until now, excepting a few delegation concepts or ANP pilot projects that were evaluated under routine care conditions (Berg et al., 2009). None of those includes a fully autonomous work of nurses or major substitution of current GP tasks. Thus, the professional pathway for nurses was still based on a generic 1.5- or 3-year training to become a nursing assistant or nurse respectively. Therefore, until now, there is a lack of knowledge about the current attitudes of nurses, GPs and patients towards ANP roles in German dementia primary care.

## 2 | THE STUDY

### 2.1 | Aims

The objective of this study was to evaluate the current preferences of nurses, GPs patients concerning ANP roles regarding specific medical tasks carried out by practitioners that could be delegated to or substituted by nurses, as well as the acceptance, the impact, and the qualification requirements for conducting medical tasks in delegation or substitution by nurses.

### 2.2 | Design

The analysis was based on the AHeaD study (Future task-sharing of nurses and GPs in outpatient dementia care: tasks, acceptance, qualification), a mixed-method observational study initiated to identify how work processes and tasks in outpatient treatment and care of PwD and their caregivers can be reorganized and implemented. The AHeaD study covered the following three phases: (a) identification of ANP roles in dementia primary care; (b) quantitative interviews about preferences and attitudes of nurses, GPs, PwD, and caregivers towards ANP roles including the delegation and substitution of identified medical GP tasks; and (c) qualitative focus groups to consolidate the revealed results of the second study phase. This analysis will demonstrate the results of the first two study phases.

### 2.3 | Identification of advanced nursing roles in dementia primary care

For assessing specific ANP roles, the previously conducted DelpHi-MV trial (Dementia: life- and person-centred help in Mecklenburg-Western Pomerania) was used. DelpHi-MV was a GP-based, randomized, controlled interventional trial, which was designed to test the efficacy of a collaborative model of dementia care (Eichler, Thyrian, Dreier, et al., 2014; Thyrian et al., 2012).

The model of dementia care management was developed according to current guidelines, targeted at the individual participant level, and delivered in participants' homes by nurses with dementia-specific qualifications (Dreier et al., 2016). The care management was operationalized as a complex intervention aiming to assess individual unmet healthcare needs, to provide optimal treatment and care for PwD, and support to caregivers in close cooperation with the treating GP (Eichler, Thyrian, Dreier, et al., 2014). The dementia care management intervention turned out to be a safe, effective, and efficient care concept in dementia (Michalowsky, Xie, Eichler, et al., 2019; Thyrian et al., 2017).

Based on a comprehensive standardized assessment, nurses identified patients' and caregivers' unmet needs and matched those to a comprehensive list of intervention modules using a computerized intervention management system (Eichler, Thyrian, Fredrich, et al., 2014). Identified needs and suggested interventions were discussed face-to-face with the treating GP and finally operationalized in an intervention task list, representing all tasks needed to address the needs of PwD. Finally, nurses and GPs carried out those tasks in close cooperation.

Totally, 8,658 conducted tasks were documented within the intervention group of 284 PwD. Tasks could be categorizes as: assessments, nursing treatment and care, social counselling, information or advice, pharmaceutical treatment, cooperation with other health professionals, and prescriptions. These tasks and categories constitute the basis for the development of the quantitative questionnaires of the subsequent AHeaD study.

### 2.4 | Development of the questionnaires

To design the questionnaire, a systematic review was conducted, searching in the medical database PubMed for studies that focused on attitudes of GPs, nurses, and patients towards a redistribution of tasks or ANP roles, selecting quantitative and qualitative studies in German and English language published between 2007–2017. A total of 49 publications could be included in the review, retrieving in total 108 items that could be used to assess attitudes towards ANP roles. Items could be categorized as follows: qualification requirements (five items), acceptance (63 items), impact (27 items), and financial and structural implementation in the standard care (13 items). These domains complemented the formerly assessed medical tasks carried out by the GPs within the collaborative model of care of the DelpHi-MV trial, representing the following five domains of the questionnaires: (a) possible ANP tasks; (b) qualification requirements; (c) acceptance of ANP; (d) impact of ANP; and (e) financial and structural implementation. Respondents had to state whether:

1. The listed tasks could be taken over by the nurses in delegation, in substitution, or if these tasks are unsuitable to be carried out by nurses, either in delegation or substitution.
2. For tasks carried out in delegation or substitution, a) no additional qualification, a dementia-specific qualification, bachelor's, or master's degree is needed.
3. ANP would be associated with the following: strengthen confidence in nurses, trust in GPs and relationship between nurses and GPs, improve cooperation between nurses and GPs, improve treatment of PwD, relief GPs, improve job satisfaction for nurses and GPs, and reduce GP consultations.
4. ANP would change the current relationship between patients and GPs and whether or not the GP would remain the first contact and gatekeeper for patients.
5. They would agree to establish new financial, organizational, and legal structures needed to carry out ANP in Germany.

One questionnaire was developed for health professionals (nurses and GPs) and one simplified version for PwD and caregivers. The questionnaires are represented in the Supporting Information 1.

People are living with dementia completed the questionnaires via face-to-face interviews with dementia care nurses or employees of the dementia care networks, if possible, supported by their caregivers. All other participants (GPs, nurses, and caregivers) completed the questionnaire by themselves. Socio-demographic (age and gender) and, for PwD, clinical data (cognitive and functional impairment) were assessed as well. Furthermore, nurses and GPs were asked about their specialization, career, and their daily work with patients living with dementia. PwD and their relatives were furthermore asked to document what extent they completed the questionnaire on their own.

## 2.5 | Validity, reliability, and rigour of the developed questionnaire

All questionnaires were pre-tested in three survey waves with 11 GPs, 9 nurses, 10 PwD (living in nursing homes, had a mild dementia), and 11 caregivers. The aim was to evaluate the acceptance of the questionnaire (practicability), the understanding of the question and answer categories (comprehensibility), and the lack of important topics (completeness). The pre-tests were carried out by face-to-face interviews, using qualitative individual (PwD &caregivers) and focus group interviews (GPs &nurses). The GPs and nurses mentioned a reduction in size, various structural and linguistic changes, and the adaptation of response formats and changes to individual terms. The questionnaires of the PwD and caregivers have also been significantly reduced in size and linguistically further simplified. Finally, the questionnaires of the GPs and nurses consist of 67 and the questionnaire for PwD and caregiver consists of 37 items.

Subsequently, the developed questionnaires were used for the quantitative survey. After receiving the first 200 questionnaires, the acceptability and validity of the questioners were assessed. Missing values occurred less frequent (<9%), demonstrating a satisfactory acceptability of the questionnaire. Internal consistency of the subscales, assessed using Cronbach's alpha, was satisfactory (Cronbach's $\alpha > 0.70$). The convergent validity was assessed using Pearson's correlation coefficient by correlating similar items with each other. Moderate to strong correlations were observed between similar items with a Pearson's coefficient r ranging from 0.3-0.6 ($p < 0.001$; Hinkle, 2003).

## 2.6 | Participants

Home care services and GPs located in two states in the north-eastern part of Germany (Mecklenburg-Western Pomerania and Brandenburg) were informed about the study by phone or mail and invited to participate. PwD and caregivers were recruited using the DelpHi-MV study as well as different regional dementia care networks in Germany, that signed a co-operating agreement to recruit PwD and caregivers for this trial. Inclusion criteria for PwD were living in community-dwelling, being formally diagnosed with dementia, and mildly cognitively impaired to ensure that the patients could understand and respond to the questions. Participating caregivers must be the person principally involved in caring for the PwD. All participants gave their written consent to participate. If a PwD was not able to give written informed consent, his or her legal representative was asked to provide written informed consent on his or her behalf.

## 2.7 | Data collection

In total, 4,598 questionnaires were sent out in December 2017. Of these, 865 questionnaires ($N = 225$ GP, $N = 232$ nurses, $N = 211$ PwD, and $N = 197$ caregivers) were returned until August 2018.

## 2.8 | Ethical considerations

Approval for the study had been obtained from the ethics committee of the University of Greifswald (BB 090/17a) and the University of Rostock (A 2017–0169).

## 2.9 | Data analysis

All questionnaires sent back to the study centre were scanned and verified using the software TeleForm (Teleform Enterprise, 2013). Subsequently, the data were documented in a Microsoft-access

database and transferred for analysis to the software SPSS (IBM SPSS Statistics 21, 2015) and Stata (StataCorp, 2014). The collected quantitative data of the mailed questionnaires were analysed by descriptive statistics. ANP roles were divided into the categories unsuitable, rather suitable, suitable, and very suitable if the endorsement rate for the conduction of medical task that could be delegated or substituted by nurses was less than 25%, between 25–50%, between 50–75%, or higher than 75% respectively. To identify the differences between the preferences of nurses and GPs as well as between caregivers and PwD, the Fisher's exact test was used.

## 3 | FINDINGS

### 3.1 | Study sample

On average, GPs were 52 years old and had 18 years of professional experience. More than one third (37.3%) of GPs had <10 years of professional experience. The average age of nurses was 43 years with an average professional experience of 18 years. Fifty per cent of the nurses were Registered Nurses with an advanced qualification in geriatric and 36% Registered Nurses. Whereas most of the nurses were female (81%), there was an almost equal distribution of female and male GPs (52.9% female). GPs and nurses cared for on average 1,161 and 194 patients as well as 148 and 98 PwD per quarter year respectively. PwD were on average 80 years old, half of them female (49%), and mildly cognitively (mean Mini-Mental Status Examination score of 20.3) and functionally impaired (55% had a moderate care grade). The description of the study sample is represented in Table 1.

### 3.2 | Identification of medical tasks for ANP roles in delegation or substitution

Across all groups and all tasks, delegation or substitution was predominately assessed as (very) suitable, represented by an overall endorsement rate of 74–92%. The results concerning the attitudes of nurses, GPs, PwD, and caregivers for conducting medical tasks by nurses, including assessment, prescription, monitoring, and other tasks, are quantified in Table 2 and presented in Figure 1.

Assessment roles were rated as very suitable by nurses (79%), GPs (85%), PwD (91%), and caregivers (94%), emphasizing that more

**TABLE 1** Study sample and socio-demographic characteristics of the four participant groups

| | General practitioners (*N* = 225) | Nurses (*N* = 232) | Patients (PwD) (*N* = 211) | Caregivers (*N* = 197) |
|---|---|---|---|---|
| Age | | | | |
| *M* (*SD*) | 52.3 (9.9) | 43.1 (10.4) | 80.4 (7.4) | 64.5 (15.7) |
| Range | 31–78 | 20–66 | 56–97 | 22–92 |
| Sex, *N* (%) | | | | |
| Female | 119 (52.9) | 188 (81.0) | 102 (48.6) | 138 (70.1) |
| Number of treated/cared patients per quarter | | | | |
| *M* (*SD*) | 1,161.5 (380.1) | 194.4 (259.5) | – | – |
| Number of treated/cared PwD per quarter | | | | |
| *M* (*SD*) | 147.5 (124.3) | 87.7 (167.8) | – | – |
| Professional experience in years | | | | |
| *M* (*SD*) | 15.2 (10.2) | 17.7 (10.4) | – | – |
| MMSE | | | | |
| *M* (*SD*) | – | – | 20.3 (6.1) | – |
| Level of care[a], *N* (%) | | | | |
| No care level | – | – | 45 (21.3) | – |
| Level 1 | – | – | 8 (3.8) | – |
| Level 2 | – | – | 48 (22.7) | – |
| Level 3 | – | – | 67 (31.8) | – |
| Level 4 | – | – | 32 (15.2) | – |
| Level 5 | – | – | 11 (5.2) | – |

*Note:* Range 0–30, higher score indicates better cognitive function.

Abbreviations: MMSE, Mini-Mental State Examination; PwD, patients living with dementia.

[a]Care level indicate the severity of functional impairment, ranging from 0 and 1, indicating no or mild functional impairment, to 5, indicating severe functional impairment.

**TABLE 2** Description of the endorsement of medical tasks for a delegation and substitution given by general practitioners, nurses, patients with dementia, and caregivers

| | Nurses ($N = 232$) | General practitioners ($N = 225$) | *p*-Value | PwD ($N = 211$) | Caregivers ($N = 197$) | *p*-Value |
|---|---|---|---|---|---|---|
| Assessment of | 78.9%[sub] | 84.9%[sub] | 0.001 | 90.5%[sub] | 94.1%[sub] | 0.268 |
| Driving ability | | | | 66.9%[sub] | 75.5%[sub] | 0.063 |
| Cognitive impairment | 61.7%[del] | 76.0%[del] | 0.001 | 90.4%[sub] | 95.9%[sub] | 0.032 |
| Cardiovascular abnormalities | 69.1%[del] | 72.1%[del] | 0.534 | 95.2%[sub] | 97.4%[sub] | 0.297 |
| Rehabilitation ability | 54.0%[del] | 60.8%[del] | 0.105 | | | |
| Nutritional abnormalities | 87.7%[sub] | 96.9%[sub] | 0.001 | 96.6%[sub] | 97.4%[sub] | 0.772 |
| Pain severity | 96.5%[sub] | 88.0%[del] | 0.002 | 93.3%[sub] | 94.9%[sub] | 0.534 |
| Daily living deficits | 96.8%[sub] | 97.8%[sub] | 0.575 | 96.2%[sub] | 96.9%[sub] | 0.788 |
| Functional impairment | 94.2%[sub] | 97.8%[sub] | 0.058 | 95.2%[sub] | 98.0%[sub] | 0.175 |
| Vision and hearing | 70.8%[del] | 90.1%[sub] | 0.001 | 90.0%[sub] | 96.4%[sub] | 0.001 |
| First prescriptions of | 73.4%[sub] | 59.9%[del] | 0.001 | 87.3%[sub] | 89.8%[del] | 0.440 |
| Care aids | 89.6%[sub] | 72.7%[del] | 0.001 | | | |
| Outpatient therapies | 71.4%[del] | 39.5%[del] | 0.001 | 84.6%[a] | 85.2%[del] | 1.000 |
| High-calorie food | 77.0%[sub] | 63.0%[del] | 0.004 | | | |
| Geriatric rehabilitation | 50.4%[del] | 43.1%[del] | 0.221 | 83.1%[del] | 86.7%[del] | 0.334 |
| Driving services | 75.2%[sub] | 81.1%[sub] | 0.170 | 94.2%[sub] | 97.4%[sub] | 0.139 |
| Subsequent prescription of | 69.4%[del] | 67.0%[del] | 0.356 | 88.4%[sub] | 91.4%[sub] | 0.411 |
| Care aids | 90.7%[sub] | 91.0%[sub] | 0.872 | | | |
| Outpatient therapies | 57.6%[del] | 37.4%[del] | 0.003 | 90.4%[a] | 93.4%[del] | 0.364 |
| High-calorie food | 81.1%[sub] | 84.9%[del] | 0.142 | | | |
| Geriatric rehabilitation | 55.6%[del] | 62.9%[del] | 0.103 | 84.1%[del] | 88.1%[del] | 0.202 |
| Driving services | 77.1%[sub] | 91.1%[sub] | 0.001 | 94.2%[sub] | 97.9%[sub] | 0.073 |
| Home care | 86.1%[sub] | 88.0%[sub] | 0.674 | 94.7%[sub] | 96.9%[sub] | 0.327 |
| Treatment care | 82.6%[sub] | 88.0%[a] | 0.113 | 92.3%[sub] | 94.9%[sub] | 0.318 |
| Pain management | 61.8%[del] | 46.9%[del] | 0.005 | | | |
| Drugs | 52.5%[del] | 24.1%[del] | 0.001 | 72.3%[del] | 75.0%[del] | 0.574 |
| Specialist referrals | 49.3%[a] | 56.1%[del] | 0.133 | 90.9%[del] | 93.4%[del] | 0.461 |
| Monitoring of | 76.4%[del] | 82.0%[del] | 0.289 | 82.9%[a] | 93.8%[a] | 0.001 |
| Vital signs | 51.8%[del] | 52.9%[del] | 0.706 | 82.9%[a] | 93.8%[a] | 0.001 |
| Nutritional abnormalities | 89.9%[sub] | 93.8%[del] | 0.127 | | | |
| Pain | 77.2%[del] | 85.7%[del] | 0.016 | | | |
| Functional impairment | 86.8%[sub] | 96.8%[a] | 0.001 | | | |
| Other activities | 69.5%[del] | 80.9%[del] | 0.005 | 88.9%[sub] | 92.3%[sub] | 0.307 |
| Taking blood samples | 71.4%[del] | 96.5%[del] | 0.001 | 89.6%[del] | 92.8%[del] | 0.295 |
| Initiation medication review | 69.8%[del] | 76.0%[del] | 0.170 | 92.3%[sub] | 92.3%[sub] | 1.000 |
| Information and advice | 67.4%[del] | 70.3%[del] | 0.480 | 84.7%[sub] | 91.8%[sub] | 0.031 |
| Total | 73.5%[sub] | 74.9%[del] | 0.734 | 87.6%[del] | 92.2%[sub] | 0.138 |

*Note:* [sub]preference substitution dominates (approval of substitution greater than approval of delegation); [del]preference delegation dominates (approval of delegation greater than approval of substitution). *p* Values were assessed using Fisher's exact tests.

Abbreviation: PwD, patients living with dementia.

[a]Indifferent between delegation and substitution (approval differences lower than 5%).

GPs than nurses thought that those tasks could be delegated to or substituted by nurses. Recognition of nutrition abnormalities, pain severity, deficits in daily living, and mobility restrictions was preferred as most suitable tasks, especially as tasks that could be substituted by nurses. Contrary to this and even though PwD and caregiver assessed the recognition of cognitive impairment, cardiovascular abnormalities, and rehabilitation ability as very suitable tasks for nurses (>90%), GPs and nurses themselves indicated these

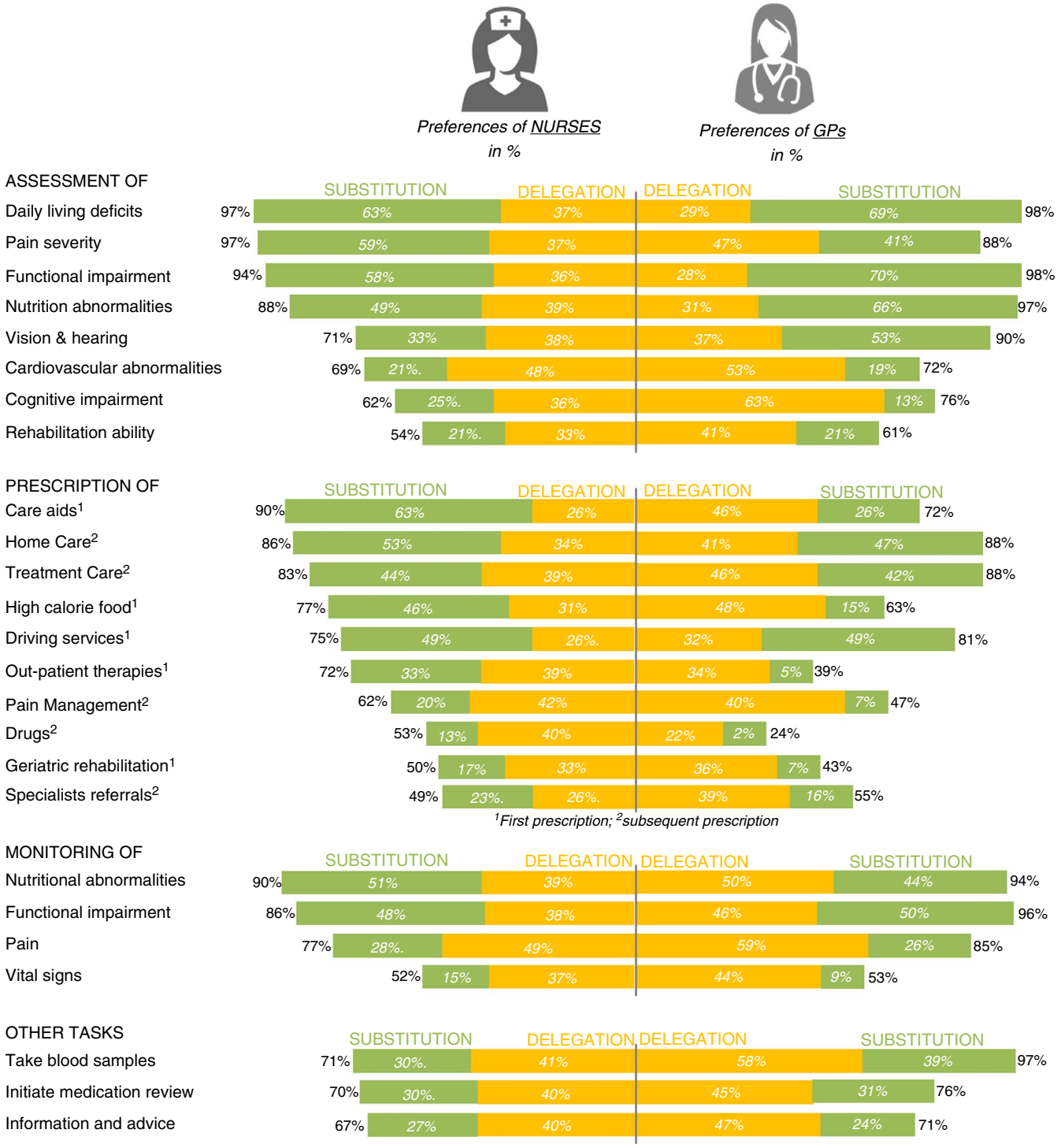


**FIGURE 1** Preferences of nurses and general practitioner (GP) concerning a delegation and substitution of GP tasks. [1]Initial prescription; [2]Subsequent prescription [Colour figure can be viewed at wileyonlinelibrary.com]

tasks only as suitable (54%–76%) for a delegation to or substitution by nurses. However, for these tasks, the endorsement of nurses to take over those tasks was higher than the endorsement of GPs. This is evident for the assessment of cognitive impairment and vision and hearing loss as well, where GP rated the possibility for a delegation and substitution of such tasks much higher than nurses did. However, PwD and nursing staff evaluated assessment activities more often as suitable for substitution, while GPs would prefer to delegate these tasks.

Contrary to the assessment tasks, more nurses (73%) than GPs (60%) supported the substitution of prescriptions, especially the prescription of care aids, high-calorie nutrition, and driving services. GPs favoured all these tasks for delegation, excepting the prescription of driving services, which was considered a possible task for substitution.

The lowest endorsement rate was found for outpatient therapies, such as the prescription of occupational, speech, and physiotherapy (40% of GPs and 71% of nurses) and the prescription of geriatric rehabilitation (43% of GPs and 50% of nurses). At least 84% of PwD and their caregivers favoured a substitution of the prescription of outpatient therapies, geriatric rehabilitation, and driving services.

GPs endorsed an autonomous subsequent prescription of care aids, driving services, and home care by nurses. Furthermore, GPs supported a delegation of a subsequent prescription of high-calorie nutrition. For GPs and nurses, a subsequent prescription of geriatric rehabilitation, pain management, drugs as well as specialist's referrals was judged as rather unsuitable tasks for nurses. However, for most of these tasks, GPs' endorsement rate was still much higher as compared with nurses. Solely the subsequent prescription of pain management and drugs was more often seen as an eligible task for nurses assessed by nurses as compared with the rating given by GPs. However, and next to this, over 80% of PwD and 91% of relative caregivers endorsed the subsequent prescription of listed tasks, especially in substitution.

Of the GPs, 82%, and 76% of the nurses favoured the monitoring of activities for a new task sharing. The monitoring of nutritional abnormalities, pain, and mobility was the most and the monitoring of vital signs was the least preferred tasks for a delegation to or substitution by nurses. Furthermore, drawing blood samples, initiation of a medication review, and providing information and advice to the PwD and their caregivers were recommended as suitable tasks for delegation. In general, GPs' endorsement rate for all these tasks was consistently higher than the rate of nurses. In addition, PwD and caregivers highly support a delegation or substitution of monitoring tasks and most of the further tasks listed above.

## 3.3 | Qualification requirements

For the delegation of current GP-specific tasks to nurses, most nurses (46%) and GPs (48%) recommended that a dementia-specific qualification would be best, followed by no additional qualification (33% of nurses and 41% of GPs respectively) and a bachelor's or master's degree (21% of nurses and 11% of GPs). Even though still most of the nurses and GPs (both 51%) recommended that a dementia-specific qualification would be the most suitable qualification needed, the second most frequent response provided was a master's (24% of nurses and 25% of GPs) or bachelor's degree (12% of nurses and 16% of GPs), followed by the response that no additional qualification is needed (12% of nurses and 8% of GPs). Table 3 shows the results of the qualification requirement.

**TABLE 3** Qualification requirements for nurses conducting medical tasks in delegation and substitution from the perspective of nurses and general practitioners

| | Nurses ($N = 232$) | GPs ($N = 225$) | *p*-Value |
|---|---|---|---|
| For tasks carried out in delegation | | | |
| No additional qualification needed | 33.3% | 41.1% | 0.102 |
| Dementia specific qualification needed | 46.0% | 47.6% | 0.852 |
| Bachelor in nursing needed | 8.5% | 7.7% | 0.865 |
| Master in nursing needed | 12.2% | 3.6% | **0.001** |
| For tasks substituted by nurses | | | |
| No additional qualification needed | 12.2% | 7.7% | 0.161 |
| Dementia specific qualification needed | 51.3% | 51.2% | 1.000 |
| Bachelor in nursing needed | 12.2% | 16.1% | 0.284 |
| Master in nursing needed | 24.3% | 25.0% | 0.914 |

*Note: p* Values were assessed using Fisher's exact tests.
Abbreviation: GP, general practitioner. Significant differences are highlighted in bold.

## 3.4 | Acceptability of delegating and substituting medical tasks by nurses

Delegation and substitution of current GP tasks were highly appreciated by PwD (96%) and their caregivers (99%), even though 80% of the caregivers and 71% of PwD assume a necessary qualification for nurses performing these tasks. For nurses and GPs, 86% and 79% would appreciate the delegation and substitution of GP tasks to or by nurses respectively. Contrary to the stated support, more GPs (94% vs. 79%) but fewer nurses (83% vs. 86%) were willing to carry out GP tasks in delegation or by substitution respectively. This means that for GPs, the willingness was higher than the acceptance of a delegation or substitution of current GP tasks. Most of the GPs (72%) and nurses (52%) would still prefer a delegation of tasks, rather than a substitution of GP tasks (15% and 27% respectively). However, it should be noted that the acceptance of substituting GP tasks was nearly twice as high in nurses as compared with GPs.

Overall, more than 83% of nurses and 86% of GPs stated that a delegation and substitution of GP tasks by nurses would be beneficial for patients, especially if tasks were delegated. Even though more than 80% of GPs stated that ANP roles would be beneficial for the nurses, less than 63% of nurses rated that ANP would be beneficial for themselves. Also, more than 90% of GPs and 88% of nurses thought that a delegation of GP tasks to nurses would be beneficial for GPs. This would only gradually differ if GP tasks would be substituted by nurses: still 84% of nurses and 79% of GPs would think that a substitution of GP tasks by nurses would be beneficial for GPs.

## 3.5 | Impact of conducting medical tasks by nurses in delegation and substitution

Nearly all PwD (92%) and their caregivers (89%) stated that the GP would remain the first contact and gatekeeper for treatment

decisions, but 78% of PwD thought that ANP roles would reduce the frequency of the GP consultations. Therefore, 90% of patients and 91% of caregivers, respectively, thought that the burden on GPs would decrease if nurses would carry out current GP tasks.

Most nurses and GPs stated that a reorganization of tasks would strengthen the confidence in nurses, improve the cooperation between nurses and GPs, improve treatment and care for PwD, relief the burden of GPs, and improve the job satisfaction of both nurses and GPs, respectively, represented by an agreement of more than 72% of both the responding nurses and GPs. The highest agreement was given by 91% of GPs who rated that substitution of tasks would improve the job satisfaction of GPs. Contrary to this, solely 75% of nurses agreed to this statement.

Furthermore, there was a moderate agreement for the reductions of GP contacts (61–81%) as well as for a strengthening of the trust in the GP and in the relationship between GPs and their patients but only if tasks were delegated. The agreement for such domains was higher in GPs when tasks would be delegated and lower when tasks would be substituted as compared with the respective agreement of nurses.

Only 40%–46% of nurses and GPs, respectively, thought that a delegation or substitution of GP tasks could relieve the burden of nurses. Agreements and disagreements of nurses and GPs concerning possible benefits of ANP roles are displayed in Figure 2.

## 4 | DISCUSSION

To the best of our knowledge, this is the first study evaluating the endorsement of a reorganization of comprehensive array of tasks between nurses and GPs caring for community-dwelling PwD in Germany, revealing that ANP roles are highly favoured and appreciated by nurses, GPs, PwD, and caregivers. These findings somehow debunk the common notion that German GPs would be reluctant towards the delegation and substation of tasks in general (Darmann-Finck, 2018). Across all groups, most tasks were assessed as suitable for a delegation to and/or substitution by nurses. Assessment and monitoring were rated as highly suitable, and the prescription and subsequent prescription as suitable ANP roles. It should be noted that more nurses than GPs stated that assessment and monitoring tasks are suitable for advancing nursing role. Contrary to this, less nurses than GPs stated that prescription tasks are suitable. PwD and caregivers would rather appreciate a substitution. Nurses and GPs prefer a delegation of tasks. A dementia-specific qualification was rated as the most appropriate qualification for ANP roles, followed by no specific qualification for the delegation and a master's or bachelor's degree for the substitution of tasks. The delegation and substitution of tasks were furthermore rated as very beneficial for patients and GPs. Most GPs (91%) assumed that a reorganization of tasks would improve the job satisfaction of nurses. Nurses and GPs thought that ANP roles would strengthen the confidence in nurses, improve the cooperation between nurses and GPs, and the treatment and care for PwD as well as relief the burden and improve job satisfaction of GPs. Somewhat surprisingly, more GPs but fewer nurses would be willing to carry out ANP roles.

Responses given by GPs concerning the prescription authority represented current barriers of ANP roles. Whereas a dementia-specific qualification could improve the confidence of nurses in carrying out monitoring or assessment tasks, boundaries between GPs and nurses with respect to prescribing authorities are more difficult to draw. This was also confirmed by Jakimowicz et al. (2017), who identified that strengthening and weakening the boundaries between GPs and nurses is one main issue to solve prior to the implementation of ANP roles. The study of Jakimowicz et al. highlighted that nurses struggle more than GPs to negotiate and clarify the scope of their practice, which is in line with the results of our study. In this analysis, consented tasks for ANP roles would include several monitoring and assessment tasks, excluding the assessment of psychiatric, neurological and cognitive disorders, and patients' rehabilitation abilities. Furthermore, whereas the prescription of care aides, home care, transportation services, and high-calorie nutrition would be suitable prescribing authorities for nurses, the prescription of drugs, therapies, and geriatric rehabilitation, as well as specialist referrals, would be beyond current boundaries of ANP roles in Germany.

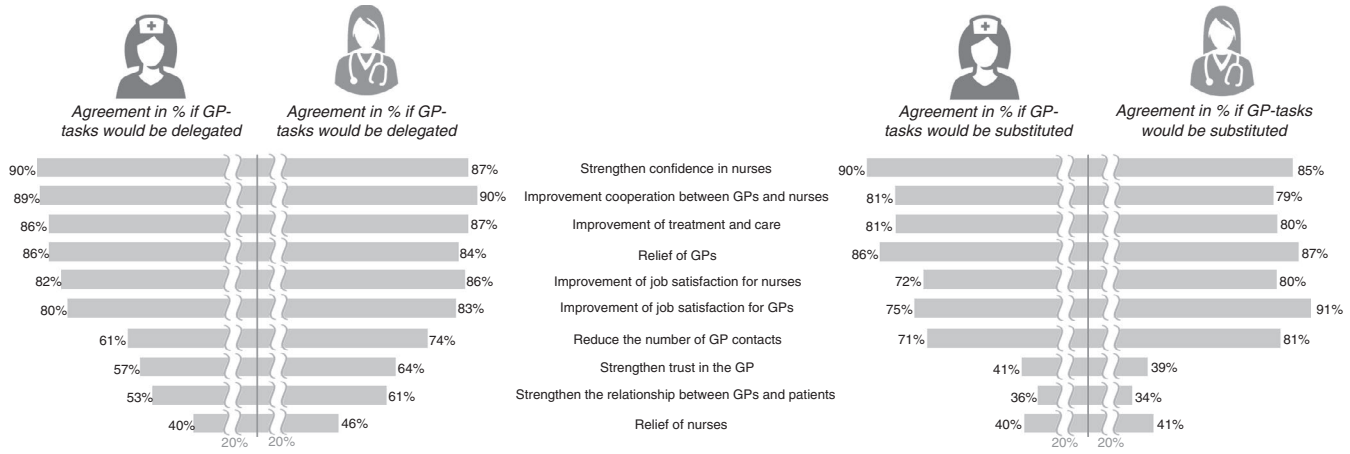


**FIGURE 2** Agreement of benefits of delegating and substitution of general practitioner (GP) tasks given by nurses and GPs

However, nurses felt more confident in the prescription authorities than GP would expect. A reason for this could be that most of the prescription authorities were related to nursing care, where nursing professionals are very well versed. However, prescribing authority is always associated with a financial and legal responsibility. A reason for the lower endorsement of GPs could be that GPs take these responsibilities into account when they respond to the questions, but not nurses. This could also be the reason why the patients would overall prefer a substitution and both professional nurses and GPs a delegation of tasks. To substitute tasks, new organizational, legal, and financial structures have to be implemented. On the one hand, GPs could have legitimate concerns to fear that ANP would negatively affect their reimbursement. On the other hand, nurses could be concerned about taking over new, demanding, and time-consuming tasks in addition to their regular and already exhausting work by simultaneously becoming responsible for the decisions made.

The study shows what is already commonplace in other countries all over the world. Nurse practitioners and physician assistants in the Netherlands have permission for substitution of tasks carried out by elderly care physicians, providing a wide range of preventive, acute, and chronic healthcare tasks in many different clinical areas. Tasks for substitution are, for example, admission of patients to hospitals, assessment of conditions and impairments, management of treatment and care, and monitoring (Lovink et al., 2017, 2019). This is in line with the tasks evaluated as suitable in this analysis. Nurse practitioners of Canada furthermore carry out the diagnostic schemes of acute or chronic conditions and order diagnostic and laboratory test, prescribe medications, perform annual physical examinations, and medical reviews (Martin-Misener et al., 2015), which are far beyond the areas of consent between GPs and nurses in this analysis that demonstrated that, for example, nurses and GPs refused that the prescription of medication could be takeover by nurses. In Great Britain, tasks are carried out by nurses depending on their level of education (Fitzmaurice et al., 2015). Different degrees of qualification would provide a basis to set different limits or boundaries of ANP. Whereas an assessment and monitoring can be carried out by nurses with a dementia-specific qualification, the first or subsequent prescribing authority would require a bachelor's or master's degree. Therefore, further research is needed to assess the interface between nurses and GPs based on a theoretical and practically oriented qualification framework, considering different degrees of requirements.

Even though the revealed extended acceptability for delegating and substituting GP tasks revealed in this analysis and the fact that ANP is implemented since the 1970s in several countries, neither ANP nor other comparable care models are currently implemented in Germany. Within the last decades, some concepts were developed, but none includes an autonomous work of nurses, represented by substitution of GP tasks (Berg et al., 2009; Dreier et al., 2015). One reason for this missing implementation could be that there is limited need for an ANP because of an oversupply of family physicians and specialists (Sheer & Wong, 2008). However, in times of an accelerated demographic change, the number of PwD is projected to increase considerably (Sterne et al., 2009). Contrary to this, the number of GPs or geriatricians, neurologists, and psychiatrists will unlikely be able to scale up for the growing number of PwD (Prince et al., 2016). In addition, health professionals, such as GPs, neurologists, and psychiatrists, are an ageing population themselves. A large proportion of GPs are expected to retire in the next decade so that more than 10,000 GP practices will be missing in the year 2030, causing significant healthcare gaps, predominately in rural areas (Bundesvereinigung, 2016). Therefore, cooperative care model approaches, such as ANP, that include different aspects of task sharing and task shifting between specialists, GPs, and nurses provide a promising strategy, unlocking existing capacities in the healthcare system and alleviating inadequate health care in the future.

There is already some evidence that ANP could reduce hospital readmissions and patients' mortality as well as increase patients' and caregivers' satisfaction and quality of life (Laurant et al., 2018; Morilla-Herrera et al., 2016; Woo et al., 2017). These results and the existing national and international initiatives of ANP illustrate that the implementation of task sharing and the definition of ANP roles are necessary and overdue in Germany. This study and its results are of vital importance for the further development of ANP roles in Germany, demonstrating concrete tasks that are suitable to expand the existing nursing roles and highly appreciated for an ANP as well as needed qualification requirements. These results could set the framework of ANP pilot studies, legislative frameworks to implement ANP roles in Germany in the near future, or flow into the definition of job profiles of academically qualified nursing staff and into the curricula for their higher education. Further research is needed to assess the quantitative efficacy and to evaluate the cost-effectiveness of ANP in Germany as well as to assess how ANP could be conceptualized and efficiently implemented into the German statutory health care.

### 4.1 | Limitations

The study was conducted in a mostly rural setting in the north-eastern part of Germany, which limits the generalizability. Due to the fact that especially rural areas could be affected much more by a shortage of GP practices and thus, be in a higher need for innovative care models in the next decades, the demonstrated endorsement and acceptability of ANP could be overestimated. The validity of the assessed data of caregivers and PwD might be limited with regard to accuracy, due to bias and somewhat limited cognitive capacities.

## 5 | CONCLUSION

Results of this analysis revealed an extended consensus among nurses, GPs, and patients towards an enlargement of ANP roles, represented by a high acceptance and willingness of nurses, GPs, and patients to reorganize tasks and provide an agreement to support the implementation of and work on a more detailed conceptualization of ANP in Germany.

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## CONFLICT OF INTEREST

None declared.

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## PEER REVIEW

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## DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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