

**A Systematic Literature Review about the Conceptualization
of Competence in Nursing Home Residents**

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Abstract

Background and Objectives: Nursing homes (NH) represent common settings that have an impact on aspects of well-being in residents, like the experience of perceived *competence*. In 2000, Deci & Ryan popularized the term competence as part of the Self-Determination Theory (SDT). Although there is a considerable amount of literature on competence in NH residents available, there was not much attention for the SDT in this context. This study aimed to review the available definitions of competence in the context of NH residents beyond the scope of the SDT to investigate conceptual similarities and differences to come up with implications for the definition provided by the SDT.

Methods: A systematic literature review was conducted using the electronic databases SCOPUS, PubMed, Web of Science and PsycINFO. 985 titles were reviewed resulting in twelve articles for the final sample, which met the inclusion criteria. Thematic analysis with an inductive, semantic approach was taken to synthesise the material.

Results: Based on thirty-five extracted codes, two broad themes can be identified: *perceived competence* and *functional competence*. The latter can be further narrowed down to *behavioural competence* including *activities of daily living, control, independence* and *cognitive competence* including *decision-making competence* and *communicative competence*. While *perceived competence* denotes a subjective experience, which is in line with the essence of the definition provided by the SDT, *functional competence* stands for an objective construct that outlines a specific role for abilities and capacities in NH residents.

Discussion and Implications: The current findings provide support for the idea that *competence* incorporates multiple dimensions that can vary in importance due to the research focus as well as a differentiation between an objective and subjective phenomenon. While the SDT phrases competence as *perceived effectiveness*, competence is often found to be phrased in terms of *capability* in NH literature. Further work can put more emphasis on the subjective definition of competence provided by the NH residents themselves.

Introduction

As ageing proceeds, older adults are often confronted with increasing difficulties, like chronic health conditions, physical injury or cognitive impairment, which makes it impossible for them to master their daily lives independently (Bonvalet, 2007). Consequently, a growing number of older adults move in nursing homes (NH) or other long-term care facilities to receive support. Living in a NH is a common condition that has a considerable impact on well-being and quality of life (Robison, Shugrue, Reed, Thompson, Smith, & Gruman, 2011; Walker, Paliadelis, 2016). Hence, several researchers have shown an increased interest in older adults living in NH. One concept of interest in this context is the experience of perceived *competence* in NH residents. To date, several different definitions of the concept of competence have emerged in NH research and the meaning of this term, as well as the assessment of this concept, have not been consistent throughout the NH literature. Therefore, it is important to clarify how the term is conceptualized in NH literature. To the author's knowledge, this is the first research attempting to review the available definitions on perceived competence in NH residents.

Deci and Ryan (2000) used the term *competence* to refer to one of the basic psychological needs as part of the Basic Psychological Needs Theory (BPNT). The BPNT (Deci & Ryan, 2000) is one out of six mini-theories within the broader framework of the Self-Determination Theory (SDT; Deci & Ryan, 2000, 1985; Ryan & Deci, 2000) that is a macro theory of human motivation that gives a central role to the concept of fundamental psychological needs. Just like basic physical needs such as food, water and shelter which are necessary for survival, human beings also need to satisfy basic psychological needs to flourish and grow. In contrast, the frustration of basic psychological needs leads to ill-being and psychopathology. According to Deci & Ryan (2000), the basic psychological needs are autonomy, relatedness and competence. These three needs are innate, essential and universal across cultures (Deci & Ryan, 2000). Autonomy refers to the experience of choice and

willingness, relatedness designates the experience of warm relationships, bonding and care, whereas competence denotes the experience of effectiveness and mastery. Competence is further defined by Deci and Ryan (2000) as the innate propensity to develop and experience skills and abilities. Furthermore, they outline the stimulating influence of the dynamic exchange with the environment and the so-called flow-state, i.e. engaging in optimal challenging activities, as integral aspects of competence.

To date, some researchers referred to the SDT (Deci & Ryan, 2000) in the context of perceived competence in NH residents (e.g. Custers et al. 2014; Ferrand et al., 2014, 2019; Kloos et al., 2019). For instance, investigating an association between competence satisfaction and depressive symptoms is a continuing concern for researchers in the context of NH residents (Custers et al., 2014; Ferrand et al., 2014, 2019; Kloos et al., 2019; Martinent et al., 2018). Most of the researchers have utilised the Basic Need Satisfaction in Life Scale (BNSL-S; Gagne, 2003) to measure the subjective experience of competence in NH residents. All studies observed significant relations between need frustration and depressive symptoms. Kloos et al. (2018) have shown that the experience of competence is associated with well-being, as well as that it has a unique longitudinal relation with depressive feelings. Furthermore, another line of NH research conducted by Custers et al. (2010, 2011, 2012) was interested in the influence of daily care interactions between NH staff and NH residents to need fulfilment.

Apart from this, there was not much attention for the SDT (Deci & Ryan, 2000) in the NH context. However, there is a considerable amount of literature on competence in NH residents. Up to now, one study is available by Altman et al. (1992), which reviews a range of perspectives and models of competence. This review considers how experiences of competence might broaden the understanding of legal decision-making among NH residents. There it was already proposed that competence is a multidimensional concept incorporating intrapersonal, interpersonal, social, psychological and environmental factors and they outlined

a critical role for defining the experience of competence in the specific context of NH residents (Altman et al., 1992). However, this review is limited in the comparison of available definitions in that context and the integration of and comparison to the concept of competence according to the BPNT (Deci & Ryan, 2000). Next to that, the review by Altman et al. (1992) did not treat the assessment of competence in much detail. Assessing competence gained importance over the last years in the general context of older adults including the specific sample of NH residents (Cohen, Schultz, Sepehry, & Stewart, 2018). Based on the increasing vulnerability of older adults due to cognitive decline and disabilities, the demand for determining aspects of competence like the extent of support and decision-making abilities raised in importance.

The purpose of this thesis is to systematically review recent research in the NH context on competence, aiming to provide an increased understanding of the definition of competence in NH residents. There are three research questions in this study: 1. How was competence in NH residents defined beyond the scope of the SDT (Deci & Ryan, 2000)?, 2. How was competence in NH residents assessed in NH literature that is beyond the scope of the SDT?, 3. What are differences and similarities in the conceptualization of competence in NH literature with perceived competence according to the BPNT (Deci & Ryan, 2000)?.

Methods

To answer the research questions, a systematic review was conducted. The search was executed following the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Moher et al., 2009) which helps to ensure a complete and transparent reporting of systematic reviews, as well as to minimize the risk of bias.

Search Strategy

A PICO (Population or Problem, Interest, Context) statement was developed to build the search string (Pollock & Berge, 2018). The basis of the search terms included "residents" as the population of interest, "competence" as the experience of interest and "nursing homes"

as the context of interest. To refine the search string, an iterative search process was conducted to detect suitable search terms. Following several pilot searches with the identified search terms, which are listed in Appendix A, it was additionally decided to exclude articles, which include "nurse" or "staff" in title, abstract or keywords in SCOPUS, as well as "nurse" or "staff" in title when searching in PubMed, Web of Science or PsycINFO. This was done to limit the number of document results and to avoid studies that focused on the experience of competence in nurses or staff members. The finalized search strings for the respective databases can be found in Table 1. Because the review aimed for an inclusive search strategy to capture as much as possible of the relevant literature, the search was conducted within all research fields and was not limited to a specific year of publication or study design.

Table 1

Finalized Search Strings for the Systematic Search Process.

Database	Search String
SCOPUS	TITLE-ABS-KEY (competen*) AND TITLE-ABS-KEY (“nursing home” OR “long*term care facility” OR “aged care facility” OR “home for the aged”) AND TITLE-ABS-KEY (resident OR patient) AND NOT (staff OR nurse)
PubMed	(competen*) AND (“nursing home” OR “long*term care facility” OR “aged care facility” OR “home for the aged”) AND (resident OR patient) NOT (staff OR nurse)
Web of Science	ALL FIELDS=(competen*) AND ALL FIELDS=(“nursing home” OR “long*term care facility” OR “aged care facility” OR “home for the aged”) AND ALL FIELDS=(resident OR patient) NOT TITLE=(staff OR nurse)
PsycINFO	(competen*) AND (“nursing home” OR “long*term care facility” OR “aged care facility” OR “home for the aged”) AND (resident OR patient) NOT TI=(staff OR nurse)

Selection of Studies

To obtain eligible articles, specific inclusion criteria have been defined: 1. The study had to be published in a peer-reviewed journal, 2. The record had to be written in English or German, 3. The study had older adults living in NH or other long-term institutional care settings as their sample of interest, 4. Studies that had as objective to give an insight into the experience of competence in NH residents by either providing an own definition of the concept or by referring to already existing models, conceptualizations or definitions of competence. To ensure that clear statements can be made, studies were excluded which were conducted in hospitals and studies from which the full-text was not accessible. Furthermore, publications that did not explicitly used the term competence were excluded to avoid false interpretation and terminological confusion when linking a provided concept with competence. Finally, studies that defined competence in the framework of the SDT (Deci & Ryan, 2000) were also excluded, because, in line with the first research question, the systematic search process aims to uncover definitions beyond the scope of SDT.

Procedure and Data Extraction

The search was executed on the 10th April 2020, which resulted in 496 hits from SCOPUS, 177 hits from Web of Science, 367 hits from PsycINFO and 190 hits from PubMed, that sums up to 962 records after excluding duplicates (Figure 1). Moreover, an additional search was conducted in form of screening reference lists of relevant articles, checking reviews and meta-analyses, which were obtained during the search, as well as an additional manual search to identify possible relevant articles that were not identified yet through the search string. This provided an additional twenty-three articles excluding duplicates.

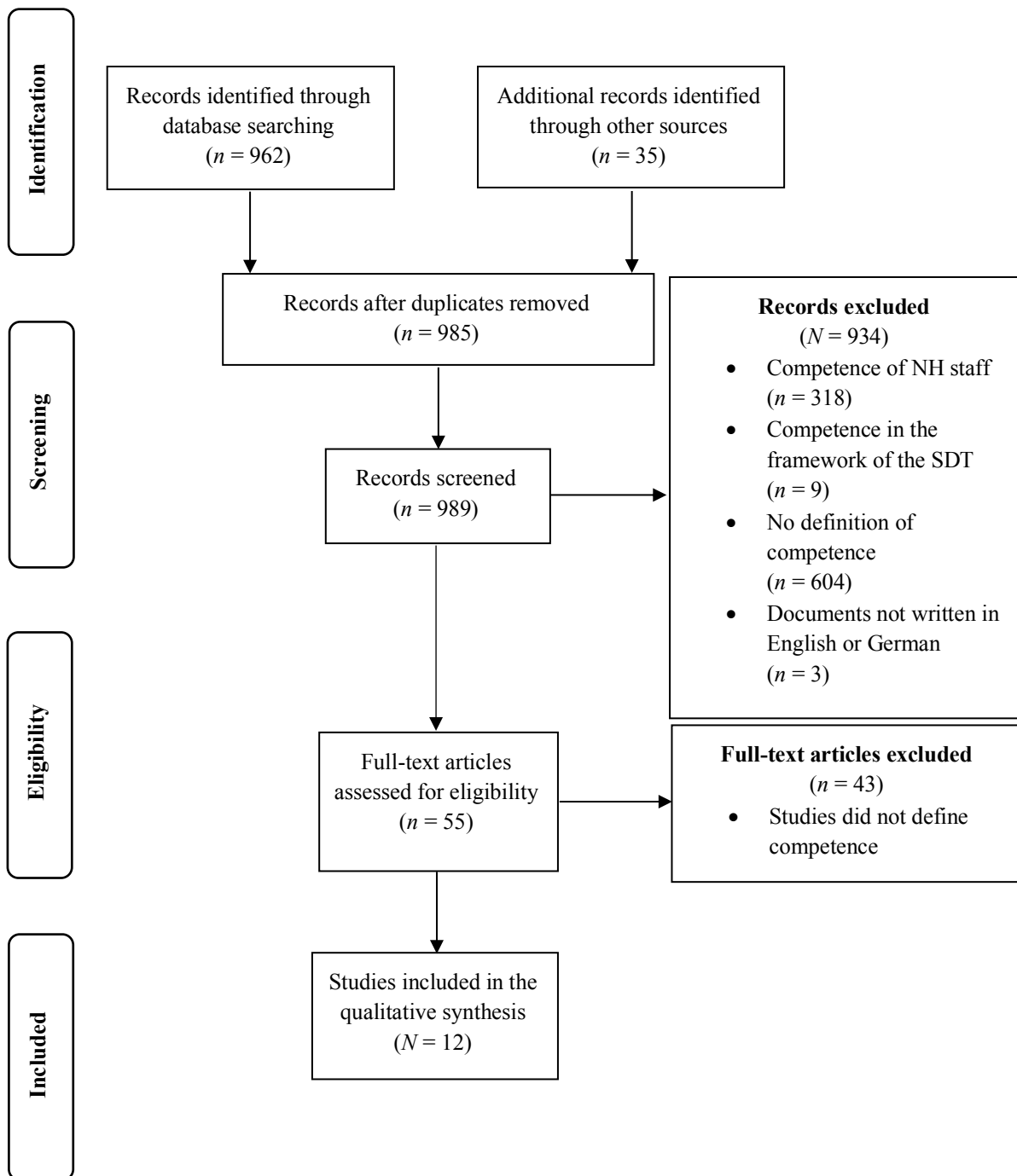
The first step in this process was to review the title and abstract of 985 records utilizing the PICO statement. As a result, fifty-five articles were selected for individual screening based on full-text. To control for bias and improve the quality of this systematic

review, an additional researcher conducted the systematic literature search, as well as the critical appraisal of relevant records. In case of disagreement, a decision by consensus was sought. The inter-rater agreement based upon all 985 articles between the researchers about study reliability showed a kappa of 0,66 which indicates a substantial agreement between the two researchers (Landis, & Koch, 1977). Finally, twelve articles fulfilled the pre-specified inclusion criteria and were included in the final sample.

Following the systematic search process, data were extracted from the final sample of records. The first author, as well as the year and country of publication, were derived from each included study. In addition to that, the characteristics of the sample were extracted to further specify the population of NH residents. To answer the research questions, the definitions of competence were excerpted from each study. Furthermore, it was determined if and how competence was measured in each study. The extracted data was then synthesised employing a thematic analysis, i.e. identifying and outlining recurrent key codes in definitions and grouping them to themes (Bearman & Dawson, 2013). An inductive, semantic approach for analysing the data was chosen so that the current, explicit data built the base for the themes. Furthermore, the extracted themes were compared to the definition of competence in the framework of the SDT provided by Deci & Ryan (2000) which incorporates four crucial elements, namely *feelings of effectiveness and mastery*, the *engagement in optimal challenging activities*, the innate propensity to *develop and experience skills and abilities* and lastly, the stimulating influence of the *dynamic exchange with the environment*.

Figure 1

Flowchart Illustrating the Systematic Search Process.



Results

Description of Included Studies

Among the twelve reviewed records of the final sample, which are listed in Table 2, one study made use of a qualitative approach ([6]) four were quantitative studies ([1], [2], [3], [5]) and seven studies used a mixed-methods approach ([4], [7], [8], [9], [10], [11], [12]). Furthermore, the final sample included studies which were published in the period from 1976-2020 and were conducted in the USA, Germany, South Korea, Finland, Italy, Norway, Spain and the UK. Whereas every study included NH residents as their sample of interest, some studies also further specified this population. Three studies were especially interested in NH residents suffering from dementia ([1], [9], [11]), similar to one other study, which narrowed the population down to NH residents with intellectual disabilities ([4]). Eleven of the twelve records had the experience of competence as their main objective, from which six of them focused on measuring competence in NH residents, two made use of different interventions to enhance the feeling of competence in NH residents, two focused on the association between competence and depressive symptoms in NH residents and one study integrated the experience of competence in NH residents as their main objective within their review about care planning and goal setting in NHs. Finally, one study extracted the concept of competence from self-reported data of NH residents and integrated it in a model of the mental well-being of adults aged 80 and over.

Table 2*Final Sample of Included Articles (N = 12).*

First author (year), country	Population	Aim of the study	The theme, number of detected codes	Measures
[1] Becker (2006), Germany	NH Residents suffering from Dementia	To identify and independently cross-validate random subsamples of four patterns of competence	behavioural competence, 1 perceived competence, 1	Barthel Index (Mahoney et al. 1965); MMSE (Folstein et al., 1975); behaviour pathology (NPI-K)
[2] Diegelmann (2017), Germany	NH residents (not further specified)	To assess the associations between Basic Competence (BaCo) and Expanded Competence (ExCo) with depressive symptoms	behavioural competence, 5	Performance-based measures for BaCo (Baltes et al., 2001); Social Activity (i.e. self-initiated social contact, activity participation for ExCo (Baltes et al., 2001)
[3] Kane (2003), USA	NH residents >65 years	To create a measurement for assessing Quality of Life (QoL)	behavioural competence, 1	Self-developed 88-item questionnaire (five items for functional competence)
[4] Kruse (2003), Germany	NH residents with intellectual disabilities	Empirical test the assumption that capacity to learn and plasticity are also apparent in people with intellectual abilities	behavioural competence, 2 perceived competence, 5	Video Analysis of filmed scenarios using a self-developed 34-items questionnaire (self-care, feeding, housekeeping, leisure)
[5] Langer (1976), USA	NH residents (not further specified)	To assess the effects of enhanced personal responsibility and choice on NH residents	behavioural competence, 1	Pre- and Post-Questionnaire about the perception of control, Behavioural Measures (attendance records, participation, unobtrusive measure of activity)
[6] Lara (2019), Finland, Italy, Norway, Spain	NH residents (not further specified)	To explore the experiences of individuals aged 80 plus regarding their mental wellbeing and its contributing factors in four European countries	behavioural competence, 2 perceived competence, 2	Open-ended questions in focus groups (e.g. “What does feeling good or feeling well mean to you?”, “When you are having a good day, why is it good?)

First author (year), country	Population	Aim of the study	The theme, number of detected codes	Measures
[7] Lee (2010), South Korea	NH residents (not further specified)	To develop and validate an assessment tool for research consent competence	cognitive competence, 2	Four items of the Older Adults Capacity to Consent to Research scale (OACCR; Zaya et al., 2009); SPMSQ (Pfeiffer, 1975); Capacity-to-consent Screen (Zayas et al., 2005)
[8] Mills (2013), USA	NH residents (not further specified)	To present a framework for the integration of everyday competence with standardized goal-setting and care-planning processes	behavioural competence, 2 cognitive competence, 2	Making and Executing Decisions for Safe and Independent Living (MEDSAIL; Mills, Regev, Kunik, Wilson, Moye, McCullough, & Naik, 2014)
[9] Moos (2011), UK	NH residents suffering from moderately severe Dementia	To analyse the communicative competence of people with moderately severe dementia according to the Functional Assessment Staging of Alzheimer’s Disease (FAST)	cognitive competence, 2	MMSE (Folstein et al., 1975); FAST (Reisberg et al., 2002); Analysis of Audio recordings of everyday conversations through the analytic frame for communicative interaction (Schiffrin, 1987, 1994)
[10] Pruchno (1995), USA	Long-term care residents (not further specified)	The Performance on a brief, objective inventory could predict a clinical psychologists evaluation of competence	cognitive competence, 4	Hopemont Capacity Assessment Inventory (Edelstein, 1993); Understanding Treatment Disclosure (Grisso, & Appelbaum, 1991); Clinician Assessment of Competence
[11] Verhülndonk (2012), Germany	NH residents suffering from Dementia	To assess depression, depression diagnosis, cognitive status, status of medication and functional status	behavioural competence, 1	Nurses Observation Scale for geriatric patients (NOSGER; Brunner, & Spiegel, 1990), Barthel Index (Mahoney, & Barthel, 1965); Instrumental Activities of Daily Life-Scale (IADL; Lawton, & Brody, 1969)
[12] Williams (1995), USA	NH residents (not further specified)	To compare the staff’s competence assessment with resident’s scores measured by the Portable Mental Status Questionnaire (SPMSQ; Pfeiffer, 1975)	cognitive competence, 2	SPMSQ (Pfeiffer, 1975); Two-questions Interview with Staff (1. “Is the resident able to give consent?”; 2. What type of information did you use to make decisions about the resident’s ability to give consent?”)

The Definition of Competence in Nursing Home Literature

Overall, all twelve publications defined competence in the context of NH residents. The definitions derived from the reviewed articles can be broken down into thirty-five codes (Table 3). The detected themes and the number of codes for each article are displayed in Table 2. Two broad themes emerged, namely *functional competence* and *perceived competence*. Furthermore, within the broad themes of *functional competence*, subthemes can be identified, namely *cognitive competence* and *behavioural competence*. While *cognitive competence* can be narrowed down to *communicative competence* and *decision-making competence*, *behavioural competence* entails *independence*, *activities of daily living* and *control* as subthemes.

Table 3

Extracted Themes Based on the Identified Codes (N = 35).

Themes	Codes
Functional competence	
<i>Cognitive competence</i>	<ul style="list-style-type: none"> - understanding relevant information [10] - ability to problem-solve especially in functional domains [8]
Communicative competence	<ul style="list-style-type: none"> - the ability to use language and express one’s intent in a variety of situations [9] - how the utterances by others are understood and the number of words used [9]
Decision-making competence	<ul style="list-style-type: none"> - ability to make meaningful decisions [7] - understanding, appreciation, reasoning, expressing a choice [7] - understanding, appreciation, expressing a choice, reasoning (problem-solving, consequential reasoning, comparative reasoning) [8] - communicate stable choices long enough to be implemented [10] - use logical processes to compare the benefits and risks of various treatment options and to reach conclusions [10] - ability to appreciate situations and its consequences [10] - the capacity to make decisions [12] - comprehend the nature of a decision and understand the consequences [12]

Themes	Codes
Functional competence	
<i>Behavioural competence</i>	
Activities of daily living	<ul style="list-style-type: none"> - everyday competence entails basic competence (BaCo) and expanded competence (ExCo) [2] - engaging in activities which are routinized, essential for survival and universally normative (BaCo) [2] - engaging in activities that stem from individual preferences, give life meaning beyond basic self-preservation, strongly culturally determined (ExCo) [2] - ability to move freely and to perform the activities of daily living for the maintenance of their previous lifestyle [6] - engaging in broad and novel activities even when they may pose a great challenge [6] - solve problems associated with everyday life [8] - ability to execute tasks of daily living [11]
Independence	<ul style="list-style-type: none"> - existing functions and skills that enable an independent and self-responsible life [1] - master daily routines independently [2] - within their physical or cognitive abilities, residents were as independent as they want to be [3] - independent execution of activities of daily living [4] - ability to live safely and live independently [8] - the abilities and skills to maintain an independent, self-responsible and meaningful life [4]
Control	<ul style="list-style-type: none"> - extent to which a person perceives events to be contingent on his/her action [2] - ability to sustain a sense of personal control; to control one's personal environment [5]
Perceived Competence	<ul style="list-style-type: none"> - the realization of one's own preferences and goals [1] - comprehensive construct which integrates aspects of independence, self-determination and experienced meaning of life [4] - reflection of one's own actions, as well as motivation to define goals and realize them [4] - ability and willingness to shape the own life in a way that follows one's own principles of a good life [4] - the impact of the physical, social and infrastructural environment on independence, self-determination and experience meaning in life [4] - people are open to the challenging nature, the stimulating content of a situation [4] - feelings of usefulness [6] - personal growth, enjoyment, accomplishment [6]

Functional Competence

As the label *functional competence* already indicates, most of the extracted themes refer to observable abilities and capacities, which enable the NH resident to master one's daily course and to live an independent life. Accordingly, functional competence was measured as

an observable construct by means of behavioural signs or reflections by the researchers themselves, a clinician or the nursing staff.

Cognitive Competence

In total, twelve codes have been derived from five different articles, which can be grouped to *cognitive competence*. Based on the detected codes, cognitive competence denotes brain's functional abilities of residents that enable them to be in a dynamic exchange with the environment in form of information processing and understanding, reasoning and problem-solving abilities, purposeful action and successful learning. Therefore, the level of cognitive functioning, especially in terms of understanding information and reasoning, was from great interest in these studies, which is why they made use of measures like the MMSE (Folstein et al., 197) to assess cognitive abilities ([9]). To further narrow it down, two subthemes can be outlined, namely *decision-making competence* and *communicative competence*.

The *decision-making competence* was mostly found in the context of medical decision making, e.g. treatment or medication issues ([7], [8], [10], [12]). Three studies outlined four elements of competence that build-up to the competence of medical decision-making, based on a definition of Grisso, Grisso and Appelbaum (1998) ([7], [8], [10]). These incorporate the understanding of information, appreciation of situations including risks and consequences of decisions, reasoning and finally, communication of choices. It was striking, that competence was defined as a dichotomous variable in this context by two articles ([10], [12]).

Consequently, a NH resident is either conceived as being competent to make medical decisions or as being incompetent based on their cognitive abilities. To assess the level of decision-making competence an external observer like the researcher or staff members were instructed to judge about function, cognition and judgement in the framework of different assessment tools like the Hopemont Capacity Inventory (Edelstein, 1993) or the Understanding of Treatment Disclosure (Grisso, Grisso, & Appelbaum, 1998) ([7], [8], [10], [12]). Overall, there was a consensus in the literature, that the comprehension of information,

as well as weighing risks and benefits of decisions are key concepts for decision-making competence ([7], [8], [10], [12]).

Two codes are found in one article that can be summarized to *communicative competence* ([9]). This subtheme entails not only the aspect of verbalizing one's intent but also the aspect of interacting appropriately, i.e. understanding the utterances made by others and expressing a suitable reaction. Based on Gleason (2005), Moos (2011, p. 332) defined: "*communicative competence is the ability to use language and express one's intent in a variety of situations.*" The author also outlined the factor that communicative competence can be observed when considering the number of words a NH resident uses in conversations.

Behavioural Competence

In sum, fifteen codes have been detected in the definitions provided by eight different articles, which related to the experience of competence in behavioural terms. *Behavioural competence* includes physical, functional abilities that enable the NH resident to engage in activities of daily living. This incorporates not only fundamental activities like eating, walking or washing oneself but also more expanded activities like playing the piano or dancing. Therefore, most of the researchers who defined competence in behavioural terms implemented behavioural measures like the Barthel Index (Mahoney et al., 1965) to determine the level of physical abilities and disabilities based on external observations. The factors of independency and control appear to be central to the concept of behavioural competence. Based on the extracted codes, three subthemes emerged in the current context: *activities of daily living, independence and control.*

Four authors defined competence in terms of *activities of daily living* which especially highlights the skills and physical abilities that are needed every day and are necessary to master one's daily life ([2], [6], [8], [11]). The model of "everyday competence" developed by Baltes, Mass, Wilms, Borchelt, & Little (2001) was recurrent in two articles ([2], [6]). This model distinguishes basic competence (BaCo) from expanded competence (ExCo). BaCo

entails routinized activities that are essential for survival and universally normative like eating or drinking. ExCo includes activities that are based on individual preferences, which give life meaning and are strongly culturally determined. Similarly, the other two articles highlighted the central role for skills and abilities in the context of NH residents when it comes to the experience of competence ([8], [11]). Central in these definitions is the ability to problem-solve utilizing existing skills and to engage in tasks of daily living.

Another important theme is *independence*, which was detectable in five articles ([1], [2], [3], [4], [8]). On the one hand, *independence* is related to the way of executing daily activities ([2], [4]). In this context, the experience of competence is associated with an observable construct, i.e. the extent to which NH residents can execute tasks independently without the support of NH staff or family members. On the other hand, *independence* was outlined as a subjective experience resulting of existing abilities and skills that enable the NH resident to execute tasks without help ([1], [3], [8]).

The last subtheme of behavioural competence describes the aspect of *control*, which was detectable in the definitions of two articles ([2], [5]). Maintaining personal control was outlined from two perspectives. First of all, *control* was associated with the execution of activities, i.e. having control over the own body ([5]). For instance, a NH resident can put one foot after the other to walk. Secondly, *control* is also connected to the personal environment of the NH resident, for instance, the responsibility to care for flowers by means of regularly water them ([2], [5]).

Perceived Competence

In total, eight themes from three articles can be summarized to *perceived competence*, which denotes a subjective experience and reflects a psychological dimension of competence. Whilst one study ([6]) came up with a definition of competence as part of the results based on self-report data, two studies ([1], [4]) implemented self-developed questionnaires based on a definition of the subjective experience of competence.

Two authors stated that competence is about the realization of one's preferences and goals in life as well as to live a life that follows one's intentions and values ([1], [4]). Moreover, one author argued that not only physical and social environments are influential but also the infrastructural environment has a stimulating influence on the perceived level of competence in NH residents ([4]). Therefore, competence entails a motivational aspect which is not only located within the NH resident but is also connected to the stimulating nature of the environment.

On the other hand, there are also codes, which represent the connection of the experience of competence with specific emotions, cognitions and feelings. Accordingly, the experience of competence evokes perceived independence, self-determination and meaning in life ([4]). Furthermore, competence is associated with confidence, which enables the NH resident to be open for (novel) situations ([4]). One study defined competence in terms of self-report data provided by NH residents, by which especially feelings of usefulness were mentioned by the older adults of the sample ([6]).

Comparison of the Conceptualizations of Competence with Perceived Competence according to the Basic Psychological Needs Theory

Thus far, the results in this review outlined two important themes for the definition of competence in NH residents: *functional competence* and *perceived competence* including subthemes. To answer the second research question, the detected themes are compared to the definition provided by Deci & Ryan (2000).

The theme of *functional competence* including both subthemes of *cognitive* and *behavioural competence* are different from the concept of competence in the framework of the BPNT (Deci & Ryan, 2000) in a number of respects. While objective, cognitive and behavioural abilities and capacities are central in the reviewed codes, the BPNT (Ryan & Deci, 2000) defines competence as a subjective experience of effectiveness and mastery. Whether the focus is on cognitive capacities or behavioural skills, a dynamic exchange with

the environment is the result of the sum of objective abilities. This notion is in contrast to the SDT (Deci & Ryan, 2000), which incorporates this subjective experience of interacting with the environment as a central aspect of the definition of competence.

The codes that are summarized to *perceived competence* support the notion of an experience-based definition such as the definition of competence according to the BPNT (Deci & Ryan). Especially the aspect of *feelings of effectiveness and mastery* were identified in the codes ([1], [4], [6]). For instance, one study outlined feelings of usefulness and experience of personal growth, enjoyment and accomplishment based on self-report data from NH residents ([6]). Moreover, aspects of independence, self-determination and experienced meaning of life are outlined by one author ([1]). Next to that, the BPNT (Ryan & Deci, 2000) refers to the *experience of optimal challenging activities*, which is also recurrent in two articles ([4], [6]). Furthermore, one author ([4]) outlines the stimulating nature of the personal environment on the experience of competence, which is comparable to what Deci & Ryan (2000) posed as a *dynamic exchange with the environment*. Finally, the last aspect of *developing and experiencing skills and abilities* is presented by two articles ([1], [4]). However, the experience of skills is more central in these codes than the development of (new) skills.

Discussion

This research aimed to investigate the conceptualizations of competence in NH residents and the methods to assess this concept in the NH context, as well as to ascertain how these conceptualizations can be compared to the concept of competence in the context of the BPNT (Ryan & Deci, 2000).

The first aim of this study was to review the available definitions of the experience of competence in NH residents. The results of this review indicate that competence represents a comprehensive construct incorporating different dimensions, e.g. *perceived competence*, *cognitive competence*, but also *control* or *decision-making competence*. This finding supports

a similar observation by Altman et al. (1992) which was already introduced in the beginning, and also ideas reported by Sternberg & Kolligian (1990) in their book “Competence considered”. By drawing on the concept of competence in the context of the general population, Sternberg & Kolligian (1990) have been able to show that competence entails different dimensions. They also identified a functional dimension of competence next to a psychological dimension similar to the perceived competence of the current context. This observation may support the hypothesis that the different dimensions of competence can become more or less important depending on the focus of research in NH literature. Studies, which defined competence in terms of a subjective experience, were mainly focused on aspects of mental health of NH residents ([1], [4], [6]). This focus is comparable to studies that were conducted in the framework of the SDT (Deci & Ryan, 2000), which showed a great interest in associations between competence satisfaction and well-being (Custers et al., 2014; Ferrand et al., 2014, 2019; Kloos et al., 2019). In contrast, studies which were more focused on the evaluation of competence in NH residents outlined a critical role for functional competence in terms of observable skills and capacities (e.g. [8], [10], [11]).

In addition, it is important to outline the important role of functional competence in the context of NH residents. Consistent with the literature, this review found a bigger number of articles which were interested in *functional* competence than in *perceived* competence (e.g. Altman et al. 1992; Cohen et al., 2018). This finding corroborates the idea of Altman et al. (1992), who suggested that functional abilities and disabilities are key determinants of ageing and thus, play an important role in the context of NH residents. This specific focus on functional abilities in the definition of competence is not only restricted to the specific sample of NH residents, but it is also found in the literature in the general context of older adults (e.g. Willis, 1996; Diehl, 1998) and in the context of people suffering from cognitive disorders (e.g. Breen, Larson, Reifler, Vitiliano, & Lawrence, 1984; Matsuda & Saito, 2005) like (young) people suffering from schizophrenia (e.g. Bowie, McGurk, Mausbach, Patterson, &

Harvey, 2012; Kalache, Mulsant, Davies, et al., 2015; Tsoutsoulas, Mulsant, Kalache, et al., 2016). Together, these samples have in common that the people have an increased vulnerability due to increasing cognitive decline and brain abnormalities. The ageing process, as well as progressive disorders like schizophrenia or dementia have an influence on functional abilities of the individual and in turn on everyday activities, which is why the the concept of functional competence gains heightened interest in these contexts.

The second aim of this study was to review the methods of assessing competence in NH residents. The most obvious finding to emerge from the analysis is that most of the reviewed studies define competence in terms of an observable phenomenon in NH residents, which is measurable for the environment. This finding corroborates the observation of McPherson and Koltai (2018), who suggested that competence and capacity are often used interchangeably in Assessment Literature about competence in older adults, which represents a comparable sample to NH residents. Furthermore, the idea of an observable construct can be connected to what Sternberg, & Kolligian (1990) outlined as the “labelling phenomenon” which summarizes the evaluative component of competence. Accordingly, competence is about the ascription of performance, i.e. how well a person performs based on the perception of another (Sternberg, & Kolligian, 1990). Altman et al. (1992) already posed the problem that competence is in that sense in the eye of the evaluator.

This is in contrast to the approach taken by the studies conducted in the framework of the SDT (Ryan & Deci, 2000), which implemented questionnaires about need satisfaction that were filled out by the NH residents themselves. In these studies, competence is recognized as a subjective experience that is more inherently perceivable rather than observable. For instance, Ferrand et al. (2014, 2019) measured the fulfilment of competence using the items of the subscale of the Intrinsic Motivation Inventory (IMI; McAuley, Duncan, & Tammen, 1989) e.g., "I feel pretty competent". In the same vein, Custers et al. (2010) and Kloos et al.

(2019) employed the BNSL-S (Gagné, 2003) to measure perceived competence e.g., "People I know tell me I am good at what I do".

In general, therefore, it can be hypothesized that assessed levels of competence in either domain will not reflect a whole picture of the total level of competence. As Sternberg & Kolligian already argued, an external observation of (functional) competence of a NH resident may only have a small relationship with the level of (perceived) competence by the NH resident itself. In the same vein, Cohen et al. (2018) outlined in the context of older adults that the results on various domains of competence can vary, e.g. one can feel effective and display high levels of perceived competence, while one is not competent to independently drive a car due to cognitive limitations. Overall, this study strengthens the idea that the experience of competence lies in the eye of the assessor and those measures of one domain cannot reflect a whole, global picture of competence in a NH resident. Therefore, measures like the BNSL-S (Gagné, 2003) for assessing the satisfaction of the basic psychological need of competence are limited to the psychological domain of competence.

The third aim of this study was to compare the definitions of competence of the reviewed articles with the definition of perceived *competence* according to the BPNT (Deci & Ryan, 2000). The results indicate that the codes summarized to *perceived competence* are comparable to the notion of the BPNT (Deci & Ryan, 2000), whereas the codes summarized to *functional competence* emphasized behavioural and cognitive abilities to define competence in NH residents. Taken together, these definitions support the notion that the definition of competence in the framework of the BPNT (Ryan & Deci, 2000) denotes the essence of *feeling effective* during the daily course (i.e. "How competent do you feel?"). The essence of this definition is similar to the notion detected in the codes summarized as perceived competence. In contrast, the theme of functional competence including both *cognitive* and *behavioural competence* relates to the notion of *being effective* during the daily course (i.e. "How competent are you?"). To exemplify this, the reviewed articles outlined aspects like *make* meaningful decisions ([7],

[12]), the *ability* to use language ([9]) and the *ability* to execute tasks of daily living ([11]). In contrast, previous research conducted in the framework of the SDT (Ryan & Deci, 2000) in the context of NH residents conceptualizes competence with "*experiencing* opportunities for using and extending skills" (Legault, 2017, p. 2), "*feeling* effective" (Custers et al., 2011, p. 1428; Kloos et al., 2019, p. 636; Martinent et al., 2018, p. 1) or the "*perception* that one's behaviour results in the intended outcomes" (Custers et al., 2010, p. 732). Hence, the focus is more on the subjective experience of competence.

To summarize, competence phrased as *capability* and competence in terms of *perceived effectiveness and mastery* face each other. In the light of all that has been mentioned so far, one may suppose that the experience of perceived competence according to the BPNT (Deci & Ryan, 2000) is most appropriate for research in the context of mental health in NH residents. In this context, the construct reflects the subjective, psychological dimension of perceived *competence*. In contrast, competence in terms of *capability* is more appropriate for the research context of competence evaluation in NH residents. In order to assess the influence of ageing on the level of competence, a definition of an objective, observable phenomenon is more appropriate to enable an evaluation from a neutral and comparable perspective (Cohen, Schultz, Sepehry, & Stewart, 2018).

The findings of the current research contribute to the knowledge of the conceptualization of the experience of competence in the specific context of NH residents. While the definition of competence provided by the BPNT (Deci & Ryan, 2000) is considered as being universal and applicable across different samples, additional important aspects concerning the experience of competence in the specific sample of NH residents have emerged, that are important to consider when looking at competence in this context. Although there was one qualitative study included in the final sample that was interested in the subjective experience of well-being in NH residents ([6]), most of the reviewed studies relied on a definition of an objective phenomenon and thus, on objective measures. Additional

research with a greater focus on the subjective experience of competence by NH residents could produce interesting findings. Therefore, future research could take in an explorative approach in form of interviews or focus groups to the experience of competence to investigate how NH residents perceive and define this phenomenon.

Strengths and Limitations

First of all, the current systematic literature review was conducted following the PRISMA guidelines (Moher et al., 2009), which can be outlined as a strength. Another big advantage of this study is that the systematic literature search was also conducted by a second researcher, which resulted in a substantial agreement for the selection of articles for the final sample. Cuijpers (2016) already outlined that the involvement of a second researcher helps to ensure the reliability of the study. Another strength of this research is the extensive iterative search process for keywords to build the final search string, as well as to conduct the literature search in four different databases.

However, the most important limitation of this study lies in the fact that the search string excluded documents, which included the keywords of "nurse" and "staff", to exclude studies, which were interested in competence in staff members or nurses. Notwithstanding, by excluding documents with these keywords, important documents might be overseen, because even in the context of NH residents, staff members and nurses often play an important role and are an integral part of the study. A second limitation is the small final sample of records, which can be argued due to the restricted access to literature due to limited monetary resources to buy access to specific literature, but also due to the exclusion of literature, which is not written in English or German. Therefore, this review might be limited in its transparency of the available definitions of competence in NH residents. Another, small, yet noteworthy limitation is that only a few authors went into detail when it comes to the precise conceptual process of elaborating the definition, even though they all included a definition.

Conclusion

This systematic review identified twelve articles presenting definitions of competence in older adults living in NH or other long-term care facilities. Although there is one review available in the context of NH residents, which summarizes available psychological models of competence (Altman et al., 1992), this is the first study that reviews the available definitions of competence in NH residents. The combination of different findings for the definition of competence in NH residents provides support for the conceptual premise that *competence* is a multidimensional concept. The BPNT (Deci & Ryan, 2000) provides an account for a psychological dimension of competence. This is in line to what was found as *perceived competence* in this review. However, in this specific context of NH residents, the dimension of *functional competence* is also of great importance. The findings outline a critical role for specific cognitive and behavioural abilities and skills, especially for research conducted in healthcare or legal contexts of NH residents. Overall, this study strengthens the idea that the experience of competence in NH residents is dependent on the eye of the assessor because it can be defined and measured as an objective and subjective phenomenon. Therefore, measures in the framework of the SDT (Deci & Ryan, 2000) are only limited in capturing the whole picture of competence in NH residents. Future research could take in a more explorative approach to the definition of competence in NH residents to gather more data about the subjective experience of perceived competence.

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Appendices

Appendix A

Search Terms Identified Through an Iterative Search Process for the Electronic Search

PICO	Basic Search Terms	Identified search terms
<i>Population</i>	Residents	frailty, "older adults", "older people", ag*, elderly, "very elderly", "frail elderly", "oldest old", "nursing home resident", "nursing home patient", "institut*ied older person", "Aged 80, and over", "among the older"
<i>Experience of Interest</i>	Competence	"activity engagement", "everyday competenc*", "ability", "disability", "incompetenc*", "everyday activity", mastery, Self-efficacy, "activity involvement"
<i>Context</i>	Nursing Homes	"Institutional care", "Home for the aged", "Person-centred care", "long*term care", "Dementia care homes", "assisted living facility", "long*term care facility", "aged care facility"