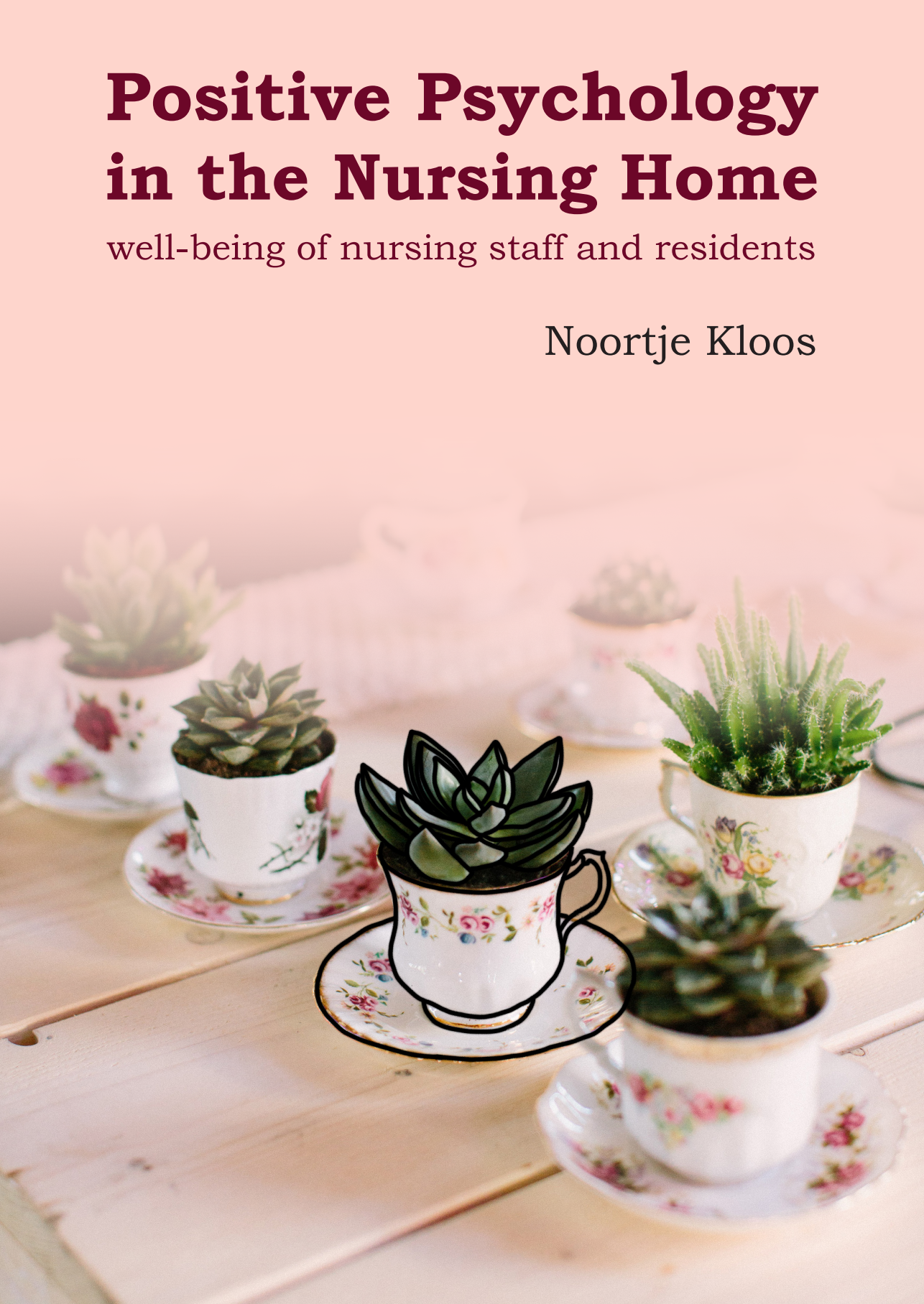
Positive Psychology in the Nursing Home

well-being of nursing staff and residents

Noortje Kloos



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WELL-BEING OF NURSING STAFF AND RESIDENTS

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Self-determination Theory

like a plant needs soil, water, and sunlight,
so do people need autonomy, relatedness and competence
to grow

CONTENT

During the summer of 2006 (when I started dating my now-husband), I was 16 years old and started working as a care aid in a nursing home in my home town. Back then, the lack of any care education was no problem, a couple of days following another employee would give me all the skills I needed. I remember having mixed feelings about the job: I had to start quite early and often felt like I had no idea what I was doing, but I also loved that it was very meaningful work, especially compared to all the alternative summer jobs available.

I never could have imagined how this would later inspire my PhD-research.

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General Introduction

When you're young, you can't wait to grow up. As an adult, until about the age of sixty, you want above all to stay young. But when you're as old as the hills, you've got nothing left to strive for. That is the essence of the emptiness of life in here. There are no more goals. No exams to pass, no career ladders to climb, no children to raise. We are too old, even, to babysit the grandchildren.

In this stimulating environment, it isn't always easy to set yourself a modest goal or two. When I look around I see only passive resignation in people's eyes. They're the eyes of people with nothing to do but go from cup of coffee to cup of tea and back again.

I may have said this before.
Maybe I shouldn't grumble so much.
I should just work harder at making sure that every day is worth living.
Or at least every other day.

The secret diary of Hendrik Groen, 83 ¼ years old
Wednesday, 24 April

INTRODUCTION

Generally speaking, nursing homes are not very attractive. Substandard quality of care and unworkable situations for nursing staff are regularly reported in the news, and nursing homes are generally places where nursing staff do not want to work and older adults do not want to live (Gillsjö, Schwartz-Barcott, & Von Post, 2011; King, Roberts, & Bowers, 2013). An abundance of literature describes the high turnover, insufficient staffing, lack of reward, high workload, and subsequent feelings of guilt, anxiety, burnout and stress for nursing staff, and loneliness, apathy, aggression and depression for nursing home residents (e.g., Drageset, Kirkevold, & Espehaug, 2011; Gallego-Alberto et al., 2018; Jongenelis et al., 2004; McVicar, 2003; Zwijsen et al., 2014). Such problems are serious, especially against the background of the increasing shortage of qualified nursing staff (Spetz, Trupin, Bates, & Coffman, 2015; WHO, 2013), and the rapidly aging population, leading to increasing numbers of older adults needing long-term care (UN, 2015). The traditional emphasis has thus been on diminishing such negative aspects of nursing home work and living. This thesis, however, takes a complementary positive psychology approach, investigating how positive aspects of well-being can be monitored and improved in the nursing home.

Two essential parties in the nursing home context are centralized in this thesis: nursing staff and nursing home residents. *Nursing staff* (or professional caregivers) refers here to all people who provide physical care for older adults living in the nursing homes, with various education levels (from registered nurses to nurse aids). *Nursing home residents* refers to all older adults living in the nursing home, and we adopt the term *older adults* here, not 'the elderly' which can be interpreted as an offensive stereotypical term (Avers, Brown, Chui, Wong, & Lusardi, 2011; comparable to 'bejaarden' in Dutch). This thesis examines the current states and antecedents of the well-being of nursing home staff and residents, as well as the efficacy, acceptability, validity and implementation of interventions aimed at improving well-being in the nursing home. This general introduction will briefly describe Dutch nursing home living and working, place our research within the holistic person-centered care approach, define well-being from a positive psychology perspective, and introduce the Basic Psychological Needs Theory as an important well-being theory for our research. Furthermore, the effectiveness and implementation challenges of interventions aimed at well-being in the nursing home context are described. Finally, I will give an overview of the five articles that comprise the body of this thesis.

Dutch nursing home living and working

History

The studies in this thesis were all conducted in the Netherlands, where we have a long history of caring for older adults, starting with the poorhouses in the 14th century. Over the past century, the responsibility for the housing and care for older adults has varied. The Poor Act in the early 1900's held families accountable, but to resolve the housing shortage after WWII, the government invested in retirement homes where older adults could enjoy the final years of life. A few decades later, from the 1970's onwards, care had become too expensive and older adults were increasingly encouraged to 'age in place' (i.e., living and receiving care at home). Recently, this trend was emphasized further with the Dutch Long-term Care Act of 2015, creating stricter guidelines regarding care requirements and nursing home placement, again stimulating families to participate in the care of their loved ones. Although the resulting aging in place is generally in line with what older adults want (Farber, Shinkle, Lynott, Fox-Grage, & Harrell, 2011), it also means that the older adults who do receive nursing home placement are increasingly fragile. A 2015 national report showed that most Dutch nursing home residents were women of 80 years or older, with memory problems, and serious comorbidities and/or chronic physical complaints (Verbeek-Oudijk & van Campen, 2017).

Nursing home practice

It is often difficult to determine the cross-national comparability of places that provide care for older adults when various terms are used interchangeably in literature, such as long-term care facility, residential home, retirement home and intermediate care facility. In the Netherlands there used to be a clear distinction between care homes ('*verzorgingshuizen*') providing help with activities of daily living, and nursing homes ('*verpleeghuizen*') providing more specialized medical care (de Klerk, 2005). However, as this distinction is quickly fading, we do not differentiate between these two when using the term *nursing home* in the current thesis.

Still, Dutch nursing homes increasingly include separate small scale enclosed units for people with (advanced) dementia (i.e., psychogeriatric units). These units often contain one-bedroom studios with shared bathrooms, and one central 'living room' where most activities of daily living take place. Residents in the other units of the nursing home (i.e., units for physically frail older adults) often have apartments with a separate sleeping- and living room, and a private bathroom. Generally, their morning coffee and hot lunch meal are consumed in the central 'restaurant', where common activities are also organized, but otherwise the majority of daily life for

these older adults takes place in their own apartments. However, many residents inevitably progress towards more advanced stages of dementia without relocating to a psychogeriatric unit, so the differentiation is often not so strict. In this thesis, three of the studies (Chapter 3-5) were conducted with nursing staff and/or residents in units for physically frail older adults, while the two other studies were conducted in both types of units (Chapter 2 and 6).

Dutch nursing home staff work in teams, usually with one team per unit (often divided by floors). Comparable to other countries, educational requirements for nursing home staff have become stricter in the Netherlands, but many nursing staff are still nurse aids, or licensed practical nurses (Dutch *verzorgende*), and there is often only one registered nurse (Dutch *verpleegkundige*) per nursing home location. Staffing differs per nursing home, and depends on time of day and type of unit. For example, in one nursing home involved in this study, morning care in the psychogeriatric unit began with two nursing staff for each unit of about eight residents, and dropped at 13:30 to one nursing staff per unit, and from 15:30 there was extra help for dinner and cleaning in the living room. Morning care in units for frail older adults started with two nursing staff for each unit of about 12 residents (and one extra nurse aid that assists in all five units), and decreased at 11:00 to one nursing staff per unit (and one or two extra staff for all five units). At night, two or three nursing staff worked in all units of the nursing home combined. Nursing staff have various tasks and responsibilities, namely, they provide physical care (e.g., wound care, first aid, pharmacological care, treatment of illness, monitoring nutrition), help with activities of daily living, and may also help with recreational activities, have contact with family members, document care, and contribute to the well-being of residents.

A holistic person-centered approach

Care for older adults is generally changing from a traditional medical model with a strong focus on physical care, towards a more holistic view of nursing home living that also takes into account the experiences of older adults. Since the late 1990's, the nursing home Culture Change Movement in the United States has strived to make nursing homes more person-centered by making them more homelike, facilitating close relationships, empowering staff, decentralizing decision making, and making comprehensive quality improvements (Koren, 2010), which is also endorsed by the Dutch Government (Zorginstituut Nederland, 2017). Although various definitions of person-centered care exist (PCC; American Geriatrics Society expert panel on person-centered care, 2016), it can generally be understood as a personal way

to connect with residents, from the holistic perspective that residents are unique persons who are more than their mental and physical illness, and who have unique personal subjective experiences and preferences (Brooker, 2004; Edvardsson, 2015; Edvardsson, Winblad, & Sandman, 2008). This is why the term *person*-centered care is more appropriate than *patient*-centered, *resident*-centered, or *client*-centered care, although these are used interchangeably in literature. As a concept, PCC is better aligned with the way nursing staff want to provide care (Edvardsson, Sandman, & Borell, 2014) and can therefore be beneficial for the well-being of nursing staff (e.g., Jeon et al., 2011), as well as for residents (e.g., Chenoweth et al., 2009). In fact, improved resident well-being is proposed as one of the core outcomes of PCC (McCormack & McCance, 2006).

Well-being as central outcome

Positive Psychology

This thesis takes a positive psychology perspective on well-being. In the past, especially following WWII, psychology had been mainly concerned with alleviating problems of mental health. This is also visible in long-term care literature which has predominantly focused on coping with stress and reducing burnout of nursing staff (e.g., Westermann, Kozak, Harling, & Nienhaus, 2014), and reducing loneliness and depression in nursing home residents (e.g., Leontjevas, Gerritsen, Koopmans, Smalbrugge, & Vernooij-dassen, 2012). However, it is increasingly acknowledged that reducing such problems is not a comprehensive solution: a person without mental health problems is not necessarily optimally functioning (e.g., Lamers, Westerhof, Bohlmeijer, Ten Klooster, & Keyes, 2011b). In order to balance the predominantly negative emphasis in psychology, Martin Seligman and Mihaly Csikszentmihalyi plead for more attention to the positive aspects of human functioning in their 2000 article *Positive Psychology: An Introduction*. Since then, there has been growing interest in positive psychology literature on topics such as positive emotions, resilience and positive relations.

Defining well-being

The question of *what makes life worth living* is not new, but rather dates back to the early philosophers, in which two main traditions can be distinguished; concerning *feeling good* and *doing well*. First, in the hedonia tradition, Aristippus of Cyrene (435-356 BC) described a good life as one that consists of maximum amounts of pleasure. The concepts of subjective well-being and happiness fit in this tradition, defined as experiencing a high amounts of positive emotions and low amounts of

negative emotions, as well as feeling satisfied with life (Diener, Emmons, Larsen, & Griffin, 1985). However, one can imagine that a life solely concerned with striving for hedonic well-being may not be a fulfilling life. In the eudaimonia tradition, Aristotle (384-322 BC) described a good life as a continuous process of fulfilling one's potential. The concepts of social well-being (Keyes, 1998) and psychological well-being fit in this tradition, including aspects of hope and purpose in life (Ryff, 1989). More recently, some scholars (Keyes, 2002) proposed a combination of both aspects of feeling good and doing well into one comprehensive multi-component well-being definition of positive mental health, which we follow in the current thesis.

The general well-being of nursing staff is assessed in this thesis by measuring their subjective well-being, as well as psychological and social well-being. Furthermore, their work-related well-being is measured with job satisfaction (*feeling good*) and work engagement *(doing well*). Work engagement is defined as the persistent positive state of fulfilment by one's job, characterized by absorption in tasks, vitality and devotion to the job (Schaufel, Salanova, Gonzalez-Roma, & Bakker, 2002a). For older adults, we also investigate their subjective well-being, and their engagement. Here, engagement concerns being so absorbed in an activity that one forgets everything (time, fatigue) but the activity itself, which is sometimes also described as experiencing flow (Csikszentmihalyi, Nakamura, & Abuhamdeh, 2015).

Attention to basic psychological needs

The theory

In this thesis, we propose that certain aspects of established psychological theories may support PCC efforts in the nursing home to improve well-being. One well-being theory that has great practical potential for the nursing home, but thus far rarely adopted in this context, is the Basic Psychological Needs Theory (BPNT; Ryan & Deci, 2017). The BPNT outlines that well-being can be facilitated by the satisfaction of three innate basic psychological needs of autonomy, relatedness and competence (Ryan & Deci, 2000). From this perspective, the basic need of *autonomy* refers to having a sense of volition in the regulation of behavior, with actions feeling congruent with one's own values and interests (Ryan, Huta, & Deci, 2008). So in that sense, autonomy is about choice, rather than independence. *Relatedness* refers to feeling connected to others, a sense of belongingness and experiencing mutual support. Finally, *competence* refers to expressing one's abilities, feeling effective in attaining desired outcomes and in challenging tasks. The BPNT proposes that living a life that satisfies these three needs is the process of eudaimonic well-being,

which in turn can lead to stable hedonic well-being (Ryan et al., 2008). A social context like the nursing home can facilitate well-being through supporting these needs; just as plants need soil, water and sunlight to grow, humans need these psychological nutrients to thrive.

The BPNT is not strictly a positive psychology theory as it also describes how need-frustration can lead to ill-being (Vansteenkiste & Ryan, 2013), but it does view all individuals as having an inner tendency towards psychological growth and well-being. It is actually a sub-theory of the Self-determination Theory (SDT), although these are often used interchangeably in the literature. The elegance of the BPNT lies in its clarity, proposing only three factors to pay close attention to when wanting to support well-being, which would fit the already hectic context of the nursing home. Furthermore, the BPNT has been explored in other contexts such as sport, education and gaming (Ryan & Deci, 2017), and there is increasing interest in applying this theory within the work domain and in the health care context (Van den Broeck, Ferris, Chang, & Rosen, 2016; Ng et al., 2012). However, research on basic psychological needs in the nursing home is lagging behind.

Basic psychological needs in the nursing home

A nursing home can restrict the satisfaction of the aforementioned basic psychological needs, both for nursing staff and for residents. Nursing staff often feel that they have a high workload and little control over the tasks they have to do, and as a result, they may not feel effective (restricting autonomy and competence), and they may also face conflicts with colleagues (reducing relatedness satisfaction). Nursing home residents often have to conform to the nursing home schedule for getting in and out of bed and eating (restricting autonomy), often have difficulty socializing with other residents (reducing relatedness), and are being confronted with declines in physical functions (reducing the sense of competence).

The limited research that is available on the basic psychological needs for nursing staff did not concern nursing staff that work in nursing homes, or did not investigate the satisfaction of these needs at work (e.g., Gillet et al., 2018; Ferrand, Courtois, Martinent, Rivière, & Rusch, 2017). Furthermore, while the BPNT clearly describes that the three needs are important for well-being across the life-span (Ryan & Deci, 2001), support for this has primarily come from research with children, youth, and (young) adults. Only a handful of studies have focused on older adults in nursing homes, and these showed limited support for the BPNT (e.g., Kasser & Ryan, 1999; Vallerand, O'Connor, & Blais, 1989), and were mostly cross-sectional (e.g., Custers, Westerhof, Kuin, & Riksen-Walraven, 2010). This thesis contributes

to the BPNT literature in the nursing home setting, by conducting longitudinal research with nursing home residents, and examining need satisfaction at work of nursing home staff.

BPNT propositions

Besides the lack of research on the BPNT in the nursing home context, there are also some propositions of the BPNT for which support in previous research has not always been sufficient. First, all three needs are proposed to be *uniquely* important for well-being (Ryan & Deci, 2000), comparable to plants needing all three: soil *and* sunlight *and* water. Indeed, all three needs are purported to be uniquely related to (work-related) well-being in other work contexts (Van den Broeck et al., 2016), but some studies found that only competence was related to the well-being of nurses, pharmacists and midwifery students (e.g., Bernard, Martin, & Kulik, 2014). For older adults in residential homes and hospitals, previous studies showed only one or two needs being uniquely related to well-being (Ferrand, Martinent, & Durmaz, 2014; Souesme, Martinent, & Ferrand, 2016).

It is further suggested that because of the unique contribution of all three needs, that the satisfaction of all three needs should be *in balance* for optimal well-being (i.e., the balance hypothesis, Sheldon & Niemiec, 2006). This would mean that high satisfaction of one need cannot compensate for low satisfaction of another, like high amounts of sunlight cannot compensate for low amounts of water. It remains unclear, however, whether balanced need satisfaction is also important for older adults, or in the work context of nursing staff, as the few studies that tested this balance hypothesis mainly concerned general need satisfaction and well-being with students (e.g., Sheldon, Abad, & Omoile, 2009).

Finally, the BPNT proposes that the basic psychological needs are universal requirements for well-being (Ryan & Deci, 2000). This universality claim describes that while people may differ in how important they think that autonomy, relatedness and competence are to them, the satisfaction of these needs is still beneficial for the well-being of *everyone*. However, the potential consequences of personal differences in need valuation has only recently been studied (Ryan, Soenens, & Vansteenkiste, 2019), showing inconclusive findings (e.g., Chen et al., 2015b; Custers, Cillessen, Westerhof, Kuin, & Riksen-Walraven, 2014).

Testing these propositions is important because they are central to the BPNT. Furthermore, it is important to test whether the BPNT also holds in the nursing home context, as it has great potential to guide nursing home research and practice

in their efforts to provide PCC and improve well-being in the nursing home by focusing attention to all three of the basic psychological needs.

Positive psychology interventions to improve nursing staff well-being

Besides measuring positive aspects of well-being and its antecedents in the nursing home, this thesis aimed to examine ways to actually improve the well-being of nursing home staff and residents. Optimizing mental well-being is a rather new and growing area of research (Rusk & Waters, 2013). This seems to be an important objective, particularly since well-being is related to various positive outcomes, such as improved physical and mental health, reductions in mental illness, intention to stay in the organization, sociability and effective conflict resolution skills (e.g., Decker, Harris-Kojetin, & Bercovitz, 2009; Hone, Jarden, Duncan, & Schofield, 2015; Keyes, Dhingra, & Simoes, 2010; Lyubomirsky, King, & Diener, 2005). Various positive psychology interventions have been developed, for example asking people to savor their positive emotions by dwelling on three things that went well in a day (Seligman, Steen, Park, & Peterson, 2005), or to perform acts of kindness (Curry et al., 2018). Such interventions can be effective in improving well-being for various groups (Bolier et al., 2013b; Sin & Lyubomirsky, 2009; Weiss, Westerhof, & Bohlmeijer, 2016), especially when combining several exercises in one multi-component intervention (Hendriks, Schotanus-Dijkstra, Hassankhan, de Jong, & Bohlmeijer, 2019).

Nursing home staff generally have difficulty taking time for their own well-being (Crane & Ward, 2016), but a nursing home could support them by offering them a flexible online self-help positive psychology intervention. Even when aimed at general personal resources like resilience and optimism, such an intervention is has potential to improve both general and work-related well-being. The job-demands resources model proposes that personal resources support people to better utilize job resources like social support, which in turn is beneficial for work engagement (Demerouti & Bakker, 2011). Indeed, previous studies have found some promising results of positive psychology interventions in the work-context (e.g., Ouweneel, Le Blanc, & Schaufeli, 2013), but the very limited number of studies aimed at nursing staff had insufficient participation rates, did not include a control group, or did not measure well-being as an outcome variable (e.g., Bolier et al., 2014). It remains unclear whether such interventions are also effective for nursing home staff, who often have lower levels of education. Moreover, little is known about the acceptability of such well-being interventions in the workplace (Gilbert, Foulk, & Bono, 2018).

Person-centered care innovations to improve resident well-being

For nursing home residents, a variety of Culture Change and PCC innovations have been developed to improve their well-being, like providing person-centered mouth care and showering practices, or enhancing the dining experience and social integration (e.g., Zimmerman, Sloane, Cohen, & Barrick, 2014; Bhat, Wagle, McProud, & Ousey, 2016; Leedahl, Chapin, & Little, 2015). In this thesis, we propose a PCC innovation to improve resident well-being from a positive psychology perspective, combining well-being assessments with supporting the basic psychological needs.

Monitoring resident well-being

Client reports often do not include documentation of resident well-being (Broderick & Coffey, 2013), which makes it difficult to monitor the progress of PCC innovations in the nursing home in terms of improving resident well-being. Previous studies showed that nursing staff are not always very good in assessing the well-being experiences of residents with dementia (e.g., Devine et al., 2014; Spector & Orrell, 2006), but this is often tested with very lengthy instruments that are different from the instruments used for self-reports (e.g., Gerritsen, Steverink, Ooms, De Vet, & Ribbe, 2007). Short and simple single questions to assess resident well-being may be better suited for the nursing home environment to omit excessive paperwork (Cherry, Ashcraft, & Owen, 2007), but more research is needed to investigate how well nursing staff are able to make such assessments compared to self-reports of mentally lucid residents.

Furthermore, nursing staff generally feel less competent in promoting the holistic well-being of residents, compared to their other tasks (Kiljunen, Partanen, Välimäki, & Kankkunen, 2019). The BPNT provides a useful framework for PCC in nursing homes, proposing interventions that support the basic psychological needs for autonomy, relatedness and competence to improve resident well-being.

Implementing PCC innovations

However, PCC innovations can only be effective when they are implemented properly, which can be challenging in the high pressure environment of the nursing home (Mentes & Tripp-reimer, 2002). Nursing staff are often the ones that have to change their day-to-day routines to implement PCC innovations, so their attitude towards the innovation is important (Boersma, van Weert, van Meijel, & Dröes, 2017). Nursing staff can vary in the degree to which they intend to use an innovation, as well as in their actual implementation of the innovation (Fleuren, Paulussen, Van Dommelen, & Van Buuren, 2014). They can experience facilitators and barriers

on various levels: related to the innovation itself (e.g., relevance for the client), to themselves as users of the innovation (e.g., experienced social support), to the organization (e.g., adequate staffing), and to the social-political context (i.e., legislation and regulations) (Fleuren, Wiefferink, & Paulussen, 2004). Previous studies on PCC implementation in the nursing home often consisted of interviews or focus-groups (Buist, Verbeek, De Boer, & De Bruin, 2018; Moore et al., 2017), which limits the comparability between various facilitators and barriers regarding the degree to which they are present, and the degree to which they are actually associated with the intention to use and actually implement an innovation. Combining qualitative methods with quantitative methods may provide more insight into these PCC facilitators and barriers, which can subsequently guide intervention planning and effective implementation (Boersma, Weert, Lakerveld, & Dröes, 2015).

AIM AND OUTLINE OF THIS THESIS

Taken together, this thesis introduces a positive psychology perspective on well-being in the nursing home. The overall aim of this thesis is to investigate how positive aspects of well-being can be monitored, and improved in the nursing home. This aim is addressed in five chapters, describing research on the BPNT, well-being assessments and interventions aimed at exploring and improving the well-being of nursing home staff and nursing home residents.

Part I: Nursing home staff well-being

Chapters two and three of this thesis focus on the well-being of nursing home staff.

Chapter 2 describes two cross-sectional studies (n = 125 and n = 75 nursing staff) to examine whether the satisfaction of each of the basic psychological needs at work are important for the well-being of nursing staff. The satisfaction of the three needs is assessed, the needs are compared in their unique relations to well-being, the importance of balanced need satisfaction is analyzed, and the importance of subjective need valuation for well-being is reported.

Chapter 3 describes whether well-being of nursing staff can be improved with a positive psychology intervention, especially in people with low initial well-being. The effectiveness of this intervention is tested with base-line and follow-up measures in a group-randomized controlled trail of nursing staff (n = 128) of four nursing homes. Additionally, using both quantitative and qualitative measures, we explore what makes an intervention aimed at nursing staff well-being acceptable for nursing staff.

Part II: Nursing home resident well-being

Chapters four, five and six focus on the well-being of nursing home residents. We developed a PCC innovation for nursing staff, aimed at improving resident well-being. This innovation consisted of (1) observing and subsequently assessing resident well-being in terms of happiness and engagement on two 5-point scales, (2) making a tailored action plan to support the basic psychological needs of one specific resident, and (3) making small behavioral changes during daily contact moments to support the basic psychological needs.

Chapter 4 explores whether well-being assessments made by nursing staff (n = 49) of resident happiness and engagement are valid compared to resident self-reports (n = 49). Additionally, correspondence between nursing staff assessments are analyzed, and we investigate whether certain caregiver characteristics correlate with how high and how accurate nursing staff assess well-being. Furthermore, we evaluate how nursing staff actually understand the concepts of happiness and engagement.

In *Chapter 5*, we investigate whether all three basic psychological needs are important for the well-being of nursing home residents. In this longitudinal survey study (n = 128 residents), the relationship between the satisfaction of autonomy, relatedness and competence at baseline, and well-being at follow-up (5-8 months later) is analyzed. The needs are compared in relation to well-being, and we analyze the importance of the balance of among the satisfaction of the three needs.

Subsequently, nursing staff of all nursing homes of one care-organization were asked to implement the PCC innovation aimed at resident well-being after training.

In *Chapter 6* we examine the facilitators and barriers nursing staff experience in relation to their intention and actual implementation of the PCC innovation. Interviews (n = 11), and a longitudinal survey study (baseline n = 132, follow-up n = 63) were combined to compare the importance and presence of determinants, and their relation to intention and implementation of the three innovation components.

Finally, in *Chapter 7*, the results of all these chapters are summarized and discussed, limitations are described and implications are provided for research and practice.

PART I

Nursing Home Staff
Well-being

Nursing Home Staff Well-being and Basic Psychological Needs at work

2

two cross-sectional survey studies

Kloos, N., Weiss, L. A., & Janssen, S.
Sumbitted

ABSTRACT

Background. Given their demanding work, it is essential to facilitate optimal functioning of nursing home staff. The current research takes a closer look at the specific role of need satisfaction at work in explaining the well-being of nursing staff. This research is the first to investigate to what extent the satisfaction of the needs for autonomy, relatedness, and competence at work is important for the well-being of nursing staff in a nursing home context.

Objectives. We examined how the satisfaction of each need, a balanced need satisfaction among the three needs, and need valuation relate to general well-being and work engagement of nursing home staff.

Design & Setting. Two cross-sectional survey studies were conducted in Dutch nursing homes.

Participants. Participants were nursing staff (study 1: n = 125; study 2: n = 75).

Methods. Both general well-being (study 1) and work engagement (study 1 and 2) were measured. Subjective need satisfaction at work, the balance in need satisfaction, and the valuation of the needs were assessed.

Results. In both studies, nurses scored positively on need satisfaction, with the highest scores on competence. In study 1, each need uniquely explained work engagement, and different aspects of general well-being. In study 2, only autonomy had a unique relationship with work engagement. Balance in need satisfaction was not related to general well-being or work engagement beyond the level of need satisfaction. Competence was most highly valued in study 2, but need valuation did not moderate the relationship between need satisfaction and well-being.

Conclusions. The studies show that while the needs were generally satisfied at work, especially competence, there is room for improvement. The satisfaction of all three basic psychological needs at work was related to the well-being of nursing staff, independent of individual need valuation. No support was found for the balance hypothesis: equal satisfaction of autonomy, relatedness, and competence at work may not be essential for the well-being of nursing staff.

INTRODUCTION

The role of nursing staff in nursing homes is very demanding. Their job is often accompanied by a high workload, time pressure, inadequate staffing, and coping with resident suffering (Harrington et al., 2012; McCann et al., 2013; McVicar, 2003). As a consequence, they report high rates of sick leave and turnover (Donoghue, 2010). At the same time, there is a growing nursing staff shortage, while older adults increasingly require long-term care (UN, 2015; Spetz, Trupin, Bates, & Coffman, 2015). It is thus essential to find ways to facilitate optimal functioning of nursing home staff, because their well-being is related to various positive outcomes like physical and mental health, quality of care, and intention to stay in the nursing profession (e.g., Decker, Harris-Kojetin, & Bercovitz, 2009; García-Sierra, Fernández-Castro, & Martínez-Zaragoza, 2015; Keyes, Dhingra, & Simoes, 2010). The current study specifically investigates the importance of autonomy, relatedness, and competence at work for the well-being of nursing home staff.

Well-being can be defined in terms of *feeling good*: experiencing a high amount of positive emotions compared to a low amount of negative emotions, and feeling satisfied with life (i.e., subjective well-being; Diener, Emmons, Larsen, & Griffin, 1985). But well-being can also be understood in more active terms of *doing well*: experiencing psychological growth and contributing to society (Keyes, 2002). In the work-context, doing well is typically captured in the concept of work engagement (Schaufeli et al., 2002a). This persistent positive state of job fulfilment includes being fully emerged in tasks (absorption), with high levels of energy and willingness to invest effort in work (vigor), and feeling enthusiasm and inspiration in one's job (dedication; Schaufeli, Bakker, & Salanova, 2006).

The self-determination theory (SDT; Ryan & Deci, 2017) describes that an environment can improve well-being by supporting the satisfaction of three basic psychological needs: the need for autonomy, relatedness, and competence. In short, autonomy is defined as having a sense of choice and volition in the regulation of behavior, relatedness refers to experiencing mutual support in connection to others, and competence means to feel effective (Ryan, Huta, & Deci, 2008). Over the years, there has been ample empirical evidence in various work-contexts showing that the fulfilment of the three needs is crucial in employees' intrinsic motivation, and therefore related to higher performance, job satisfaction, positive work-related attitudes (Gagné & Deci, 2005), general well-being, and work-related well-being (e.g., engagement; Van den Broeck, Ferris, Chang, & Rosen, 2016). Furthermore, autonomy, relatedness, and competence are proposed to be unique essential

nutrients: like a plant needs soil, water, and sunlight, so do people need autonomy *and* relatedness *and* competence to grow (Ryan & Deci, 2000). Indeed, in the work context all three basic psychological needs have been consistently found to have a unique relationship with well-being, and thus should not be combined in one unified concept of need satisfaction (Van den Broeck et al., 2016; Van den Broeck, Vansteenkiste, Witte, Soenens, & Lens, 2010).

The work circumstances of nursing home staff can be especially challenging for need fulfilment due to, for example, the many regulations (undermining autonomy), restrictive work schedules that do not allow much time to socialize with colleagues and residents (undermining relatedness), and the increased complexity of providing care for older adults (undermining competence). Only a few studies have investigated the satisfaction of the three basic psychological needs in nursing staff: need satisfaction was found to be related to career satisfaction and career commitment among hospital nurses (Gillet et al., 2018; Onyishi, Enwereuzor, Ogbonna, Ugwu, & Amazue, 2019), and to positive work functioning and work engagement among healthcare nurses (Trépanier, Forest, Fernet, & Austin, 2015). However, these studies used one global (latent) need satisfaction score, making it impossible to compare the importance of each need. Two other studies, using samples of nurses, pharmacists, and midwifery students, found that only the satisfaction of the need for competence was related to well-being (Bernard, Martin, & Kulik, 2014; Ferrand, Courtois, Martinent, Rivière, & Rusch, 2017). However, these studies investigated general need satisfaction not specific to the work context, and none of these studies focused specifically on nursing staff working in nursing homes. The aim of the current study is therefore to investigate to what extent the satisfaction of all three needs at work is indeed important for the well-being of nursing home staff, to guide future efforts to support the basic needs in the nursing home context.

Besides the *level* of need satisfaction, a *balance* in need satisfaction is considered as being important for well-being. Sheldon and Niemiec (2006) propose in their 'balance hypothesis' that each need has a unique contribution: high satisfaction of one need (an abundance of water) cannot compensate for low satisfaction of another need (a lack of sunlight). Only a few studies have investigated this balance hypothesis. So far, two studies showed that a balance of general need satisfaction was indeed related to general well-being in nursing home residents and students (Kloos, Trompetter, Bohlmeijer, & Westerhof, 2018; Sheldon & Niemiec, 2006). Furthermore, Sheldon, Abad, and Omoile (2009) investigated the importance of a balanced need satisfaction within a single life domain, showing that balance of need satisfaction in the context of the classroom was related to general life satisfaction. The current study contributes

to this emerging research stream by investigating the importance of balanced need satisfaction within a specific life domain (i.e., work) to both domain-specific and general well-being, in a population other than students.

Finally, SDT makes a universality claim, proposing that the three basic psychological needs are *universal* requirements for growth and well-being (Ryan & Deci, 2000). This implies that while some employees may highly value relatedness in their work and others think it is more important to feel a sense of competence, *everyone* benefits from the satisfaction of all three needs. Only recently, a few studies have actually started to examine the potential consequences of such personal preferences (Ryan, Soenens, & Vansteenkiste, 2019). Some scholars found that need valuation did not moderate the relation between need satisfaction and well-being in students, adults and prisoners (Sheldon, et al., 2001; Chen et al., 2015b; Van Assche, van der Kaap-Deeder, Audenaert, De Schryver, & Vansteenkiste, 2018), which supports the universality claim. However, need valuation has also been found to moderate the relationship between need support and autonomous motivation (an antecedent of well-being; Katz, Kaplan, & Gueta, 2009), and aggravate the negative effect of low need fulfilment on nursing home resident well-being (Custers, Cillessen, Westerhof, Kuin, & Riksen-Walraven, 2014), although this latter study did not differentiate between the three needs. Some additional evidence comes from work on implicit motives, showing that the benefits of satisfaction of autonomy, relatedness and competence for well-being is moderated by personal differences in motives for power, affiliation and achievement in some studies (e.g., Schüler & Brandstätter, 2013; Schüler, Sheldon, Prentice, & Halusic, 2016), but not others (e.g., Sheldon & Schüler, 2011). Given the dearth of studies on this topic, and the inconclusive findings, the current study explores whether need valuation of each individual need moderates the relationship between need satisfaction of each individual need and well-being.

This is the first study to investigate whether the satisfaction of autonomy, relatedness, and competence at work are important for the work-related well-being and general well-being of nursing staff in the nursing home context. In two empirical studies, we investigated the following four research questions:

1. To what extent are the three basic psychological needs at work satisfied for nursing staff?
2. To what extent is the satisfaction of the three basic psychological needs uniquely related to well-being?
3. To what extent is a balance in need satisfaction positively related to well-being
4. To what extent is the relation between the satisfaction of the needs and well-being moderated by nurse need valuation of the three separate needs?

STUDY 1

The aim of study 1 was to examine research questions 1-3 regarding need satisfaction, the unique relations to well-being, and the balance hypothesis. This study had a cross-sectional online survey study design, for which data was gathered as part of baseline measurements of a larger intervention study (Kloos, Drossaert, Bohlmeijer, & Westerhof, 2019) in April 2015.

METHODS

Participants and procedure

All nursing staff (*n* = 159) working in the units for physically frail older adults of four nursing homes within one Dutch health care organization were eligible to participate. The care organization presented the study to the nursing staff in writing, and the researchers invited the staff via email to complete an online questionnaire. All staff of this organization were invited to participate and a total of 125 employees completed the questionnaire, with a response rate of 75.8%. Participants were mostly licensed practical nurses (84%), followed by nurse aids (7%), registered nurses (6%) and students (3%). Most participants were female (96%), with a mean age of 41.6 years (*SD* = 12.2), and their average job tenure in the current unit was 5.7 years (*SD* = 7.1). Participants had a mean of 15.1 (*SD* = 11.1) years of experience of working in a nursing home (range 0-43 years). Nursing staff received 0.5 hours of work payment for completing the entire survey. Participation was voluntary and the survey was completed upon giving informed consent online. The study was approved by the ethics committee of the Faculty of Behavioral, Management and Social Sciences at the University of Twente (no. 15016).

Measures

Basic psychological need satisfaction at work

The satisfaction of basic needs at work was measured using the Dutch Work-related Basic Needs Satisfaction Scale (W-BNS; Van den Broeck et al., 2010). The scale consists of 18 items, with 6 items measuring autonomy satisfaction at work (e.g., *'I feel like I can be myself at my job'*), 6 items measuring relatedness satisfaction at work (e.g., *'I don't really feel connected with other people at my job',* reverse scored), and 6 items measuring competence satisfaction at work (e.g., *'I feel competent in my job'*). Both positively and negatively formulated items were included, which were rated on a 5-point Likert scale ranging from 1 *completely disagree* to 5 *completely agree*. Scale mean scores were calculated, with higher scores indicating more fulfilment

of the basic needs at work. The scales showed sufficient reliability in the current sample, with Cronbach's alphas of .81 (autonomy), .79 (relatedness), and .74 (competence).

Balance of need satisfaction

To calculate the balance in need satisfaction, the absolute differences between the satisfaction scores of all three pairs of needs were calculated (i.e., autonomy-relatedness; autonomy-competence; relatedness-competence). Consistent with previous research (Sheldon & Niemiec, 2006), these three values were then summed, resulting in a score ranging from 0 (equal satisfaction among the needs) to 8 (maximal difference between the needs, with scores of 1, 3, and 5). A balance score was then created by subtraction from the maximum possible score of 8. Higher scores indicated a greater balance of needs.

Work engagement

The short version of the Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006) was used to measure work-related well-being. The scale consists of three subscales measuring vitality (3 items, e.g., *'At my work, I feel bursting with energy'*), dedication (3 items, e.g., '*My job inspires me*'), and absorption (3 items, e.g., '*I am immersed in my work*'). Items were rated on a scale from 0 *never* to 6 *always/daily*. A total mean score was calculated, with high scores indicating high work engagement. Cronbach's alpha was .94.

General well-being

General subjective well-being was measured with two scales. The affective component of general well-being was measured using the modified Differential Emotions Scale (mDes; Schaefer, Nils, Sanchez, & Philippot, 2010). Two subscales measured which emotions were experienced in everyday life in terms of positive emotions (8 items, e.g., *'joyful, amused, happy'*), and negative emotions (8 items, e.g., *'sad, downhearted, blue'*). Answer options ranged from 1 *not at all* to 7 *very intense* and higher total mean scores indicated experiencing higher levels of such emotions. The current sample had a satisfactory reliability of $\alpha = .76$ for positive emotions and $\alpha = .84$ for negative emotions.

The cognitive-evaluative component of general well-being was measured using the satisfaction with life scale (SWLS; Diener et al., 1985), consisting of 5 items (e.g., '*I am satisfied with my life*'). Items were rated on a 7-point Likert-type response scale that ranged from 1 *completely disagree* to 7 *completely agree*. A total sum score was calculated, with high scores indicating high satisfaction with life. The overall Cronbach's alpha was .91.

Analyses

Data was analyzed with SPSS version 24, with the alpha level set at .05. Four participants only provided data on satisfaction with life, so their data was omitted from further analyses, resulting in a final sample of 125 participants. To address potential non response bias, participants were compared to non-responders, and as described elsewhere (Kloos, Drossaert, Bohlmeijer, & Westerhof, 2019), there were no differences found on any of the demographic variables (i.e., age, gender, work experience, or function). The data of the affective component of general subjective well-being was missing for four additional participants, but their data was included in all other analyses.

Descriptive statistics were performed and the three scores of the satisfaction of autonomy, relatedness, and competence at work were compared by using a one-way repeated-measures ANOVA with paired sample t-test post-hoc analyses. Correlations between subscales of need satisfaction and engagement and general subjective well-being were analyzed, with $r \leq .29$ indicating weak, $r \leq .49$ moderate and $r \geq .50$ strong correlations (Cohen, 1988). Need satisfaction scales were compared regarding their *unique* relationship with work engagement and general well-being. The unique relationships of the basic need satisfaction scales with well-being were analyzed using four multiple regression analyses, with work engagement, positive emotions, negative emotions or satisfaction with life as dependent variable. The balance score was then entered in the second step of these multiple regression analyses, to test the balance hypothesis.

RESULTS

Satisfaction of needs

Means, standard deviations and correlations of need satisfaction, work engagement, and general well-being are shown in Table 1. The nursing staff scored positively on need satisfaction at work. The repeated measures ANOVA showed that the need for competence had significantly higher satisfaction scores compared to both autonomy and relatedness, with Wilks' lambda = 0.69, $F(2, 123) = 28.20$, $p < .001$. Autonomy was strongly related to relatedness and competence, while relatedness and competence were moderately interrelated. The balance score had a weak negative correlation to competence, and a moderate positive correlation to both autonomy and relatedness, indicating that the balance score was mostly dependent on the autonomy and relatedness satisfaction scores.

Table 1. Means, SDs and correlations of the basic needs satisfaction at work scales with work engagement and general well-being (n = 125)

	Scale	M	SD	1.	2.	3.	4.	5.	6.	7.
Need satisfaction										
1. Autonomy	1-5	3.8	0.6							
2. Relatedness	1-5	3.7	0.6	.53**						
3. Competence	1-5	4.1	0.4	.53**	.42**					
4. Balance score	0-8	6.7	0.9	.36**	.48**	-.27**				
Work-related Well-being										
5. Engagement	0-6	4.8	1.0	.56**	.60**	.47**	.26**			
General Well-being										
6. Positive Affect[1]	1-7	5.3	0.7	.30**	.30**	.38**	-.03	.46**		
7. Negative Affect[1]	1-7	2.5	0.9	-.31**	-.22*	-.21*	-.13	-.26**	-.26**	
8. Life satisfaction	5-35	27.3	5.1	.36**	.41**	.34**	.16	.40**	.41**	-.33**

[1] n = 121

* p < .05. ** p < .01.

Relations to well-being

Participants scored high on work engagement and the positive general well-being scales, and low on the negative affect scale (Table 1). These scales were all moderately interrelated. The three basic psychological needs satisfaction at work scales were significantly related to the well-being variables in the expected direction, most correlations were moderate (except for the low correlations of relatedness and competence to negative affect). Autonomy and relatedness had strong correlations to work engagement, relatedness had a weak negative relation to negative affect, while competence was not related to negative affect. Furthermore, the balance score was significantly related to work engagement, but not to any of the other well-being measures.

The three needs were compared regarding their unique relationship to work engagement and general well-being. The multiple regression analyses showed that all three needs explained unique variance of work engagement (see Table 2). Competence, autonomy, and relatedness only explained unique variance of either positive affect, negative affect or life satisfaction respectively. Finally, the second step of the multiple regression analysis showed that the balance score did not explain any additional variance of the well-being outcomes.

Table 2. Beta's and additional explained variance of work engagement and general well-being in the multiple regression models (n = 125)

	Work engagement		Positive affect[1]		Negative affect[1]		Life Satisfaction	
	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2	Step 1	Step 2
Autonomy	.27*	.24*	.08	.06	-.25*	-.23	.13	.10
Relatedness	.39**	.36**	.14	.12	-.07	-.05	.27**	.24
Competence	.16*	.20	.27**	.30*	-.04	-.08	.16	.21
Balance		.05		.04		-.05		.07
R^2 Change	.46	.00	.17	.00	.10	.00	.21	.00

[1] n = 121

* p < .05. ** p < .01.

In sum, the results indicated that nursing staffs' basic psychological needs at work were generally satisfied, especially the need for competence. The satisfaction of all three of the basic psychological needs at work was uniquely related to work engagement and uniquely related to different aspects of general well-being of nursing home staff. We found no support for the balance hypothesis.

STUDY 2

The first aim of study 2 was to examine if the outcomes of study 1 on need satisfaction, namely, the unique relations to well-being, and the balance hypothesis, were replicable (research questions 1-3). The second aim of study 2 was to explore how nursing staff valued the importance of each of the three basic psychological needs at work, and whether such need valuation might moderate the need satisfaction – work engagement relationship (research question 4). Study 2 also had a cross-sectional online survey study design, and only included work engagement as outcome measure, as it is theoretically closer to need satisfaction at work, and as the results of study 1 showed that all three of the basic psychological needs were uniquely related to work engagement. Data was gathered between the end of May and beginning of July 2018.

METHODS

Participants and procedure

All nursing staff (*n* = 473) working in all units for physically frail older adults in a single nursing home within one care organization in the Netherlands were eligible to participate. Employees received information about the study via

internal communications and then received an email with a link. Following that link, respondents were able to give informed consent online before filling out the questionnaire. Questionnaires were filled out anonymously at one time point. A total of 75 participants completed the questionnaire. Most individuals reported to be licensed practical nurses (43%), or registered nurses (24%), and six respondents were nurse aids (8%), eight were students (11%), and nine worked as activity supervisors or unit assistants (11%). The vast majority of respondents were female (87%), with a mean age of 40.8 years (*SD* = 10.8). Respondents had a mean of 15.3 (*SD* = 8.9) years of experience of working in a nursing home and worked 10.3 years (*SD* = 8.7) on average at the current care organization. Participants did not receive any reward for participating. The study was approved by the ethics committee of the Faculty of Behavioral, Management and Social Sciences at the University of Twente (no. 18486).

Measures

Basic psychological need satisfaction at work and balance

The same multidimensional measure as in study 1 was used to assess basic need satisfaction at work (W-BNS; Van den Broeck et al., 2010). The scales showed sufficient reliability in the current sample, with Cronbach's alphas of .87, .77, and .77 for the satisfaction of autonomy, relatedness, and competence, respectively. In line with study 1, balance in need satisfaction was calculated by summing the absolute differences in need pairs and reversing that score to come to a balance score, in which a higher score corresponds to a greater balance.

Basic psychological need valuation

To measure need valuation, modifications were made to the items of the W-BNS so that employees responded to the questions thinking about how important that specific part of their job is. Items that were phrased positively, such as *'I feel like I can be myself at my job'* were changed to *'How important is it for you to…'* (e.g., *'How important is it for you to feel like you can be yourself at your job?'*). These items were measured on a 5-point Likert scale (1 *not important at all*, to 5 *very important*). Negatively phrased items such as *'I don't feel really connected with other people at my job'* were changed to *'How bad is it for you…'* (e.g., *'How bad it is for you when you don't really feel connected with other people at your job'*). These items were measured on a 5-point Likert scale (1 *not bad at all*, to 5 *very bad*), which were recoded, so that high scores indicated greater importance. Mean importance subscales were calculated for autonomy, relatedness, and competence. The scales of valuation of relatedness and competence were reliable in the current sample, with Cronbach's alphas of .87 and .76 respectively. However, the scale of valuation of autonomy reported a Cronbach's alpha of .68, indicating questionable reliability.

Work engagement

In line with study 1, the short version of the Utrecht Work Engagement Scale (UWES-9; Schaufeli et al., 2006) was used to measure work-related well-being. Cronbach's alpha was .93.

Analyses

Six participants did not provide data on basic psychological need satisfaction and valuation, so their data was omitted from further analysis, resulting in a total sample of 75 nursing staff. Descriptive statistics and the main analyses were undertaken as described in study 1, but with work engagement as the only outcome measure. Furthermore, the valuation of the need for autonomy, relatedness, and competence at work was compared using one-way repeated-measures ANOVA with paired sample t-test post-hoc analyses. To explore whether the valuation of the basic psychological needs at work had a moderating effect on the relationship between the satisfaction of these needs and well-being, a moderation analysis was conducted with the PROCESS macro of Hayes (2013) with bootstrapping. Three separate moderation analyses were conducted for each basic psychological need, with need satisfaction as the independent variable, work engagement as the dependent variable and need valuation as the moderator.

RESULTS

Satisfaction of needs

Means, standard deviations and correlations of need satisfaction, need valuation, and work engagement are shown in Table 3. The nursing staff had scores comparable to study 1 on need satisfaction at work, with generally positive scores. Again, the need for competence had significantly higher satisfaction scores compared to both autonomy and relatedness, with Wilks' lambda = 0.54, $F(2, 73) = 30.89$, $p < .001$. The three needs were also significantly interrelated, with moderate to strong correlations. The balance score was moderately related to the satisfaction of the need for autonomy and relatedness at work, which indicates that the balance score was moderately dependent on the satisfaction of these needs.

Table 3. Means, SDs and correlations of the basic needs satisfaction at work and basic needs valuation at work scales with work engagement (n = 75)

	Scale	M	SD	1.	2.	3.	4.	5.	6.	7.
Need satisfaction										
1. Autonomy	1-5	3.6	0.8	-						
2. Relatedness	1-5	3.8	0.8	.46**	-					
3. Competence	1-5	4.2	0.5	.52**	.43**	-				
4. Balance score	0-8	6.0	1.2	.43**	.39**	-.15	-			
Need valuation										
5. Autonomy	1-5	3.7	0.6	-.09	-.14	.05	-.14	-		
6. Relatedness	1-5	3.4	0.9	.18	.51**	.05	.27*	.08	-	
7. Competence	1-5	4.3	0.5	.19	.05	.31**	-.03	.40**	.28*	-
Work-related well-being										
8. Engagement	0-6	4.4	1.1	.74**	.44**	.50**	.35**	-.22	.14	.30*

* p < .05. ** p < .01.

Relations to well-being

Participants scored rather high on work engagement (Table 3). The three basic psychological needs satisfaction at work scales were moderately to strongly related to work engagement, and the balance score was moderately related to work engagement. The three needs were compared regarding their unique relationship to work engagement. The multiple regression analysis showed that only autonomy had a unique relationship with work engagement (see Table 4). The second step of the multiple regression analysis showed that the balance score did not explain any additional variance of the well-being scores.

Need valuation

Participants rated the importance of the need for competence at work significantly higher than the need for autonomy and the need for relatedness at work (Table 3), with Wilks' lambda = 0.34, $F(2, 73) = 71.16$, $p < .001$. The rated importance of autonomy was not related to any of the need satisfaction at work scores, while the valuation of relatedness was strongly related to need satisfaction of relatedness, and the valuation of competence was moderately related to competence satisfaction. Finally, the moderation test showed that there was no significant interaction of need satisfaction and need valuation on work engagement for any of the needs (Table 4).

Table 4. Beta's and additional explained variance of work engagement of the multiple regression model, and results of moderation analyses (n = 75)

	Regression analysis		Moderation test			
	Step 1	Step 2	b-value	df	t	p
Autonomy	.63**	.56**	-.12	71	-.58	.57
Relatedness	.10	.05	-.05	71	-.30	.77
Competence	.13	.20	.05	71	.11	.92
Balance		.11				
R^2 Change	.58	.01				

Note: Moderation analyses with work engagement, predicted by need satisfaction moderated by need valuation
* p < .05. ** p < .01.

In sum, the results of study 2 showed that in replicating the outcomes of the first study, the basic psychological needs of nursing staff at work were generally satisfied, especially the need for competence, and no evidence was found for the balance hypothesis. However, in contrast to study 1, autonomy had the only unique relationship with work engagement. Finally, the need for competence was most highly valued by nursing staff, but the absence of any moderating effect of need valuation on the relationship between need satisfaction and work engagement supported the universality claim of the SDT.

GENERAL DISCUSSION

This research aimed to investigate to what extent the three basic psychological needs of autonomy, relatedness and competence at work are important for the well-being of nursing home staff. With two cross-sectional survey studies, we investigated three assumptions of the SDT. Firstly, SDT states that all three needs are uniquely important for well-being. Secondly, the balance hypothesis assumes that a balance in need satisfaction is important for well-being, meaning that all three needs have a unique contribution and that balance would be positively related to well-being. The third assumption is the universality claim, stating that need satisfaction is related to well-being, independent of need valuation.

The results of both studies showed that the basic psychological needs of nursing staff at work were generally satisfied. In particular, competence was highly satisfied compared to the other two needs, which is comparable to the results of a previous study with healthcare nurses (Trépanier et al., 2016). However, for all three needs, there was still room for improvement in satisfaction at work. Furthermore, supporting

the first SDT assumption, study 1 showed that the satisfaction of all three basic psychological needs at work was uniquely related to work engagement of nursing home staff, and that each need was uniquely related to one of the general well-being outcomes (i.e., either positive affect, or negative affect, or life satisfaction). This is in line with a meta-analysis of studies on the basic need satisfaction in other work contexts (Van den Broeck et al., 2016). The results of study 2, however, revealed the particular importance of the satisfaction of the need for autonomy. This is different from previous studies showing that only general satisfaction of competence was uniquely related to the well-being of nurses, pharmacists and midwifery students (Bernard et al., 2014; Ferrand et al., 2017), but they did not measure need satisfaction *at work*. Other studies also showed a notably strong relation of autonomy to well-being, for example for nursing home residents (Kloos et al., 2018), and it is sometimes described that autonomy is the most central of the three needs (Ryan et al., 2019). We are not sure, however, what explains the difference in results between the two studies in the current research. We assume that additional variables in the work context of nurses could play a role here. For example, working conditions related to the structural empowerment of nurses are likely to affect both autonomy satisfaction and the level of work engagement (Laschinger, Wilk, Cho, & Greco, 2009) but we did not specifically take variables such as supportive supervision, decisional involvement, and supportive management into account in this study. Future research may more closely examine specific job- and organizational characteristics that influence both autonomy satisfaction and well-being.

We did not find any support for the balance hypothesis in our sample of nursing home staff. So even though both studies showed that the need for autonomy and relatedness were less satisfied than the need for competence at work, the resulting (im)balance of need satisfaction was not related to well-being beyond the level of need satisfaction. This is remarkable, as it is not in line with previous studies on this balance hypothesis in students and nursing home residents (Kloos et al., 2018; Sheldon et al., 2009; Sheldon & Niemiec, 2006). One explanation could lie in the fact that the current studies measured both need satisfaction and well-being specifically in the context of work, while previous studies measured general need satisfaction and/or general well-being. It could thus be that equal satisfaction of all three needs is not essential for well-being within a specific context (e.g., work), as long as the *overall general* need satisfaction across distinct life contexts is in balance (Milyavskaya et al., 2009). As the current studies were the first to explore the balance hypothesis in the work-context, future research may further examine balanced need satisfaction within and across specific domains and their relationship with general and context-specific well-being.

Lastly, the results of this research supported the assumption that the three needs are universal requirements for well-being, independent of the subjective valence attached to them. Competence was most highly valued by nursing staff, but such need valuation did not moderate the relationship between need satisfaction and well-being for any of the three needs, which is in line with some of the previous studies (Chen et al., 2015b; Sheldon et al., 2001), but not with others (e.g., Custers et al., 2014; Katz et al., 2009). Although the rather small sample size of study 2 renders these results to be interpreted as exploration only, they contribute to the limited upcoming research on the potential influence of personal preferences (see Ryan et al., 2019). Alternative roles for need valuation have been proposed as well, for example, that a low need satisfaction would result in a coping response of devaluation of that need (Moller, Deci, & Elliott, 2010). This would suggest a relation between need valuation and need satisfaction, that was present in previous research (Chen et al., 2015b), as well as in the current research for relatedness and competence, but not for autonomy. In line with Ryan et al. (2019), we encourage scholars to further examine the potential effects of personal preferences in various domains, such as the nursing home.

There are several limitations to this research. First, as we used a non-probability sampling method, and included only Dutch nursing home staff who were mostly licensed practical nurses with relatively high educational levels, the generalizability of our findings is limited. In other (non-Western) countries there may be a higher percentage of nursing aids and the specific work conditions may differ. Second, taking into account the rather small sample size, and the questionable reliability of the autonomy valuation subscale in the second study, the outcomes of the need valuation moderation analysis should be interpreted as a first exploration only. Third, due to the cross-sectional design of both studies, we cannot be certain about causality.

Furthermore, we adopted a positive psychology perspective in the current study, solely including positive concepts of need *satisfaction* and well-being. Future researchers may want to additionally include need *frustration,* which has been proposed to be especially related to sub-optimal functioning (e.g., depressive symptoms; Chen et al., 2015b). Finally, we included the need satisfaction scale that was specifically relevant and most reliable for the context of work (Van den Broeck et al., 2016), but some participants commented at the end of the survey that rather than bonding with colleagues, the relationships with residents were highly valued, something which was not included in the questionnaire. Indeed, others found that the caring relationship is very important for nursing staff in nursing homes, even relating to

the intention to stay in the profession (Prentice & Black, 2007). Future research should investigate whether this scale should be specifically adapted to the context of providing nursing home care (e.g., including items of the relationships with residents), for example by using a 'read aloud' method with the items of the scale.

Altogether, the two studies described in this research indicate that, regardless of personal preferences, autonomy, relatedness, and competence are all important for the well-being of nursing staff, although they may not have to be equally satisfied. The importance of the three basic psychological needs also seems to be appreciated by other frameworks in long-term care research, for example the person-centered nursing framework emphasizes nursing staff's autonomy (i.e., "sharing power"), as well as "effective staff relations" and "being professionally competent" (McCormack & McCance, 2006), although they seem to be regarded in terms of being instrumental to providing person-centered care.

As individuals are drawn and committed to environments in which their needs are satisfied (Van den Broeck et al., 2010), nursing homes should invest in monitoring and supporting the three basic psychological needs of nursing staff. For example, managers can support autonomy by adopting a non-controlling communication style and optimizing nursing staff's input in deciding how they get their work done (Baard, Deci, & Ryan, 2004). Relatedness satisfaction may be improved by showing trust, sharing information whenever possible, and investing in team-building, while competence can be supported by providing regular feedback that allows for timely corrections and investment in training (Baard, Deci, & Ryan, 2004). Furthermore, support from colleagues, as well as from nursing home residents and their relatives (Moreau & Mageau, 2011; Nilsen, Olafsen, Steinsvåg, Halvari, & Grov, 2016), can contribute to ultimately making the nursing home a need supportive environment.

2

Online Positive Psychology Intervention for Nursing Home Staff

3

a cluster-randomized controlled feasibility trial of effectiveness and acceptability

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ABSTRACT

Background. Nursing staff in nursing homes is at risk for stress-related problems. Positive psychology interventions have been shown to effectively improve well-being and decrease depressive symptoms, and may be beneficial for nursing staff. However, controlled studies with nursing staff are missing.

Objectives and design. This is the first study to test the effectiveness and acceptability of an online multi-component positive psychology intervention in nursing home staff. This study used a cluster-randomized controlled design, with an intervention group and a control group, and measurements at baseline (T0) and following the training period (T1). We hypothesized that the intervention would improve general well-being, job satisfaction and work engagement, especially for people with low initial well-being, satisfaction, or engagement. Furthermore, we explored the acceptability of such an intervention for nursing home staff.

Settings and Participants. All nursing staff of the units for physically frail older adults of four Dutch nursing homes belonging to one care organization were invited to participate in this study. A sample of 128 nursing staff completed T0, and 107 nursing staff completed T1, mostly licensed practical nurses with a mean age of 42 years.

Methods. The 8-week online intervention concerned information and evidence-based exercises of six topics of Positive Psychology, which were completed individually at home. General well-being, job satisfaction and work engagement were measured, and participants evaluated the intervention.

Results. No time by group interaction effect was found on general well-being nor on work engagement, but there was a small effect on job satisfaction. No moderation effects of baseline outcome measures were found. The evaluation of the intervention varied: a majority positively valued the intervention, in particular the topics “positive emotions” and “strengths”, but most agreed that there was too much text and too many exercises.

Conclusions. The online multi-component positive psychology intervention had only very limited effectiveness, as the decrease in job satisfaction in the control group may reflect a regression to the mean. The high baseline levels of well-being and engagement, intervention content, obligatory character of the intervention, and individuality are discussed as possible reasons for these results. Opportunities lie in creating a concise, work focused positive psychology intervention for nursing staff, including some form of autonomy support.

INTRODUCTION

As the population is ageing, it is expected that more older adults will need long-term care (UN, 2015). However, there is a growing shortage of nursing staff (Spetz, Trupin, Bates, & Coffman, 2015; WHO, 2013), with nursing homes dealing with high rates of sick leave and turnover (Donoghue, 2010). Providing nursing home care can be a stressful job, as nursing staff is frequently confronted with inadequate staffing, shift work, high workload, professional conflict, resident aggression, and the suffering of residents (e.g., Evers, Tomic, & Brouwers, 2001; Harrington et al., 2012; McVicar, 2003; Sanchez, Mahmoudi, Moronne, Camonin, & Novella, 2015). This stress can have negative health consequences for nursing staff (Salvagioni et al., 2017), and is related to lower quality of care, and to lower resident well-being (Cimiotti, Aiken, Sloane, & Wu, 2012; Edvardsson, Sandman, Nay, & Karlsson, 2008). It is thus important to invest in a sustainable nursing home workforce, by fostering the mental health of nursing staff (Collet et al., 2018). The current study examines whether an online intervention based on positive psychology can improve mental well-being, job satisfaction and work engagement, and whether it is an acceptable intervention for nursing staff in nursing homes (i.e., all staff who provide physical care to nursing home residents).

Traditionally, psychology primarily focused on alleviating problems of mental health. Indeed, current mental health interventions for nursing staff are primarily focused on *coping* with stress and reducing burnout (Awa, Plaumann, & Walter, 2010; Romppanen & Häggman-Laitila, 2017; Westermann, Kozak, Harling, & Nienhaus, 2014). However, it is increasingly recognized that a person without mental health problems is not necessarily optimally functioning (e.g., Lamers, Westerhof, Bohlmeijer, Ten Klooster, & Keyes, 2011b). A new and growing area of research is now focusing on promoting mental well-being (Rusk & Waters, 2013), fueled by the positive psychology movement (Seligman & Csikszentmihalyi, 2000).

Well-being can be defined in terms of *feeling good*: balanced positive and negative affect and satisfaction with life, and *doing well*: a positive perception of optimal functioning of the individual and in the society. The broaden-and-build theory describes that *feeling good* can broaden attention, making people more creative and flexible, which in turn helps to build other positive personal resources like resilience and optimal functioning (Fredrickson, 2001). We propose that optimizing well-being of nursing home staff is an important objective, since well-being is related to reductions in mental illness, improved physical and mental health, sociability, effective conflict resolution skills, and intention to stay with the organization

(e.g., Decker, Harris-Kojetin, & Bercovitz, 2009; Hone, Jarden, Duncan, & Schofield, 2015; Keyes, Dhingra, & Simoes, 2010; Lyubomirsky, King, & Diener, 2005).

In the past decades, various interventions have been developed to improve mental well-being, for example imagining your best possible self (King, 2001), performing acts of kindness (Curry et al., 2018), or savoring positive emotions by thinking of three things that went well today (Seligman, Steen, Park, & Peterson, 2005). Three meta-analyses showed that such positive psychology interventions can produce small to moderate improvements in well-being and depressive symptoms (Bolier et al., 2013a; Sin & Lyubomirsky, 2009; Weiss, Westerhof, & Bohlmeijer, 2016). The effectiveness may further improve when combining several evidence-based positive psychology activities in one multi-component intervention (Hendriks, Schotanus-Dijkstra, Hassankhan, de Jong, & Bohlmeijer, 2019; Sin & Lyubomirsky, 2009).

Positive psychology interventions may also improve job satisfaction and work engagement: the persistent positive state of fulfilment by one's job, characterized by absorption, vitality and devotion (Schaufeli, Salanova, Gonzalez-Roma, & Bakker, 2002a). The job-demands-resources model (JD-R model; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) proposes that the personal resources that are targeted by positive psychology interventions (e.g., resilience; optimism), make people better at utilizing job resources (e.g., social support), leading to increased work engagement (e.g., Bakker & Demerouti, 2007; Demerouti & Bakker, 2011). Only a few multi-component positive psychology interventions have been tested in the work context, showing variable results: or not improving general well-being (Abbott, Klein, Hamilton, & Rosenthal, 2009), improving general well-being, but not with job satisfaction (Page & Vella-Brodrick, 2013), improving general well-being and improving work engagement for people with low initial work engagement (Ouweneel, Le Blanc, & Schaufeli, 2013).

Positive psychology interventions have particularly great potential as a self-care technique for nursing staff (Crane & Ward, 2016). The flexibility provided by the online self-help format of many positive psychology interventions (Bolier & Abello, 2014; Sin & Lyubomirsky, 2009) fits well with shift-working nursing staff, and makes it relatively easy to provide to all employees of the care organization. A handful of studies tested positive psychology interventions for employees in the health-care context. However, these studies were aimed at improving well-being of managers or residents (Grant, Curtayne, & Burton, 2009; Guzmán, Wenborn, Ledgerd, & Orrell, 2017). Other studies did not include well-being as dependent variable (Xu et al., 2016), did not include a control group (Rippstein-Leuenberger, Mauthner,

Bryan Sexton, & Schwendimann, 2017), or had insufficient participation rates (Bolier et al., 2014).

Furthermore, little is known about how employees react to interventions that improve *personal resources* instead of *professional skills* (Gilbert, Foulk, & Bono, 2018). This may be especially relevant for nursing staff who tend to be primarily focused on others, and generally have difficulties in taking time to administer self-care (Crane & Ward, 2016). On the other hand, compared to a problem-focused intervention, a well-being intervention may be more acceptable for nursing staff who are not experiencing clinically relevant problems (Parks, Schueller, & Tasimi, 2013). Indeed, a previous study gave some indication that a mindfulness-based intervention was acceptable for oncology nurses (Duarte & Pinto-Gouveia, 2016), but more research is needed.

The aim of the current study is to test the effectiveness and acceptability of an online multi-component positive psychology intervention for nursing home staff. We used the multi-component *This Is Your Life* intervention, which consists of evidence-based activities from several positive psychology theories (Schotanus-Dijkstra, Drossaert, Pieterse, Walburg, & Bohlmeijer, 2015). An email-guided self-help version of this intervention proved to be (cost-)effective in improving well-being and reducing anxiety and depression in a randomized controlled trial in people with suboptimal well-being (Schotanus-Dijkstra et al., 2017; 2018). A gamified online version of this intervention was co-designed for the work context with school teachers (Ludden, Kelders, & Snippert, 2014), which was found to improve involvement, flow, interest and inspiration (Kelders, Sommers-Spijkerman, & Goldberg, 2018).

We use a cluster-randomized controlled trial to study the effectiveness of this online multi-component positive psychology intervention in improving general well-being, job satisfaction and work engagement on individual participant level. We hypothesize that:

1. The positive psychology intervention improves general well-being of nursing staff
2. The positive psychology intervention improves job satisfaction and work engagement of nursing staff
3. The positive psychology intervention is more effective in improving well-being, job satisfaction or work engagement for nursing staff with low initial well-being, satisfaction or engagement respectively.

Furthermore, we analyze the evaluations of participants about the intervention and their motivation to complete the intervention, to explore the acceptability and the strengths and limitations of this intervention in the nursing staff context.

MATERIALS AND METHODS

Research design

A two-armed cluster-randomized controlled design was used, with one group receiving the online multi-component positive psychology intervention and a control group receiving no intervention. The intervention lasted 8-12 weeks. Assessments took place before the intervention (T0), and approximately 12 weeks later, following the intervention (T1). The study was carried out in accordance with the Declaration of Helsinki and approved by the ethics committee of the Faculty of Behavioral, Management and Social Sciences at the University of Twente (no. 15016).

Sample and procedure

The study took place within a large care organization in the Netherlands, counting 17 nursing homes, with about 2000 employees. Taking into account a 25% loss to follow-up, a power-analysis indicated that 86 participants devided over two groups were needed to have 80% power for detecting a small sized effect. We chose for cluster randomization to avoid contamination, because nursing staff in the same nursing home were expected to have close contact with each other. When additionally taking into account an inflation factor for nursing home location clustering of 0.93 (1/(1+(4 locations-1)×ICC of 0.0245 (SF-36 mental component; Cosby, Howard, Kaczorowski, Willan, & Sellors, 2003))), 99 participants were needed. In consultation with interested team leaders, the division director selected four nursing homes that were comparable in location to participate in the study, after which cluster randomization was conducted by the first author at nursing home level using random.org (2 nursing homes per condition, see Figure 1).

The care organization presented the study and intervention to the staff as part of executing their mission statement of developing a positive care environment. All nursing staff (n = 159) of the included units for physically frail older adults in the participating nursing homes were eligible to participate. Staff was informed about the study in writing, and invited by email to complete the online baseline questionnaires (T0). Participation in the questionnaire study was voluntary and informed consent was obtained online with an opt-in method at the start of the study. The study took place between April and July 2015.

A total of 128 nursing staff (81%; intervention n = 79, control n = 49) started the questionnaire at baseline. Completing T0 questionnaires was not a prerequisite for participation in the T1 questionnaire. Demographic information was gathered as part of the questionnaires, or retrieved from the care organization (for non-responders; i.e., age, gender, function and hours worked per week). Additionally, participants in the intervention group were asked to complete an evaluation of the intervention and indicate their motivation to complete the intervention. Figure 1 shows the participant flowchart. Participants received 1 hour of works payment for completing both (T0 and T1) measurements.

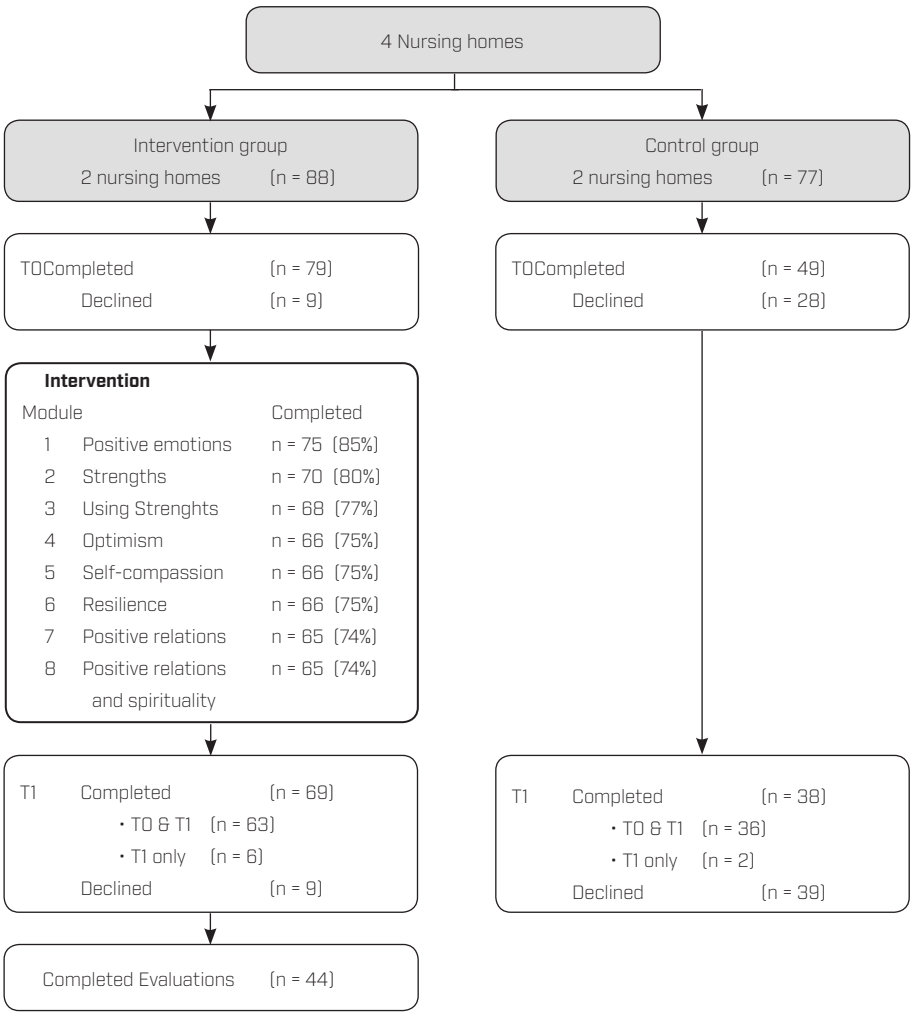

Figure 1. Flowchart of participants in the study

Online gamified multi-component positive psychology intervention

The current intervention was based on an existing multicomponent Positive Psychology intervention '*This is Your life*' (Bohlmeijer & Hulsbergen, 2013; 2018). We used an online gamified version in the current study (Kelders et al., 2018; Ludden et al., 2014). Based on a small pilot study with three nursing staff and one team leader, the amount of text was reduced and the wording was altered to better suit the lower education level of the current participants.

In the online *This Is Your Life* intervention, eight modules cover six key topics of well-being: (1) positive emotions; (2) discovering and using strengths; (3) optimism; (4) self-compassion; (5) resilience, and (6) positive relations. Each module consists of psycho-education and approximately five evidence-based positive psychology exercises that can be completed multiple times (e.g., positive emotions: *the three good things*, Seligman et al., 2005; optimism: *imagine your best possible self*, Peters, Flink, Boersma, & Linton, 2010). For a more elaborate description of the intervention components see Schotanus-Dijkstra, Drossaert, Pieterse, Walburg, and Bohlmeijer (2015), and Ludden et al. (2014). Gamified aspects of the intervention include a storyline of following a journey towards a flourishing life (visualized with different places on a map), guidance by an avatar of a professor, and receiving tailored automatic feedback. The online training is completed in chronological order, with participants earning a key to access the next module upon finishing the mandatory activities, and receiving a badge upon finishing each lesson.

The intervention was implemented by the care organization as a mandatory course for all nursing staff in the participating units of the intervention group. The interface of the online training was explained in a face-to-face introduction on site, and with website manuals. Participants followed the intervention individually at home, using a personal login code. Participants were advised to complete one lesson per week, finishing the intervention in eight weeks, but login codes remained valid for twelve weeks. Participants were aware that researchers and supervisors from the care organization had no access to the content of exercise answers. Completing the intervention was rewarded with both 9 hours of works payment and eight Dutch accreditation hours for the nursing specialist's registry.

Outcome measurements

At both T0 and T1, scales measuring general well-being, job satisfaction, and work engagement at individual participant level were assessed.

General well-being

General well-being was measured using the Dutch version of the Mental Health Continuum-Short Form (MHC-SF; Keyes, 2002). The 14 items assess emotional wellbeing (3 items, e.g., *'In the past month, how often did you feel happy?'*), social well-being (5 items, e.g., *'In the past month, how often did you feel that our society is becoming a better place for people?'*) and psychological well-being (6 items, e.g., *'In the past month, how often did you feel confident to think or express your own ideas and opinions?'*). The items were answered on a scale from 0 *never* to 5 *(almost) always*. A total mean score was computed, with higher scores indicating higher levels of wellbeing. The MHC-SF showed excellent psychometric properties (Keyes et al., 2008; Lamers et al., 2011b). The total scale had a Cronbach's alpha of .92 at baseline in the current sample.

Job Satisfaction

Job satisfaction was measured with 5 items from the Maastricht Job Satisfaction Scale for healthcare (MAS-GZ; Landeweerd, Boumans, & Nissen, 1996; e.g., *'How satisfied are you with the activities you carry out?'*). Items were scored on a 5-point scale from 0 *very dissatisfied* to 4 *very satisfied*, and a higher total sum score indicating higher work satisfaction. The scale had a Cronbach's alpha of .80 in the current sample.

Work engagement

Work engagement was measured using the Short version of the Utrecht Work Engagement Scale (UWES-S 9; Schaufeli & Bakker, 2003). This scale contains 9 items, assessing vigor (3 items, e.g., *'At my work, I feel bursting with energy'*), dedication (3 items, e.g., *'I am enthusiastic about my job'*) and absorption (3 items, e.g., *'I feel happy when I am working intensely'*). All items were scored on a frequency scale from 0 *never* to 6 *always*, with higher total mean scores indicating more engagement. The scale has good psychometric properties (Schaufeli et al., 2002a; Schaufeli, Martínez, Marques, Salanova, & Bakker, 2002b). The total scale had a Cronbach's alpha of .93 at baseline in the current sample.

Acceptability of the intervention

After the T1 questionnaire, participants in the intervention group were asked to complete an assessment of the intervention on paper, including their motivation to complete the intervention and an evaluation of the online multi-component positive psychology intervention.

Intrinsic motivation

Intrinsic motivation to complete the intervention was measured with four subscales of the Intrinsic Motivation Inventory (IMI; SDT, nd; Dutch version Friederichs, Bolman, Oenema, & Lechner, 2015), adapted to fit the current intervention. The subscales had four items each: enjoyment (e.g., *'I enjoyed following the course very much'*), experienced value of the intervention (e.g., *'I believe following this course could be of some value to me'*), competence (e.g., *'I think I was pretty good at following the course'*), and experienced choice (e.g., *'I followed this course because I wanted to'*). Each item was scored from 1 *not at all true* to 7 *very true,* resulting in mean scale scores. The scales had satisfactory reliability in the current sample (α = .86, α = .95, α = .74, and α = .77 for enjoyment, value, competence and choice respectively).

Evaluation

The evaluation of the intervention was conducted with several items. Participants were asked to rate the overall intervention on a scale from 1 *very bad* to 10 *very good*. In addition, participants indicated the usefulness of the separate modules in two items (i.e., *'Which modules were most useful for you?',* and *'… least useful for you?'*), with no restriction on the number of modules they could tick. The intervention was further evaluated on quantity (of text, exercises, and modules), and duration (in weeks, and time spend on each module) as either being too little (1 *far too little,* and 2 *too little* combined), precisely right (3), or too much (4 *too much* and 5 *far too much* combined). Finally, participants were asked open-ended questions to deliberate on reasons for usefulness, the most important benefit from the intervention, and to provide tips and additional feedback on improving the intervention.

Analyses

All analyses were conducted with SPSS 24.0 (IBM SPSS Statistics), with the alpha level set to .05. The intervention and control group were compared on socio-demographics and baseline outcome measures, using independent sample t-tests and χ^2 tests. Variables on which the groups differed significantly would be included as covariates in the main analyses. Independent sample t-tests and χ^2 tests were also used to compare demographics of responders and non-responders, and to compare demographics and main outcome measures of completers and T1 dropouts.

There was no missing data on single items, but the data of secondary measures were missing for 2 participants at T0 (control group), and 6 participants at T1 (control group $n = 1$, intervention group $n = 5$). Furthermore, all baseline data was missing for 8 respondents, and 29 respondents dropped out at T1. Modified intention-to-treat analyses were conducted with the Linear Mixed Models (LMM) procedure, including

all nursing staff who participated in one of the questionnaires. Completers-only analyses did not show different results and are therefore not reported. Demographics and estimated marginal mean scores were provided for all participants.

The LMM analyses included the fixed effects of group (intervention vs. control), and time as repeated measure (T0 vs. T1), and group x time interaction for each well-being outcome measure (i.e., general well-being, job satisfaction or work engagement). Furthermore, to control for clustering, nursing home locations and participants within locations were included as additional random effects in all analyses. To test whether the intervention was more effective for people with low initial well-being, job satisfaction or work engagement, moderation effects of each baseline well-being measure were analyzed by including a group x time x baseline (well-being/job satisfaction/work engagement) interaction as fixed effect in the corresponding model. For this, baseline well-being, job satisfaction and work engagement scores were dichotomized in *'high'* and *'low'* using a median split. Significant interaction effects would lead to plot inspection. Compound symmetry was adopted as the covariance type, as it best fit the data, with restricted maximum likelihood as the estimation method. The effect size of Cohen's *d* was calculated by dividing the T1 mean difference of the estimate marginal means of the intervention and control condition by the pooled standard deviations, with Cohen's $d < .33$ as small, .33-.55 as moderate and > .55 as large effects (Lipsey & Wilson 1993).

Participants' quantitative evaluations of the intervention were analyzed with descriptive analyses. The content of the answers to the open-ended questions were analyzed conjointly by the first and second author, using Excel. All answers were analyzed together, on level of coherent piece of text. Data was first coded on describing either positive or negative aspects of the intervention, and then coded inductively. Codes were grouped on three themes: intrinsic motivation, content, and set-up of the intervention.

RESULTS

Participants

Table 1 shows the baseline characteristics of participants. Mean age was 41.8 years (*SD* = 12.1, range 16-65 years) and all but one were Dutch. A majority of participants were female, most worked as licensed practical nurse, with a contract of 17-24 hours, or 25-32 hours per week. Mean experience of working in a nursing home was 15.1 years (*SD* = 11.0, range 0-43 years). Nursing staff in the control condition were

Table 1. Characteristics of participants in the control group, intervention group and total sample

	Control (n = 49)	Intervention (n = 79)	Total (n = 136)	Baseline difference	
Age, M (SD)	44.7 (10.0)	39.6 (13.0)	41.6 (12.1)	t = 2.5	p = .01*
Gender, n (%)				χ^2 = 1.1	p = .29
Female	48 (92)	81 (96)	129 (95)		
Male	4 (8)	3 (4)	7 (5)		
Marital Status, n (%)				χ^2 = 9.2	p = .003**
Married	41 (79)	44 (52)	85 (63)		
Single	8 (15)	30 (36)	51 (37)		
Work Experience, M (SD)	16.3 (9.6)	13.9 (11.5)	14.8 (10.8)	t = 1.3	p = .21
Function, n (%)				χ^2 = 3.6	p = .33
Registered nurse	1 (2)	7 (8)	8 (6)		
Licensed practical nurse	46 (89)	65 (77)	111 (82)		
Nurse assistant	4 (8)	8 (10)	12 (9)		
Student	1 (2)	4 (5)	5 (4)		
Hours working per week, n (%)				χ^2 = 2.3	p = .70
33-40	5 (10)	6 (7)	11 (8)		
25-32	10 (19)	23 (27)	33 (24)		
17-24	27 (52)	37 (44)	64 (47)		
9-16	9 (17)	13 (16)	22 (16)		
1-8	1 (2)	4 (5)	5 (4)		

* p < .05. ** p < .01.

slightly older and more often married (Table 1). To control for these differences, age and marital status were included as covariates in all main analyses. Furthermore, because participants in the control condition tended to have higher baseline job satisfaction (Table 2), it was included as covariate in the main analyses of general well-being, and work engagement.

Non-response, drop-out and intervention adherence

At T0, the response was lower in the control group (60%) than in the intervention group (82%, χ^2 (1) = 10.8, p = .001), but no differences on any of the available demographic variables (i.e., age, gender, marital status, work experience, function, and number of hours worked per week) were found between participants and non-responders at T0 (not in table). T1 drop-out (23%) did not differ between conditions (χ^2 (1) = 1.5, p = .28). Completers reported higher baseline job satisfaction (M = 15.9, SD = 2.3) than T1 drop-outs (M = 14.4, SD = 2.6, t (123) = 2.8, p = .006),

and higher work engagement (M = 4.9, SD = 0.9) than T1 drop-outs (M = 4.3, SD = 1.1, t (123) = 2.7, p = .009). In the intervention group, 65 nursing staff (74%) completed all modules of the intervention, one participant completed 6 modules, and 9 participants completed 3 or less modules (Figure 1). The evaluation of the intervention was filled out by 44 intervention participants (50%), most of whom (93%) had completed all modules of the intervention.

Outcomes

Table 2 shows the estimated marginal mean scores and standard deviations of T0 and T1 measures. At baseline, participants in both the control group and the intervention group scored rather high on general well-being, job satisfaction and work engagement. Mean scores of general well-being and work engagement were comparable to the Dutch national norm-groups (general well-being, M = 3.0, SD = 0.9; Lamers, Westerhof, Bohlmeijer, ten Klooster & Keyes, 2011a; work engagement M = 3.7, SD = 1.2; Schaufeli & Bakker, 2003).

Main analyses

It was hypothesized that the multi-component positive psychology intervention would improve general well-being, job satisfaction, and work engagement of nursing staff. However, the mean general well-being scores remained stable for both groups (Table 2), and the LMM analysis showed no interaction effects on general well-being. Furthermore, no interaction effects were found on work engagement (Table 2). Only job satisfaction showed a significant interaction effect, with participants in the intervention condition remaining stable on job satisfaction, while participants in the control condition decreased in job satisfaction. For each analysis, the random factors of nursing home locations and participants within locations had a non-significant contribution (p's > .48).

Moderation analyses

It was hypothesized that the intervention would be most effective in improving well-being for people with low initial well-being, job satisfaction or work engagement. The tree-way interaction of condition, time and baseline scores showed no significant effect on general well-being, job satisfaction, or work engagement (Table 2). The intervention was not more effective on general well-being for people with low initial general well-being, nor was the intervention more effective on job satisfaction or work engagement for people with low initial satisfaction or engagement.

Table 2. Estimated marginal means of primary and secondary outcome variables and LMM analyses

		Control T0	T1	Intervention T0	T1	Baseline difference		Interaction Condition x Time		Effect size		Interaction Condition x Time x Baseline score[1]	
Scale	Range	M (SD)	M (SD)	M (SD)	M (SD)	t	p	F	p	d	95% CI	F	p
General Well-being	0-5	3.5 (0.8)	3.5 (0.7)	3.7 (0.8)	3.6 (0.7)	0.0	.99	0.25	.62	.12	-.53 to .29	0.25	.62
Job Satisfaction	0-20	16.0 (2.3)	15.1 (2.2)	15.2 (2.6)	15.3 (2.2)	2.4	.02*	4.54	.04*	.10	-.50 to .31	0.33	.57
Engagement	0-6	4.7 (0.8)	4.6 (0.7)	4.8 (0.8)	4.8 (0.7)	1.2	.25	0.25	.62	.22	-.65 to .20	2.95	.09

Note: controlled for age and marital status, and the analyses of well-being and engagement are controlled for baseline job satisfaction; CI = confidence interval

[1]High or low score on the corresponding well-being, job satisfaction or work engagement measure;

* $p < .05$.

Acceptability of the intervention

Overall, participants were moderately positive about the course, although their evaluations varied. The intervention was evaluated with a mean grade of 6.4 (*SD* = 1.89), which translates to 'adequate' in the Dutch grading system. Quantitative and qualitative evaluation results are jointly discussed below, on themes of intrinsic motivation, content, and set-up of the intervention. Table 3 shows the quantitative evaluation results.

Intrinsic motivation

Participants scored moderate on the enjoyment scale, with some participants being very enthusiastic: *"I found it great to do, I learned a lot from it and will certainly continue to work on it the future".* However, several other participants were not positive about the intervention, mentioning that time and money had better been invested in the residents: *"a course like this one should never be implemented again".* Furthermore, participants scored moderate on the subscale measuring value of the intervention. The qualitative analysis showed that most of the participants could name positive outcomes of the course: some concerning some general insight: *"How you can have different views on things and different ways of handling [things]",* and most concerning some insight about themselves: *"[Because] you do get to know yourself a bit better".* Additionally, several participants described that they adopted a more positive perspective: *"To see more positive things and to give yourself compliments"; "also to give colleagues positive feedback".* However, other participants described that they had forgotten the content of the intervention, or that they could not mention any positive outcome of the intervention*: "Have yet to discover the added value it has yielded".* Only one participant indicated an adverse outcome *"do not give someone a depressive feeling",* but it seemed like this concerned the questionnaire instead of the intervention. Participants felt rather competent in following the training, although a few participants also described that they found the intervention too difficult. Finally, the subscale scores indicated that participants experienced only moderate choice in following the intervention, but they did not discuss this further in the answers to the open questions.

Content

The content of the intervention was described as personally relevant and at times confronting: "*Each part had something useful or something that was appealing"; "I got a good view and impression again, sometimes you repress it and now it came back again".* Others stated that the intervention did not fit the workplace: *"Little or none of this can be applied to my work practice".* Furthermore, some participants indicated that they had no need for the personal character of the course, with some

Table 3. Evaluations of the intervention: Intrinsic motivation, content and set-up

Intrinsic motivation	Scale	M	SD
Enjoyment	1-7	4.3	1.3
Value	1-7	4.4	1.4
Competence	1-7	4.7	1.1
Choice	1-7	3.8	2.3
Module content[1]	Most useful	Least useful	
1 Positive Emotions	40%	9%	
2 Strengths	38%	9%	
3 Use Strengths	24%	7%	
4 Optimism	20%	13%	
5 Self-compassion	16%	18%	
6 Resilience	31%	13%	
7 Positive relations	18%	11%	
8 Positive relations and spirituality	22%	13%	
Set-up	Too little	Precisely right	Too much
Amount of Text	3%	23%	75%
Number of Exercises	0%	24%	76%
Number of Modules	12%	42%	46%
Time for each module	0%	46%	54%
Number of weeks	10%	55%	35%

[1]There was no restriction on the number of modules to assign most or least useful to.

participants indicating it was not the right time: *"Because I am not working on this yet, in terms of [my] private [life]"*. Nursing staff varied in their evaluations of the usefulness of the separate modules, with each module evaluated both as most and as least useful by at least 3 participants. Overall, the two modules covering positive emotions and strengths (module 1 and 2) were evaluated as *most useful*, and the module on self-compassion (module 5) as *least useful*. Participants did not elaborate much on the reasons why, other than in terms of "*That is what I am most interested in"*, or "*Personally, I am not interested in spirituality"*.

Set-up

The number of exercises and amount of text were evaluated as *too much* by a large majority (Table 3), and reducing the amount of text, exercises and repetition in exercises was most often mentioned as point of improvement for the intervention: *"Sometimes it was a lot of reading and assignments were very similar*". Evaluations

of the number of modules and time spend on each module varied notably between participants, many indicating it as *too much*, and many others as *precisely right* (Table 3). A small majority was satisfied with the duration of the intervention in weeks. Only two participants mentioned the gamified aspect of the intervention, one indicated having expected more gamified aspects; one indicated liking the gamified aspect: *"The set-up of the course was fun with the islands".*

CONCLUSIONS

To our knowledge, the current feasibility study was the first to analyze the effectiveness and acceptability of an online multi-component positive psychology intervention to improve well-being of nursing staff in nursing homes. We used an intervention that consisted of evidence-based methods (Seligman et al., 2005), and showed that when the employer presents such an intervention as an obligatory course, the retention is high. Participants were generally positive about the intervention, showing intrinsic motivation to follow the intervention, and evaluating the intervention as personally relevant and experiencing beneficial effects. However, the online multicomponent positive psychology intervention was not effective in improving well-being, even for people with low initial well-being. This is in line with one study on a positive psychology interventions in the work environment (Abbott et al., 2009), but not with others (Ouweneel et al., 2013; Page & Vella-Brodrick, 2013), nor is it in line with a previous study of the same intervention in a different population (Schotanus-Dijkstra et al., 2017). Furthermore, unlike Ouweneel et al. (2013), we did not find an effect on work engagement for people with low initial work engagement. There was a small effect of the intervention on job satisfaction, although these results should be interpreted with caution as the decline in job satisfaction in the control group may represent regression to the mean. In the following, we will consider the high baseline levels of well-being and work engagement, intervention content, the obligatory character of the intervention, and individuality as possible explanations of the limited effectiveness.

First, the high baseline well-being of our sample left only limited room for improvement. Previous studies often used participants with low initial well-being (e.g., Schotanus-Dijkstra et al., 2017), while the nursing staff in the current study had an initial general well-being and work engagement comparable to the Dutch national norm-groups. This was unexpected, seeing the numerous studies stressing that healthcare providers working with older adults are at increased risk for stress-related problems (e.g., Sanchez et al., 2015). This positive finding is in line with the

rather high well-being scores found for nursing staff in nursing homes in Sweden and Spain (Yepes-Baldó, Romeo, Westerberg, & Nordin, 2018). We should also take into account, however, that some participants may have given socially desirable answers, as anecdotal evidence indicated that some questioned their anonymity in this study which was initiated and introduced by the employer. Furthermore, while the increased risk of stress-related problems for nursing staff is quite well-studied, we were unable to find comprehensive international comparisons of current positive well-being states of nursing staff to compare our results to.

Second, the content of the current intervention may not have been satisfactory applicable to the work context of nursing staff. We used a positive psychology intervention that was effective in improving general well-being in previous research (Schotanus-Dijkstra et al., 2017), and nursing staff in a small pilot study showed interest in the content. However, as some participants also noted, the intervention content was not specifically aimed at the work context, which may explain the lack of improvements in job satisfaction and work engagement. Furthermore, the intervention was originally developed for people with a relatively high educational level (Ludden et al., 2014). Although Schotanus-Dijkstra et al. (2017) found no moderating effect of education on effectiveness of the current intervention, they included only about 4% lower educated participants. Others found some initial evidence that higher-educated participants profited more from an online positive psychology intervention than lower-educated people (Bolier et al., 2013b). Otherwise, little is known about the influence of education level on effectiveness of positive psychology interventions. Our qualitative results clearly indicated that nursing staff preferred a more concise positive psychology intervention, which could be realized by including only the modules participants found most useful (e.g., positive emotions and strengths), or for example by including only short pieces of information in video fragments (Ouweneel et al., 2013). However, future studies may also want to include nursing staff in all stages of intervention design, so all components of the positive psychology intervention are tailored specifically to their needs before implementation (Kip & van Gemert-Pijnen, 2018).

Third, it is possible that the mandatory aspect of the training influenced the results. Of course, nursing staff would ideally participate voluntarily in a positive psychology intervention, securing a sense of autonomy and belief in the benefits of the intervention. However, participation and retention rates are known problems of online interventions (Eysenbach, 2005). Especially nursing staff generally have difficulties in taking time to administer self-care (Crane & Ward, 2016). When provided a choice, only 5% of hospital nurses followed an online positive psychology intervention to some extent

(Bolier et al., 2014), while we had satisfactory participation and retention rates in the current study with this mandatory aspect. Obligatory courses are commonplace in Dutch nursing homes, but are usually aimed at improving *professional skills*, not at *personal resources*. The acceptability of mandatory participation in well-being interventions, and its influence on the effectiveness in the work context are not well studied (Gilbert et al., 2018). The current study provided some indication that a mandatory positive psychology intervention is acceptable for most nursing staff, although a few participants also clearly disliked it. Concerning effectiveness, the meta-analysis of Sin and Lyubomirsky (2009) showed better well-being improvements in self-selected compared to assigned participants, although the meta-analysis of Bolier et al. (2013b) showed no such differences. The main assumption here is that self-selection is equal to more intrinsic motivation to follow the intervention (Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2011). The moderate intrinsic motivation in the current study did leave room for improvement. However, intrinsic motivation could also be supported in alternative ways, for example by offering other meaningful choices in the intervention (e.g., which activities to complete; Deci, Eghrari, Patrick, & Leone, 1994). Future research should further investigate the retention, acceptability and the effectiveness of mandatory compared to voluntary participation in positive psychology interventions in the work environment, and the usefulness of alternative autonomy supportive methods.

Finally, the intervention may have been too individualistic for nursing staff. The individual online delivery which was used in the current study maximizes the flexibility for nursing staff with shiftwork, and improves easy scalability towards all nursing staff of a care organization (Bolier & Abello, 2014). However, some form of guidance during the intervention seems to improve the adherence to and effectiveness of positive psychology interventions (Sin & Lyubomirsky, 2009). Although team leaders were trained in the current study with this purpose, it proved to be difficult for them to implement what they had learned. A nursing home psychologist may be more equipped to provide such guidance, or alternatively email-guidance by an external coach or psychologist could be included. Furthermore, the potential of peer-support and social sharing were underutilized in the current intervention. Team meetings would be a natural setting in which nursing staff can share positive experiences of the intervention, which can improve effectiveness by enhancing relationships and by cultivating the positive emotions related to these positive experiences (Gable, Impett, Reis, & Asher, 2004).

There are several limitations to be discussed. We had a limited sample size, which limited the possibility for subgroup analyses. However, a post-hoc power analyses

showed that there was no problem with power for the main analyses. Furthermore, although the non-significant random effects indicated that clustering of data within nursing home locations was very small, we reported these results as they best fit the design of the study and the non-hierarchical analysis did not yield substantially different results. We did not include content analyses of the exercises, so we have no knowledge of how serious nursing staff adhered to the exercises. Other research shows that effort may influence the effectiveness of positive psychology interventions (Lyubomirsky et al., 2011). We chose this, however, to assure participants anonymity, which may have been especially important as the course was provided by their employer. Furthermore, long-term effects could not be tested because this online intervention was part of a larger project including other interventions aimed at improving well-being of residents. Finally, intrinsic motivation and evaluation were only measured at post-test, while continuous evaluation during the intervention would have relied less on recall and may give a better insight in the true feelings of the participants.

Concerning generalizability, the sample consisted solely of Dutch nursing home staff, who were mostly licensed practical nurses with relatively high baseline well-being. The participants in our study were quite familiar with internet facilities: they were expected to regularly read their work email and work with an electronic client report. This limits generalizability of acceptability of such an online positive psychology intervention to other countries, where there may be a higher percentage of nursing aids, and where nursing staff is not as adept with internet facilities.

Studying the effectiveness of online positive psychology interventions is a very new field (Bolier & Abello, 2014), and there is a need for structurally investigating the optimal conditions of online multicomponent positive psychology interventions for various populations and in various contexts. This study showed that implementing an obligatory online multi-component positive psychology intervention is possible and acceptable for most nursing staff, but the intervention was not effective in improving well-being, job satisfaction or work engagement. Opportunities lie in creating an online multi-component positive psychology intervention for nursing staff that is more concise, work focused, and includes some form of autonomy support.

3

PART II

Nursing Home Resident Well-being

How well do Nursing Staff assess Well-being of Nursing Home Residents?

4

an explorative study of using single question scales

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Submitted

ABSTRACT

Objectives. Person-centered care requires improved documentation of nursing home resident well-being. This study is the first to investigate how well nursing staff assess residents' well-being using a single question assessment method of happiness and engagement.

Method. This cross-sectional mixed-method study included proxy-assessments from 49 nursing staff, and self-reports from 49 mentally lucid nursing home residents (mean age 85). We analyze proxy-self-report agreement, proxy-assessment variability, and the relation with caregiver factors (age, experience, and hours worked per week). Brief written motivations were evaluated on nursing staffs understanding of the happiness and engagement concepts.

Results. Nursing staff assessed both happiness and engagement substantially higher than residents' self-reports. Only happiness proxy-assessments were related to self-reports, with low agreement. Proxy-assessments showed low inter-rater reliability. None of the included caregiver factors was related to proxy-self-report discrepancy, and only more hours worked per week was related to higher proxy-assessments of resident happiness. Caregivers interpreted happiness and especially engagement in diverse ways.

Conclusion. Using the single question assessment method, nursing home staff overestimate well-being of nursing home residents, which may undermine their efforts to improve well-being. Nursing staff differ considerably in their assessments, and we could not identify which nursing staff could best provide well-being assessments. For now, proxy well-being assessments should always be combined with regular self-reports whenever possible.

INTRODUCTION

Nursing homes are striving to become more person-centered (Koren, 2010): rather than viewing older adults as patients and emphasizing illness, nursing staff connect in a personal way with residents, taking the whole unique person of the resident, with their personal experiences and preferences into account (Brooker, 2004; Edvardsson, 2015; Edvardsson, Winblad, & Sandman, 2008). Providing such person-centered care (PCC) can have important positive outcomes, like improved resident well-being (Chenoweth et al., 2009). However, it can be difficult to implement PCC innovations in the highly pressured residential aged care settings (Mentes & Tripp-Reimer, 2002). Progress towards providing PCC can be monitored by regularly assessing and documenting resident well-being, but nursing documentation is currently almost exclusively dedicated to describing physical care (Broderick & Coffey). The current study investigates how well nursing staff are able to make assessments of resident well-being for client documentation, and whether it matters which particular professional caregiver provides these assessments for documentation.

Well-being can be defined in various ways, divided into two traditions which are concerned with *feeling good* and with *doing well*. First, the hedonic approach conceptualizes well-being as feeling happy: experiencing balanced positive and negative emotions, and being satisfied with life (Diener, Suh, Lucas, & Smith, 1999). Second, the eudaimonic approach describes well-being as an active process of living well, living a complete life and realizing human potentials (Ryan & Deci, 2001). The concept of engagement fits in this tradition, in which a person is absorbed in an activity, to the point of forgetting time, fatigue and everything else but the activity itself, described as an experience of flow (Csikszentmihalyi, Nakamura, & Abuhamdeh, 2015). A comprehensive definition of well-being includes both feeling good and doing well (Keyes, 2002), hence the current study focuses on both happiness and engagement.

Residents may be the most valid source of their subjective experiences of happiness and engagement, but dementia and other physical disorders can impede introspection and communication. Furthermore, most current questionnaires are too long and intrusive for frail older adults to fill out regularly. Nursing staff have daily contact with the residents, and can alternatively provide proxy-assessments of resident happiness and engagement. A meta-analysis showed a moderate correlation between self-reported and proxy-reported well-being in the general population (Schneider & Schimmack, 2009), implying that people are generally able to estimate

the well-being of others to some extent, although assessments are far from perfect. In the nursing home context, nursing staff proxy-ratings have shown moderate agreement with self-reported of Quality of Life (QoL; e.g., Crespo, Bernaldo De Quirós, Gómez, & Hornillos, 2012; Devine et al., 2014; Spector & Orrell, 2006). Nursing staff have been found to both over-estimate (Kane et al., 2005), and under-estimate residents' QoL (Beer et al., 2010), and the greatest proxy-self-report discrepancies were found for the more subjective components of QoL (i.e., psychological well-being; Neumann, Araki, & Gutterman, 2000).

However, many of the nursing home proxy-self-report agreement studies were conducted with older adults with dementia, leaving the possibility that high discrepancies were caused by the introspective problems of the resident with dementia (Gerritsen, Steverink, Ooms, De Vet, & Ribbe, 2007). Furthermore, the instruments that are included for proxy-assessments did not always correspond closely to those used for self-reports, and are often quite lengthy. Since the nursing home has been described as an environment where excessive paperwork is already taking time away from resident care (Cherry, Ashcraft, & Owen, 2007), we propose that short and simple methods like single questions are more suitable for regular monitoring and documentation of resident well-being. Single question self-reports have been used as reliable and valid indicators for concepts such as subjective health, subjective age, QoL and life satisfaction (e.g., Gerritsen et al., 2007; Idler & Benyamini, 1997; Veenhoven, 2008; Westerhof et al., 2014). Such global reports allow for the full expression of residents' values and preferences (Gill & Feinstein, 1994), which may differ from combining several judgments of specific aspects in life (Westerhof, Dittmann-kohli, & Thissen, 2001). The current study employs corresponding single questions of happiness and engagement when comparing proxy-assessments to self-reports of mentally lucid residents.

Furthermore, because several caregivers usually have daily contact with one resident, this study investigates whether it matters which particular professional caregiver provides well-being assessments for documentation. Previous studies have found various degrees of agreement between colleagues in their assessments of resident QoL, with both sufficient (Ettema, Dröes, de Lange, Mellenbergh, & Ribbe, 2007) and insufficient inter-rater reliably (Dichter et al., 2014). Moreover, variation in proxy-assessments would necessitate identifying those caregivers who are *best able* to assess well-being. While a recent systematic review revealed various nursing staff characteristics that were related to *how high* they assessed QoL (e.g., staff distress, having a contract, and number of days worked in advance of the assessment; Robertson et al., 2017), few studies investigated whether such caregiver factors

could also indicate *how well* they assessed well-being in comparison to self-report. A single study found that caregiver age and experience in working in eldercare was not related to the discrepancy between proxy-assessments and self-reports of residents with dementia (Spector & Orrell, 2006), but more research is needed with mentally lucid residents.

Finally, an important condition for valid proxy-assessments of resident well-being is that nursing staff interpret well-being assessment items in a similar way, and the current study follows previous recommendations to provide training in the assessment method and a manual with clear and accurate definitions of the items (Dichter et al., 2014). The current study is the first to investigate how well nursing staff assess nursing home residents' well-being compared to self-reports, with a single questions assessment method of happiness and engagement. We analyze (1) how well nursing staff assess well-being compared to the self-reports of mentally lucid nursing home residents, (2) how well caregiver assessments correspond between colleagues, and (3) whether caregiver factors are related to how high and how well they assess well-being in comparison to residents. Finally, we evaluate the understanding of nursing staff of the happiness and engagement concepts.

METHODS

Sample and procedure

The current study used a cross-sectional design. Two Dutch nursing homes of one care organization were included, with eight long-term care units of 12-25 physically frail residents per unit participating in this study. Nursing staff of these units received a training in observing and assessing well-being, and provided proxy-assessments of happiness and engagement of the residents in their unit. In the same period, mentally lucid residents of the participating units provided self-reports of their happiness and engagement. The study was approved by the ethics committee of the Faculty of Behavioral, Management and Social Sciences at the University of Twente (no. 15016).

Figure 1 shows the flowchart of participants. All nursing staff (n = 83) of the included units received the training, and fifty-five of them (67%) provided proxy-assessments for one or several (up to 8) residents in their unit. The assessments of six caregivers were excluded from analyses for various reasons (Figure 1), resulting in a final sample of 49 nursing staff providing proxy-assessments of 119 residents in total. There were assessments by two or more nursing staff for 98 residents.

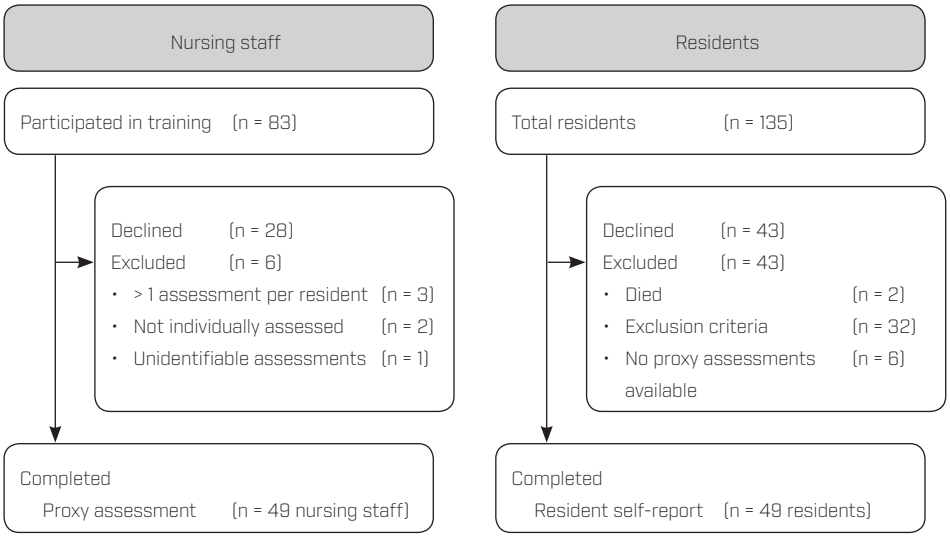

Figure 1: Flowchart of participating nursing staff and residents

Information letters were sent to all residents of the participating units (n = 135). Residents with major hearing, speech or cognitive problems and dementia, as established by nursing staff, were excluded from participation (n = 32). A total of 43 residents declined to participate (Figure 1). After signing an informed consent form, participating residents provided self-reports, together with a trained member of the research team consisting of one psychology undergraduate and two graduated psychologists. A total of 55 residents completed the questionnaire, but the self-reports of 6 residents (10%) were excluded from analyses because no caregiver assessments of these residents were available. This resulted in matching proxy-assessments and self-reports of 49 residents.

Training

Observation and assessment of happiness and engagement was introduced in a mandatory face-to-face course. In the first two-hour session, the concepts of happiness and engagement were discussed, and participants practiced observing the concepts using video fragments of nursing home residents. In the second session, the assessment method was introduced, and participants practiced assessment using video fragments. Subsequently, participants observed happiness and engagement of their residents for two weeks and individually filled out the assessment form (see nursing staff measures), which they could choose to hand in for the current study. The assessments were discussed in a third return meeting, but the current study only covers the completed and submitted assessment forms.

Nursing staff measures

Assessments

Caregiver proxy-assessments of happiness and engagement were gathered using an adapted version of the Leuven Well-being and Engagement Scale (L-WIS, Laevers, 2005). In the L-WIS, happiness and engagement are rated on two separate 1-5 scales, with higher scores indicating better well-being, and a question-mark indicating a lack of information to make a clear assessment. This monitoring tool was originally developed for education and childcare (Laevers, 2005), and adapted to include detailed descriptions of feelings and behaviors of older adults corresponding to each of the happiness and engagement assessment scores (see Supplementary Materials for descriptions). The L-WIS assessment form includes space to assign both assessments per resident (up to 25 residents), and to provide a brief qualitative motivation for these assessments per resident.

Caregiver characteristics

Demographic and work-related data (i.e., age, function, hours worked per week, experience and function) were gathered as part of another study, which were missing for seven of the nursing staff.

Resident measurements

Happiness

Self-reported happiness was measured using a single question that matched the L-WIS caregiver assessment, and with two established happiness questionnaires. The single question of happiness (i.e., '*All in all, how good did you feel in the previous week including today?*') was answered on a scale from 1 *not good at all* to 5 *excellent*. Then in line with the L-WIS, a detailed description of feelings corresponding to that score was provided (e.g., for score 5*: 'I felt great, I felt relaxed, I had confidence and I thoroughly enjoyed myself*'). Residents indicated whether this described their happiness, or could choose another rating description when better fitting.

The established questionnaire measuring the balance of positive and negative emotions was the Dutch version of the Geriatric Depression Scale (GDS, Jongenelis et al., 2007). This scale is specifically designed for nursing home residents, measuring the presence of both positive feelings (4 items, e.g., '*Do you feel happy most of the time?*') and negative feelings (4 items, e.g., '*Do you feel that your life is empty?*'), answered with *yes* or *no*. A sum score is computed, with high scores indicating more depressive feelings. The scale had a reliability of $\alpha = .86$ in the current sample.

The established questionnaire measuring life satisfaction was the Satisfaction With Life Scale (SWLS, Custers, Westerhof, Kuin, & Riksen-Walraven, 2010; Diener, Emmons, Larsen, & Griffin, 1985). Five items (i.e., *'I am satisfied with my life'*) were scored on a scale from 1 *totally disagree* to 5 *totally agree.* To improve clarity, the final question was restated into a positively formulated question. A sum score was calculated, with higher mean scores indicating greater life satisfaction. The scale has shown good psychometric properties (Pavot & Diener, 1993). In the current sample, the scale had a reliability of α = .84.

Engagement

Self-reported engagement was also measured using both a single question matching the L-WIS caregiver assessment, and an established engagement questionnaire. The single question of engagement (i.e., *'How often were you completely absorbed in what you did?'*) was answered on a scale from 1 *rarely* to 5 *most often*. Then in line with the L-WIS, a detailed description of feelings corresponding to that score was provided (e.g., for score 5: *'Most of the time, I was highly concentrated and continuously involved in an activity, which made me forget the time and I could not be distracted'*). Residents indicated whether they felt this described their engagement, with the opportunity to choose another rating description when suited.

The established questionnaire measuring engagement with good construct validity and reliability was the leisure scale of the Swedish Flow Proneness Questionnaire (SFPQ; Ullén et al., 2012). However, participants indicated that this questionnaire was too difficult, which resulted in many missing values. This measure was therefore omitted during data gathering, and results are not discussed further.

Resident characteristics

Demographic data (i.e., age, gender, marital status, number of children) and subjective health (i.e., *'How is your health generally?'*; scale 1 *poor* to 5 *excellent*) were additionally self-reported. Independency of activities of daily living (i.e., bathing, clothing, mobility, toileting, continence, and eating) were rated by nursing staff on a scale from 1 *can do this without help* to 4 *needs help with all aspects of the activity,* using the KATZ ADL (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963). Total scores range from 6 to 24, with higher scores indicating greater ADL dependency.

Analysis

Quantitative data was analyzed using IBM SPSS 24. Caregiver proxy-assessments were included in analyses only when both a valid happiness and a valid engagement assessment were provided, a question mark was considered an invalid assessment.

When a caregiver assigned two scores for one assessment (e.g., both 3 and 4 for well-being for resident A), this was coded as the mean of the two scores (e.g., 3.5). For the self-reports, missing data on individual items of the established happiness questionnaires (0.6%) were replaced with the respondent's mean of that scale. All results are reported for happiness and engagement separately.

Sample characteristics, and happiness and engagement proxy-assessments and self-reports are reported using descriptive statistics. Correlations of resident demographics to self-reports of happiness and engagement were examined. As a test of concurrent validity of the single question self-reported happiness, Pearson correlations with GDS (depressive feelings) and SWLS (life satisfaction) scores were analyzed. Correlations $r < .30$ are indicated as weak, $r < .50$ moderate and $r \geq .50$ as strong correlations (Cohen, 1988). No test of concurrent validity of the single question self-reported engagement could be conducted since the Flow Proneness Questionnaire was omitted.

First, to analyze how well nursing staff assess well-being, the agreement between proxy-assessments and self-reports of happiness and engagement was tested using means of all available (1-8) proxy-assessments of each resident and the single question self-reports of each resident (n = 49 residents). Pearson correlations and paired sample t-tests were conducted. Furthermore, two-way random effects intraclass correlations (ICC) of absolute consistency with multiple raters were computed, with ICC of $< .50$ indicated as poor, $.50 \leq ICC < .75$ as moderate, $.75 \leq ICC < .90$ as good and $ICC \geq .90$ as excellent (Koo & Li, 2016).

Second, to analyze how well caregiver assessments correspond between colleagues, the inter-rater agreement between proxy-assessments was analysed for 98 residents for whom several assessments were available. Absolute differences between each occurring rater-pair were calculated. The proportion of *exact agreement* was then calculated by dividing the number of matching assessments (i.e., difference of 0) by the total number of raters (Kottner & Dassen, 2008).

Furthermore, because scores that are closer together on ordinal 5-point proxy scales indicate more agreement, *relative agreement* was also analyzed with the Krippendorff's alpha using the macro of Hayes and Krippendorff (2007). This alpha is a reliability estimate for judgments that can be made at ordinal level, with any number of observers and with missing data. Based on 1000 bootstrapped samples, the 95 percent CI's are computed to indicate the uncertainty of this inter-rater reliability.

Third, to analyze whether caregiver factors are related to *how high* and *how well* caregivers assess well-being in comparison to residents, three caregiver factors were included (i.e., age, experience working in eldercare, number of working hours per week; n = 41 caregivers). *Average assessment scores* of all assigned assessments (1-10 assessments) were calculated for each professional caregiver. Nursing staff mean *discrepancy* from self-assessments was calculated by averaging the absolute differences between proxy-assessments and the corresponding residents' single question self-reports for each nursing staff, ranging from 0 *no discrepancy* to 4 *high discrepancy*. Pearson correlations were examined for age and experience, and Spearman's rho correlations for the number of hours worked, in relation to average assessment scores and discrepancy scores.

Finally, an explorative qualitative analysis of the brief motivations of 42 caregivers was conducted to explore whether their interpretations were in line with the definitions of happiness and engagement presented in the training and the assessment manual. Caregivers provided one single brief motivation per resident, for happiness and engagement assessment combined. Information was categorized as describing either happiness or engagement, based on interpretation of the researchers. Brief motivations of 26 caregivers were first open coded in Excel, and through deliberation between the first and the last author, a coding system of the happiness and engagement codes was created. All brief motivations were then coded using Atlas.ti 8. One single happiness code and one single engagement code was assigned to each brief motivation, with three main themes of interpretations (1) matching the definition, (2) different from definition, and (3) unknown. The content of the brief motivations that did not discuss either happiness or engagement, was additionally analyzed with a bottom-up analysis and the resulting themes are discussed.

RESULTS

Sample characteristics

Nursing staff

The 49 nursing staff had a mean age of 38.1 years (SD = 12.4, range 18-57), most (95%) were female, most (91%) were licensed practical nurse, many (43%) worked 17-24 hours per week, with on average 13.7 (SD = 11.5) years of experience working in nursing home settings.

Residents

The 49 residents that completed self-reports, had a mean age of 84.5 years (*SD* = 7.0, range 56-100). Most residents (66%) were female, widowed (68%), and most residents (92%) had one or more children. Residents had a reasonable subjective health (*M* = 2.4, *SD* = 0.6, range 1-4), and moderate ADL dependency (*M* = 11.1, *SD* = 4.6, range 6-19).

Happiness and engagement

Table 1 shows happiness and engagement data for the residents that provided self-reports. Proxy-assessments of happiness and engagement had positive mean scores, and were strongly interrelated. Self-reported happiness and engagement showed positive mean scores, and a moderate interrelation. Resident demographics were not related to self-reported happiness or engagement scores. Residents reported high life satisfaction (*M* = 18.9, *SD* = 4.7, not in Table), and a low amount of depressive feelings (*M* = 1.2, *SD* = 2.0, not in Table), which were both moderately related to the single question self-reported happiness (*r* = .31 for life satisfaction and *r* = -.48 for depressive feelings), indicating some concurrent validity of the single question happiness self-report.

Main findings

How well do nursing staff assess well-being compared to self-report?

For happiness, proxy-assessments and self-reports were only moderately correlated, with proxy happiness assessments significantly higher than resident self-reports (Table 1). Furthermore, the intra-class correlation showed poor consistency between happiness proxy-assessments and self-reports. For engagement, proxy-assessments were not significantly correlated with self-reports. Again, proxy-assessments were significantly higher than resident self-reports (Table 1). The intra-class correlation showed no significant consistency between caregiver proxy engagement assessments and self-reports.

How well do caregiver assessments correspond between colleagues?

On average, 4.4 proxy-assessments (min 2 – max 8) were available for 98 residents. Caregiver assessments differed on average less than 1 point from each other for both happiness (*M* = 0.67, *SD* = 0.43) and engagement (*M* = 0.84, *SD* = 0.46). *Exact agreement* between the proxy-assessments only occurred in 42 percent of happiness and 36 percent of engagement assessments. Krippendorff's alpha also showed low *relative agreement*, with an alpha of .49 for happiness (CI .45-.55) and an alpha of .40 for engagement (CI .36-.44).

Table 1. Means, SDs, Pearson correlations, and comparisons of nursing staff assessments and self-reports of resident happiness and engagement

							Proxy vs. self-report	
	n[1]	scale	M (SD)	1.	2.	3.	Paired sample T-test	ICC
Happiness								
1. Proxy-assessed	49	1-5	3.8 (0.8)					
2. Self-report	49	1-5	3.4 (1.0)	.32*			t (48) = 3.03 p = .004	ICC = .43*
Engagement								
3. Proxy-assessed	49	1-5	4.0 (0.8)	.66**	.18			
4. Self-report	43	1-5	3.1 (1.2)	.09	.40**	.12	t (42) = 4.93 p = .000	ICC = .14

Note: ICC = Intra-class correlation
[1]number of residents

* p <.05. ** p <.01.

Are caregiver factors related to how high and how well caregivers assess well-being?

Table 2 shows correlations between caregiver factors and both average assessment scores and mean proxy-self-report discrepancy scores of happiness and engagement. Average caregiver assessment scores were similar for happiness and engagement, while mean discrepancy was bigger for engagement than for happiness. Only the number of hours worked per week was (borderline significantly) related to average happiness assessment scores (r_s = .31, p = .046), with more hours related to higher assigned happiness scores.

Table 2. Means, SDs and range of nursing staff average assessment scores and proxy-self-report discrepancy (n = 41 caregivers), and relations with the age, experience and hours worked per week of nursing staff

	M (SD)	range	Age (r)	Experience (r)	Hours worked (r_s)
Happiness					
Average assessment score	3.3 (0.4)	2.3 - 4.0	.16	.22	.31*
Discrepancy	0.9 (0.5)	0.0 - 3.0	-.20	-.17	.05
Engagement					
Average assessment score	3.3 (0.6)	1.6 - 5.0	.04	.01	.13
Discrepancy	1.4 (0.5)	0.6 - 3.0	.01	.09	-.19

Note: r = Pearsons correlation, r_s = Spearman's Rho correlation
* p <.05.

Proxy interpretation of happiness and engagement

A total of 325 brief motivations were analyzed qualitatively on the interpretation of happiness and engagement matching definitions of happiness and engagement presented in the training and the assessment manual.

Matching

Many brief motivations described happiness (54%) and engagement (22%) in line with the training and assessment manual. Some brief motivations included rather rich descriptions of situations in which happiness and engagement were experienced. Happiness was described as residents experiencing enjoyment of social contact and trips outside the nursing home, or sadness over physical problems. Engagement was described only a few times as active participation in specific activities, with focus, fascination and (lack of) concentration: "*was actively working on knitting socks".*

Different

For happiness, very few descriptions (2%) were not in line with the definition provided in the training, describing happiness as a personal characteristic: *being* a positive or negative person, rather than a state: *"is sometimes very difficult and sometimes negative".* Engagement was also described (6%) as a personal characteristic: *being* an active person, rather than a state. Additionally, many motivations (13%) merely described the attending activities, instead of the level of active participation in these activities and often (12%), motivations described residents expressing interest in other people: "*always asks how I am doing".*

Unknown

A few times, caregivers merely used the term happiness (2%) or engagement (6%), without any further description.

Unrelated information

A large proportion (42%) of brief motivations included information unrelated to happiness and engagement. About a third of these described characteristics of the residents, such as being independent, talkative, and able to communicate, as well as having humor, being friendly, grateful and not wanting to complain. Another third of these brief motivations described the situation of the resident: physical problems (e.g., being tired, having pain, impairments, dementia diagnosis), social contacts, and the family situation (e.g., illness of family member, divorce). Residual codes included: stimulating residents to attend (organized) activities, resident autonomy, the need for a volunteer, corrigibility, trusting others, and showing variable behavior.

DISCUSSION

The current study investigated how well nursing staff are able to assess well-being of nursing home residents, using single questions of happiness and engagement. We followed previous recommendations to provide nursing staff with training and detailed scoring manuals (Dichter et al., 2014), only included self-reports of mentally lucid residents, and used comparable tools for proxy-assessments and self-reports. Despite these adaptations, the results showed that nursing staff were not sufficiently able to assess resident well-being, in line with previous studies showing moderate proxy-self-report agreement in the general population (Schneider & Schimmack, 2009), and low to moderate relations in nursing homes (e.g., Devine et al., 2014; Spector & Orrell, 2006). Like others (Kane et al., 2005), we found that nursing staff over-estimated well-being compared to self-reports, which was amplified when nursing staff worked more hours. Furthermore, caregiver assessments varied considerably between colleagues, in line with Dichter et al. (2014), but not with Ettema et al. (2007). Finally, none of the included caregiver factors were related to the discrepancy between caregiver assessments and self-reports (in line with Spector & Orrell, 2006). There may be several explanations for the current results, which are described below.

Even though we trained nursing staff, assessing subjective experiences of well-being may still have been too difficult (Neumann et al., 2000). Taking into account the values and preferences of the resident for a holistic well-being assessment (Gill & Feinstein, 1994) requires extensive knowledge of the resident and careful observations, which may not always be feasible in the time-constrained environment of the nursing home. Additionally, combining and weighting several observations to reach an overall indication of happiness and engagement requires rather advanced cognitive skills. Some nursing staff indicated they thus made assessments mostly intuitively, instead of relying on specific observations, thereby reducing validity of assessments.

Furthermore, because well-being of nursing home residents may fluctuate over time (Kolanowski, Hoffman, & Hofer, 2007), it is important to note that the two-week observation period of proxy-assessments did not always perfectly overlap with the one-week self-report period in the current study. One could imagine that proxy-assessments provided after an engaging game of bingo on Friday may differ considerably from self-reports given on a quiet and lonely Monday. It could thus be that nursing staff merely differ from residents in the kind of moments they have in mind when coming to a well-being assessment. Future studies should examine

this, for example by adopting an experience sampling method with simultaneous proxy-assessments and self-reports. This could be facilitated by incorporating integrated technology, such as prompting the happiness and engagement single questions regularly on a device with easy-to-understand 'voting' buttons (e.g., using colors and emojis).

Another possible explanation for the current results lies in nursing staff's understanding of the concepts of well-being. Even though we provided a manual with a clear and detailed definition of the concepts, happiness and especially engagement seemed to be interpreted in diverse ways, which could have reduced agreements. Engagement was sometimes interpreted as *having interest in others*, a commonly used alternative definition of engagement in Dutch ('*betrokkenheid*'). Besides, several caregivers described happiness and engagement as resident characteristics (e.g., being a positive or active person), which may be less subject to change over time than how residents self-reported these concepts. Furthermore, instead of well-being, caregivers often described objective aspects, like the situation of the resident (e.g., having physical problems). These results could reflect some caregivers' difficulty with elaborating on observations in words, highlighting their unfamiliarity with discussing psychosocial aspects compared to documenting physical care (Irving et al., 2006). This is also an important issue for providing PCC, because viewing well-being as a stable trait or part of stable objective aspects may hamper investments towards improving well-being. More importantly, these results indicate that instead of truly assessing whether feeling good and being absorbed in activities, nursing staff may have observed different concepts.

Finally, the validity of evaluating nursing staff assessments through comparison with residents' self-reports depends on residents' ability to assess their own well-being (e.g., Kane et al., 2005). Evidence for validity of the single question of self-reported happiness was provided by the moderate relations with questionnaires of depressive feelings and life satisfaction. However, comparable to the qualitative analysis we now conducted on nursing staffs' understanding of the well-being concepts, residents' interpretation of the single questions should be further investigated, for example through cognitive interviewing. For now, in the absence of any objective measures of well-being, and in line with PCC assigning high value to the resident perspective (Brooker, 2004), using residents' self-reports as comparison is still the best method in our opinion.

With all this in mind, it should be noted that from a clinical perspective, the variability in proxy-assessments may actually be informative. Some caregivers reported

specific situations or activities in which they observed happiness and engagement, and combining various observations of several caregivers during team discussions provides in-depth insight into resident preferences. Besides, the difference between caregivers was less than one point on average, which may have only limited clinical significance. Still, the tendency to over-assess well-being compared to self-reports should be discussed with nursing staff, as it may impede efforts to improve happiness and engagement.

The current study had several strengths and limitations. It is the one of the first studies to address proxy-assessments of happiness and engagement in the nursing home context with single questions that corresponded closely to resident self-reports. Furthermore, analysing brief motivations helped explain some of the results. Including only mentally lucid residents for self-reports reduced the issue of low agreement through resident introspective problems, although it simultaneously limits generalizability. Additionally, the number of available proxy-assessments varied on caregiver and resident level, and more homogeneous data would improve comparability. Still, results showed that the number of proxy-assessments was not related to proxy-self-report agreement. Furthermore, this study was conducted in the Netherlands, where care for older adults is relatively well organized and nursing staff are relatively well trained. One can imagine that well-being assessments might be even less accurate in other countries with even more profound problems of a fragmented poorly paid workforce and high turnover, but this should be investigated further.

Future studies should pay ample attention to reaching a shared understanding of the well-being concepts, both between colleagues and between nursing staff and residents. Besides, the quality of the relationship between nursing staff and the resident should be investigated as potential caregiver factor, as residents may express their true feelings more within a good caregiver relationship. Furthermore, the exact wording of the single questions and rating options should be topic of research, because asking residents how *happy* or *satisfied* they felt in the previous week may elicit very different answers than asking how *good* they felt. Others have used satisfactory proxy-self-report agreement as a prerequisite during questionnaire development (Bergland et al., 2014), which offers a great starting point for developing single question measurements. Finally, asking nursing staff to take the perspective of the resident while making the assessment may improve agreement (Leontjevas et al., 2016), and additionally suits the subjective character well-being, and PCC practice better (Brooker, 2004).

Taken together, nursing staff did not sufficiently assess happiness and engagement compared to self-reports, and differed considerably in their assessments, while the included caregiver factors could not identify which professional caregiver could best provide well-being assessments. Over-estimating resident well-being as well as interpreting well-being as something stable may impede further efforts towards providing PCC. Accurate regular assessments of resident well-being should therefor receive a more prominent place in documentation. Using single questions of psychosocial experiences provides potential, but more research is needed. For now, proxy happiness and engagement assessments should always be combined with regular self-reports whenever possible.

SUPPLEMENTARY MATERIALS

Supplementary Table 1. Detailed description of proxy assessment scoring options of happiness and engagement used in current study

Happiness	
1.	Usually not feeling good, never really enjoying; often tense, lacks inner peace; many signals indicate negative experiences; little self-assured, low self-esteem; relationships with others are negative; not in touch with themselves; does not feel happy
2.	A pattern of predominantly discomfort
3.	Shows neutral or mixed signs, signals of not feeling optimal or having fun are not intense and transient; relationships with the environment are not optimal, but also not worrying; does not really live intensely; not happy nor unhappy
4.	A pattern of predominantly happiness
5.	Usually feels excellent: enjoys life to the fullest; exudes vitality; is relaxed and calm; is open to the environment and adapts easily; has self-confidence and shows resilience; feels good about themselves; is in touch with themselves
Engagement	
1.	Rarely comes to real activity: often staring, absent and listless; only short moments of attention; no engagement in activity; if active, showing simple stereotypical actions that require little effort; little mental activity; little awareness of the environment
2.	A pattern of predominantly interrupted activity
3.	Usually engages in activity, with progressing actions; is mentally present, but the involvement signals are usually missing; regularly distractable, rather limited attention span, not really absorbed by activity
4.	A pattern of predominantly involvement
5.	Is usually continuously very concentrated; little distractible; approachable; alert; is completely absorbed, fascinated; is highly mentally active; fully utilizing their possibilities; pushes the boundaries of their ability; enjoys exploration

4

Longitudinal Relations of Autonomy, Relatedness and Competence to the Well-being of Nursing Home Residents

5

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ABSTRACT

Background and Objectives. As proposed by the self-determination theory, satisfying nursing home residents' needs for autonomy, relatedness and competence may improve their well-being. This is the first study to test the longitudinal relations of the satisfaction of these three basic psychological needs to the subjective well-being of nursing home residents, and to determine whether a balance among the satisfaction of the three needs is important for well-being.

Research Design and Methods. Participants in this longitudinal survey study included 128 physically frail residents (mean age 85 years) at four Dutch nursing homes. Satisfaction of the three basic psychological needs was measured at baseline, and depressive feelings and life satisfaction five to eight months later. Absolute differences between the three basic need satisfaction scores were summed to create a score of need satisfaction balance.

Results. All three needs were related to both well-being measures over time, although autonomy had the strongest relationships. Only autonomy and competence were uniquely associated to depressive feelings and only autonomy was uniquely associated to life satisfaction. The need satisfaction balance score was related to well-being independent of the autonomy and relatedness scores.

Discussion and Implications. These results confirm that all three basic psychological needs are important for nursing home residents' well-being, with autonomy having the strongest and most consistent relationship to their well-being. Additionally, high satisfaction of one need does not compensate for low satisfaction of another. Supporting residents' needs for autonomy, relatedness and competence should, therefore, have a central role in nursing home culture-change interventions.

INTRODUCTION

The well-being of nursing home residents is gaining increasing attention, which is warranted given the high loneliness and depression rates in nursing homes (Jongenelis et al., 2004; Drageset, Kirkevold, & Espehaug, 2011). The growing nursing home culture-change movement stresses the importance of improving both quality of care and quality of life via a range of domains of the residents, nursing home environment and management (Koren, 2010). However, there are many barriers to implementing culture change (Corazzini et al., 2015), and published evidence shows no consistent effectiveness of culture-change interventions in improving residents' well-being (e.g., Shier, Khodyakov, Cohen, Zimmerman, & Saliba, 2014).

Psychological theories of well-being, which are established in a large body of research literature, may support the culture-change movement in determining the factors on the resident level that contribute to quality of life. Self-determination theory (SDT; Ryan & Deci, 2000) proposes that the autonomy and relatedness domains should be given a central role together with that of competence, as these are basic psychological needs that are vital to human well-being. This current survey study examines the longitudinal relations of the satisfaction of these three basic psychological needs to the well-being of physically frail nursing home residents and tests whether high satisfaction of one need can compensate for low satisfaction of another.

The SDT states that a social context can facilitate or hinder well-being through the satisfaction of the innate basic psychological needs of autonomy, relatedness and competence (Ryan & Deci, 2000). Autonomy is defined as having a sense of choice and volition in the regulation of behavior, relatedness refers to feeling connected to others and experiencing mutual support, and competence refers to feeling effective (Ryan, Huta, & Deci, 2008). Similar to the three nutrients that a plant needs to grow – soil, water and sunlight – the satisfaction of autonomy, relatedness and competence are essential for the well-being in humans to prosper. The SDT states that living a life that satisfies all three needs can lead to stable long-term subjective well-being (Ryan & Deci, 2001), consisting of a balance between positive emotions and negative emotions (affective component), and satisfaction with life (cognitive-evaluative component; Diener, Emmons, Larsen, & Griffin, 1985).

Support for the influence on well-being of autonomy, relatedness, and competence has been found in various cultures (e.g., Chen, Van Assche, Vansteenkiste, Soenens, & Beyers, 2015a) and in a variety of life domains, such as sports, work, and school (e.g., Baard, Deci, & Ryan, 2004; Reinboth, Duda, & Ntoumanis, 2004;

Tian, Tian, & Huebner, 2016). A meta-analysis in the health care context showed that basic psychological needs satisfaction has weak to strong positive relations with positive well-being measures (e.g., positive affect), and weak to moderate negative relations with negative well-being measures (e.g., depression, negative affect; Ng et al., 2012). Although SDT proposes that the three basic psychological needs are essential for well-being across one's lifespan (Ryan & Deci, 2001), most of the current research has been conducted on teens and young adults. Only a few studies have tested this proposal on older adults in a nursing home setting.

Satisfaction of the basic psychological needs may become more challenging for older adults in a nursing home context: others often decide what and when they eat (undermining autonomy), aged friends die (undermining relatedness), and caregivers take over many everyday tasks (undermining competence). Two correlational studies involving nursing home residents found relations between the psychological need for autonomy and well-being (Vallerand, O'Connor, & Blais, 1989; Vallerand & O'Connor, 1989), and Kasser and Ryan (1999) found marginally significant correlations of both autonomy and relatedness to well-being. More recently, two survey studies and an observational study provided further cross-sectional support for the relationship between the satisfaction of all three basic psychological needs and well-being in nursing homes (Custers, Westerhof, Kuin, & Riksen-Walraven, 2010; Custers, Kuin, Riksen-Walraven, & Westerhof, 2011; Custers, Westerhof, Kuin, Gerritsen, & Riksen-Walraven, 2013). However to date, only one relevant longitudinal study in a nursing home context has been conducted, showing that satisfaction of the three basic psychological needs was related to depressive feelings of new residents three months after their admission to the nursing home (Custers, Cillessen, Westerhof, Kuin, & Riksen-Walraven, 2014). Clearly, additional longitudinal research is needed to test the relationship between the satisfaction of all three needs to both the affective and the cognitive-evaluative component of subjective well-being of physically frail nursing home residents. This was the first aim of the current research.

The SDT suggests that each need makes a unique contribution to well-being. Returning to the plant metaphor, just as a plant cannot thrive without water or sunlight, people also need satisfaction in all three domains – autonomy, relatedness, and competence – to experience well-being (Ryan & Deci, 2017; Ryan & La Guardia, 2000). Indeed in a meta-analysis of the health care context, all three basic needs were individually related to positive and negative measures of well-being (Ng et al., 2012). However, studies of older adults in residential homes and hospitals have shown some variability in results, with only one or two of the needs explaining the unique variance of diverse well-being measures (Ferrand, Martinent,

& Durmaz, 2014; Souesme, Martinent, & Ferrand, 2016). In the current study, we also tested in a sample of the nursing home residents the unique associations of all three basic psychological needs with subjective well-being. In addition, we determined the similarities or differences in the strength of these relationships.

Furthermore, high satisfaction of one need may not compensate for low satisfaction of another need any more than giving a plant more water can make up for a lack of sunlight. Sheldon and Niemiec (2006) proposed in their balance hypothesis that all three needs should be equally satisfied for optimal well-being. An equal amount of satisfaction for all needs (for example 4 on a scale from 1-5 for each need), would be better than a variability between the needs in amount of satisfaction (for example 5, 4 and 3 for autonomy, relatedness and competence, respectively), even though the aggregated mean would be the same. Indeed, when controlling for the absolute scores of need satisfaction across several studies with differing designs, it was found that the balance of need satisfaction was associated to the well-being of college students from various countries (Sheldon, Abad, & Omoile, 2009; Sheldon & Niemiec, 2006). Remarkably, no other study has yet tried to replicate these findings in other populations. Consequently, the current study tested whether balanced satisfaction of the three needs is important for well-being in a nursing home sample.

This is the first longitudinal study in a nursing home context that tests the relationship of psychological need satisfaction to both the affective and the cognitive-evaluative components of subjective well-being. No other study in this setting has focused specifically on the unique contribution of these needs and the balance between the levels of satisfaction of the needs. Based on the premises of SDT, we hypothesized that:

1. The satisfaction of the basic psychological needs is positively related to subjective well-being across time.
2. The satisfaction of each basic psychological need has a unique positive relation to subjective well-being across time.
3. The satisfaction of each basic psychological need has an equally strong positive relation to subjective well-being across time.
4. Balance among the basic psychological needs has a positive relation to well-being across time, independent of the amount of need satisfaction.

RESEARCH DESIGN AND METHODS

Sample and procedure

The participants in this study were physically frail residents in somatic long-term care units at four Dutch nursing homes managed by a single long-term care provider. The first two measurement waves (T0, T1) of a longitudinal study were used, with a five- to eight-month-period between T0 and T1. Self-reported general basic psychological need satisfaction was measured at T0, and subjective well-being was measured at T0 and T1.

All residents of the participating units received informational letters. Exclusion criteria were: 1) major hearing-, speech- or cognitive problems or dementia; and 2) a recent major life event (e.g., hospital admission, illness, the recent death of a child) as determined by a professional caregiver of the unit. The first author – or another trained member of the research team consisting of two psychology undergraduates and two psychologists – approached each eligible resident. Participants signed an informed consent form. A pilot study showed that some residents had trouble understanding the scale answer options. To minimize the number of options, the researcher first read the questions aloud in a closed question format (*yes/no*) and then provided only the relevant scale options. After completing the questionnaire, the researcher informed the resident about the continuation of the study. The ethics committee of the Faculty of Behavioral, Management and Social Sciences at the University of Twente approved this study: no. 15016.

Measures

Satisfaction of basic psychological needs

Satisfaction of basic psychological needs was measured using the Basic Need Satisfaction in Life Scale (BNS-LS; Gagné, 2003). The Dutch translation of this scale has been validated in previous nursing home research (Custers et al., 2010). This scale consists of 21 items measuring satisfaction of the need for autonomy (7 items, e.g., '*I feel like I can decide for myself how to live my life*'), relatedness (8 items, e.g., '*I really like the people I interact with*'), and competence (6 items, e.g., '*I often do not feel very capable*', reverse scored). The answers are given on a scale from 1 *never* to 5 *always*. Subscale means are calculated, with higher scores indicating greater satisfaction. The autonomy and relatedness subscales were reliable in the current sample, with alpha coefficients of .70 and .80 respectively. The subscale competence had a Cronbach's alpha of .60; deleting items did not increase reliability.

To test the balance hypothesis, a balance score was calculated by computing the absolute difference between the satisfaction scores of all three–pairs of needs (i.e., autonomy-relatedness; autonomy-competence; relatedness-competence). These three values were then summed, following the method proposed by Sheldon and Niemiec (2006). Using our 5-point scale, this score could range from 0 (equal satisfaction among the needs) to 8 (maximal difference between the needs, with scores of 1, 3 and 5). The scores were transformed by subtracting them from the maximum possible score of 8, to create a variable in which a higher score corresponds to a greater balance.

Subjective well-being

Subjective well-being was measured with two scales. The affective component of subjective well-being was measured using the Dutch version of the Geriatric Depression Scale (GDS, Jongenelis et al., 2007). This scale consists of 8 items (e.g., '*Do you feel that your life is empty?*'), measuring the presence of both positive and negative emotions, answered with *yes/no*, and is specifically designed for nursing home residents. A sum score is computed, with higher scores indicating more depressive feelings. In the current sample, this scale had a reliability of α = .85 at T1.

The cognitive-evaluative component was measured using the Satisfaction With Life Scale (SWLS; Diener et al., 1985; Pavot & Diener, 1993). This scale consists of five items measuring one's evaluation of life as a whole. The Dutch translation of the scale was used (e.g., Custers et al., 2010), with answers adapted to a scale from 1 *totally disagree* to 5 *totally agree*. A pilot study showed residents experienced difficulty with understanding the negatively stated question ('*If I could live my life over, I would change almost nothing*'), so it was restated to a positive question ('*If I were able to do my life over, I would do it very differently*'). A sum score was calculated, with higher scores indicating greater life satisfaction. In the current sample, this scale had a reliability of α = .76 at T1.

Analysis plan

Missing data were dealt with in two ways: mean replacement and imputation. Missing data on individual items (T0 = 2.5%, T1 = 0.7%) from questionnaire completers were replaced with the respondent's mean for that subscale for that measurement wave. For the dropouts at T1, missing data (28.9%) were imputed using the expectation maximization (EM) algorithm (Dempster, Laird, & Rubin, 1977) for the total group, with 25 iterations. Imputations were conducted at the subscale level. Imputation was suitable since the Littles Missing Completely At Random (MCAR) test showed that the missing data were completely at random (χ^2 = 36.4, *df* = 49,

p = .909). Given the relatively high percentage of missing data, we also reported results of completers-only for every main analysis. Tables with completers-only data are available as supplementary materials from the publisher.

To test the first hypothesis, correlations between the subscales of need satisfaction and both depressive feelings and satisfaction with life were analyzed, with $r \leq .29$ indicating weak, $r \leq .49$ moderate and $r \geq .50$ strong correlations (Cohen, 1988). The unique contribution of each need (hypothesis 2) was tested using two separate multiple regression analyses, with depressive feelings and satisfaction with life at T1 as dependent variables and the three needs subscales entered simultaneously. To compare the strength of the relationship of each need to subjective well-being at T1 (hypothesis 3), Fisher's *r*-to-*z* transformation was conducted using the computer software of Lee and Preacher (2013). The balance hypothesis (hypothesis 4) was tested with two hierarchical multiple regression analyses, with depressive feelings and satisfaction with life at T1 as dependent variables. In the first step, the three needs subscales were entered simultaneously as control variables and in the second step, the balance score was entered as a control variable. With both the basic needs satisfaction scales and the composite balance score included, multicollinearity was a potential problem in this analysis. A variance inflation factor (VIF) score of around 10 was considered indicative of multicollinearity between independent variables (Myers, 1990), leading to the removal of the control variable from further analysis.

RESULTS

Participants

The participating nursing home units had 286 residents. Of the 197 eligible residents, 65 declined to participate (see the flowchart in Figure 1). In addition, the data of four participants were not included in the analyses as they answered fewer than half of the independent variable questions (understanding difficulties n = 3, unwilling to continue n = 1). This resulted in a final sample of 128 residents, with a mean age of 85.01 years (range 56-101 years, *SD* = 6.92). Most were female (72.7%) and born in the Netherlands (99.2%). The vast majority (75%) had been widowed for an average of 13.45 years (*SD* = 12.54). A minority of the participants (4.7%) had never married, 3.1% were divorced, 17.2 % were currently married, and four participants indicated they currently had a partner. Most (88.3%) had children (ranging in number from 1-8 children). The majority of participants indicated that they had a religious faith (80.5%), of whom 53.4% experienced their religious faith as '*quite supportive*' or '*very supportive'*. Most (64.8%) needed help with bathing and showering,

46.1% needed help with dressing, 29.7% needed help with toileting, 11.7% needed help with standing up from a chair and only 3.9% needed help with eating. Based on the GDS cut-off score of 2/3 (Jongenelis et al., 2007), 30 residents (23.4%) had an indication for depressive disorder.

Between baseline and T1, 37 respondents dropped out of the study, due to: death (n = 11), cognitive or health problems (n = 7), or their choice to discontinue their participation (n = 19). No significant differences were found at T0 between dropouts and completers on the sociodemographic variables (location, age, gender, marital status/having a partner, number of children, or having a religious faith; all p's > .15) and dropouts did not differ significantly from completers on the main independent and dependent variables at baseline (basic psychological needs, depressive feelings and life satisfaction; all p's ≥ .08).

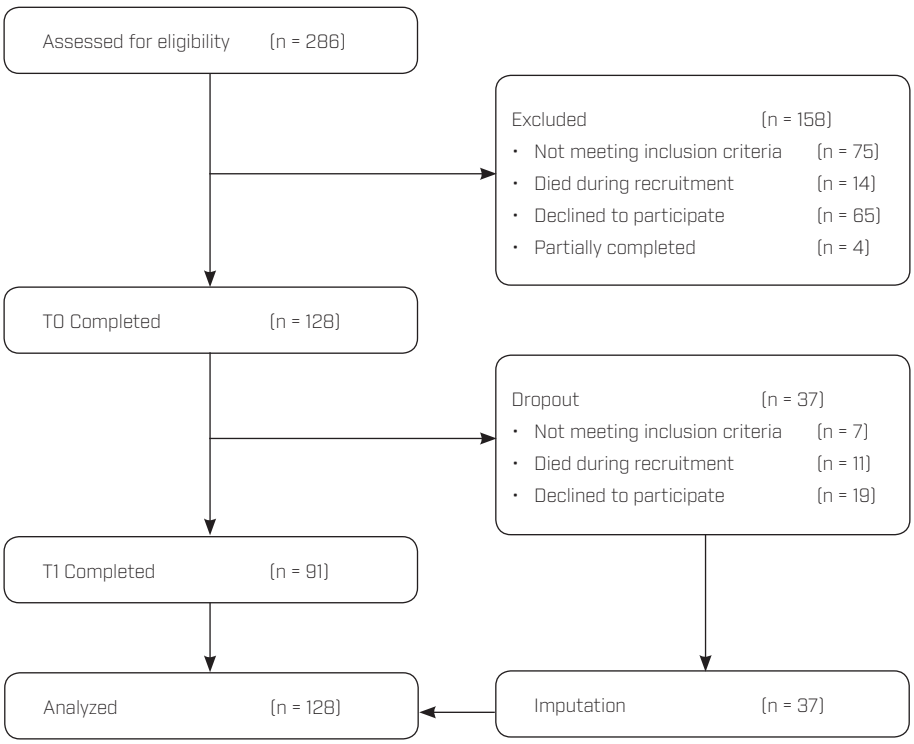

Figure 1. Flowchart of participants, dropouts and imputation

Descriptive statistics

Means, standard deviations and correlations of the main variables are presented in Table 1. A one-way repeated-measures ANOVA with post-hoc analyses (paired samples t-tests) showed that residents had significantly higher satisfaction scores on relatedness (M = 4.27, SD = 0.58) and autonomy (M = 4.18, SD = 0.61), than on competence (M = 3.15, SD = 0.81), Wilks' Lambda = .37, F (2, 126) = 107.77, p < .001. The three basic psychological needs subscales were positively interrelated, with a strong correlation between autonomy and relatedness (r = .58), and weak to moderate correlations of competence with relatedness and autonomy (r = .23 and r = .30 respectively).

The balance between the satisfaction scores of the basic psychological needs was highly variable (the balance score ranging from 0.8 – 7.8). The balance score had a weak negative correlation with relatedness (r = -.23) and a strong positive correlation with competence (r = .83), indicating that the balance score was highly dependent on competence satisfaction scores. Depressive feelings were highly negatively related to life satisfaction (r = -.71). Depression scores did not change significantly between baseline (M = 1.19, SD = 1.70) and T1 (M = 1.29, SD = 1.84; F (1,127) = .73, p = .40), nor did satisfaction with life change between baseline (M = 19.28, SD = 3.98) and T1 (M = 19.34, SD = 4.17; F (1,127) = .05, p = .82).

Main findings

We hypothesized that the satisfaction of the three basic psychological needs would be positively related to subjective well-being across time. The three basic needs satisfaction scales related negatively to depressive feelings and positively

Table 1. Means, SDs and correlations of the basic needs satisfaction scales, depressive feelings (GDS) and satisfaction with life (SWLS)

	Scale	M	SD	1.	2.	3.	4.	5.
T0 Need satisfaction								
1. Autonomy	1-5	4.18	0.61	–				
2. Relatedness	1-5	4.27	0.58	.58**	–			
3. Competence	1-5	3.15	0.81	.30**	.23**	–		
4. Balance score	0-8	5.30	1.54	-.08	-.23**	.83**		
T1 Well-being								
5. GDS	0-8	1.29	1.84	-.55**	-.19**	-.35**	-.27*	–
6. SWLS	7-25	19.34	4.17	.43**	.29**	.23**	.12	-.71**

* p < .05. ** p < .01.

to satisfaction with life, with weak to strong correlations (Table 1). These results support the first hypothesis: higher basic need satisfaction scores of all three needs are related to lower depressive feelings and higher satisfaction with life five to eight months later. Completers-only analyses do suggest, however, that autonomy is especially related to both well-being outcomes as the correlations between relatedness and depressive feelings and between competence and satisfaction with life became non-significant.

Regarding the separate basic need satisfaction scales, we hypothesized that each need would have a unique positive relation to subjective well-being later in time. The multiple regression analysis showed that all three need satisfaction subscales were unique predictors of depressive symptoms at T1 when entered simultaneously into the analysis, but relatedness became a positive predictor of depressive feelings (H2 in Table 2). When data for completers-only were analyzed, autonomy remained a significant predictor of depressive feelings, with both other predictors remaining marginally significantly related to outcomes (autonomy *beta* = -.57, p >.001; relatedness *beta* = .21, p = .05; competence *beta* = -.18, p = .05). The multiple regression analysis showed that autonomy was the only need that explained unique variance of satisfaction with life in both the imputed data (Table 2) and the completers-only data. The results do not support the second hypothesis: autonomy was the only need that was consistently uniquely related to both well-being measures in combined models.

We also hypothesized that all three needs would have an equally strong positive relation to subjective well-being five to eight months later. When imputed data were analyzed, autonomy had a significantly stronger correlation (r = -.55) with depressive feelings, compared to the moderate correlation of competence with depressive feelings (r = -.35, z = -2.24, p = .02) as well as to the weak correlation of relatedness with depressive feelings (r = -.19, z = -5.00, p < .001; Table 1). For completers-only, a similar significantly stronger relation was found between autonomy and depressive feelings compared to relatedness with depressive feelings (z = -2.15, p =.03). The moderate correlation of autonomy with satisfaction with life (r = .43) was significantly stronger than the weak correlation of competence with satisfaction with life (r = .23, z = 2.07, p = .04) and marginally significantly stronger than the weak correlation of relatedness with satisfaction with life (r = .29, z = 1.87, p = .06). For completers-only, autonomy also had stronger correlations with life satisfaction than relatedness with life satisfaction, but this difference was not significant (z = 1.13 p = .26). The third hypothesis was rejected: autonomy had the strongest relations to subjective well-being in the imputed dataset.

Table 2. Beta's and additional explained variance of the multiple regression models

	GDS T1			SWLS T1		
	H2	H4		H2	H4	
		Step 1	Step 2		Step 1	Step 2
Autonomy	-.61***	-.66***	-.64***	.36**	.39***	.37***
Relatedness	.21*	.19*	.12	.06	.07	.12
Competence	-.21**	–	–	.11	–	–
Balance			-.29***			.19*
R^2 Change	.37	.33	.08	.20	.19	.03

Notes: GDS = Depressive feelings, SWLS = Satisfaction with Life, H2 = Analysis for hypothesis 2, H4 = Analyses for hypothesis 4.
* p < .05. ** p < .01. *** p < .001.

Finally, we hypothesized that balance among the basic psychological needs would have a positive relation to well-being, independent of the amount of basic need satisfaction. Competence was not included as a control variable in Step 1 of the analyses, because the competence satisfaction scores correlated highly with the balance score (r = .83) and analyses show high VIF scores (9.9 for both GDS and SWLS). The regression analyses showed that the balance score was a significant predictor of both depressive feelings and satisfaction with life beyond autonomy and relatedness, adding 8% and 3% of explained variance, respectively (Table 2). Analyses of completers-only data showed similar results, with the balance score adding 6% and 4% to the explained variance of depressive feelings and satisfaction with life, respectively. These results support the fourth hypothesis: the balance of the satisfaction of the needs is related to subjective well-being, independent of the amount of the satisfaction of the needs for autonomy and relatedness.

DISCUSSION AND IMPLICATIONS

The aim of this longitudinal study was to test the longitudinal relations of the satisfaction of the basic psychological needs for autonomy, relatedness and competence with subjective well-being in a nursing home context. This is the first study to specifically focus on the unique contribution of these needs to both the affective and the cognitive-evaluative components of subjective well-being, as well as the first study to test whether relatively equal satisfaction of the three basic psychological needs are important for well-being in this context. As expected, the satisfaction of the three needs were related to well-being measures over time.

The current study replicates the past findings of the longitudinal study of Custers et al. (2014) showing a relation between the satisfaction of the needs and the affective component of subjective well-being (i.e., depressive feelings), and adds support for the relation to the cognitive-evaluative component of subjective well-being (i.e., satisfaction with life) in a nursing home context. This study is also in line with previous cross-sectional studies of one or more basic psychological needs and subjective well-being of nursing home residents (Custers et al., 2011, 2013, 2010; Kasser & Ryan, 1999; Vallerand et al., 1989; Vallerand & O'Connor, 1989). The results of the current study also support the SDT statement that the basic psychological needs are important for well-being across one's lifespan (Ryan & Deci, 2000).

Although all three needs were related to well-being in nursing home residents over time, these relations were stronger with regard to depressive feelings than to satisfaction with life. This finding is in line with previous cross-sectional nursing home research that found general need fulfillment was strongly correlated to depressive feelings and moderately correlated to satisfaction with life (Custers et al., 2010; 2013). Additionally, autonomy was the only need that was uniquely associated with both subjective well-being measures. Autonomy also had the strongest relationship with both subjective well-being measures. It seems that having a sense of choice and volition is of particular importance for residents' well-being. Initial studies of basic psychological needs and well-being in nursing homes also seem to assign special priority to the need for autonomy, as exemplified by the researchers including only this need in their studies (Vallerand et al., 1989; Vallerand & O'Connor, 1989). This emphasis is in line with past research that has assigned great importance to autonomy in care for older adults (e.g., Lyttle & Ryan, 2010).

In the current study, the satisfaction of the need for competence was much lower than the satisfaction of the needs for autonomy and relatedness. It is likely that these lower levels of satisfaction of the need for competence are a primary cause for imbalances in the satisfaction of the different needs. The competence scale had a low reliability in the current sample, and several participants indicated the irrelevance of competence at this stage of their life (e.g., "*I can't/don't do anything anymore*"). However, the current study revealed that competence was related to both well-being measures and that it had a unique longitudinal relation to depressive feelings. Consequently, even though nursing home residents may not view this need as particularly relevant to their situation, competence is still important for well-being and should therefore be given suitable attention in nursing homes.

Beyond the specific position of the needs for autonomy and competence, the results show that the three basic psychological needs should be considered together. A balanced satisfaction of the three needs was found to be important for well-being beyond the amount of satisfaction of the basic needs, which supports our hypothesis 4. This finding corresponds with previous studies that tested this balance hypothesis on students (Sheldon et al., 2009; Sheldon & Niemiec, 2006), and it shows that high satisfaction of one need cannot compensate for low satisfaction of another.

There are some limitations to this study. First, these nursing home residents had higher independence of daily activities, no major cognitive impairments or dementia, and had higher life satisfaction and lower depression scores than others previously reported (Custers et al., 2011, 2013, 2010; Jongenelis et al., 2007), which may limit the generalizability of results. Furthermore, the need for competence subscale had a low reliability, consequently, future research in a nursing home setting should test another potentially suitable questionnaire such as the Balanced Need Satisfaction Scale (Sheldon & Hilpert, 2012).

There were some variances in results between analyses on imputed data and on completers-only data. Overall, the results based on completers-only data seemed to strengthen the general trend in the imputed dataset. While all three needs are related to subjective well-being of this sample of nursing home residents, autonomy has the strongest and most consistent relationship with the two well-being outcomes. These small differences can be explained by the power differences between both datasets.

It should also be noted that relatedness uniquely predicted depressive feelings when entered in multivariate models, but in the opposite direction to what was expected. Further inspection suggested that this change in direction occurred when both the relatedness scale and the autonomy scale were included in the regression analysis, suggesting that both the strong relationship between these scales and some overlap in content of the items might account for the direction change. Based on this and as the full correlation was negative as expected, we interpreted this primarily as a mathematical artefact of the multiple regression analysis and thus concluded that relatedness did not uniquely explain variance in depressive feelings.

Concerning the balance hypothesis, due to multicollinearity of the competence scale, we could only control for the satisfaction scores of autonomy and relatedness. Other studies using the same analysis method for testing the balance hypothesis for students did not have this problem (Sheldon et al., 2009; Sheldon & Niemiec, 2006).

Balance scores in the current sample were highly dependent on the low competence satisfaction scores compared to the higher autonomy and relatedness satisfaction scores, which underlines our previous recommendation that competence should receive special attention in this population.

Despite the limitations discussed above, the results largely support the SDT (Ryan & Deci, 2000). The outcomes of this study can be used both in the culture-change movement and in clinical practice. The six domains of culture change already include two SDT-based psychological needs: autonomy (resident direction) and relatedness (close relationships; Koren, 2010). Our results support the relation of these two domains for nursing home residents' well-being and provide a theoretical basis for choosing to focus on these specific indicators. The importance of physical competence is also widely recognized in elderly care, and is embodied in the well-known *'use it or lose it'* slogan. However, our results show the importance of incorporating the psychological equivalent of physical competence, feeling competent or effective, in the list of resident culture-change domains. These three needs are basic and interrelated, and the satisfaction of one need cannot compensate for another. The satisfaction of these three needs should be considered as one unit and be given a central role in culture-change interventions.

In clinical practice, it is highly desirable that support be provided for these three needs. Relatedness can be supported by showing warm interest, making conversation and providing emotional support, while the need for competence is best supported by encouraging the resident to carry out activities as independently as possible and structuring each situation (Custers et al., 2011). Offering meaningful and favorable choices, while diminishing perceived difficulty associated with those choices supports nursing home residents' autonomy (Bangerter, Heid, Abbott, & Haitsma, 2017). On a broader level and often overlooked, including nursing home residents in the implementation of culture change efforts and using their expertise is a key opportunity for improving the satisfaction of autonomy, relatedness, and competence (Shura, Siders, & Dannefer, 2010).

This current longitudinal study has shown that the satisfaction of all three basic psychological needs is important for the subjective well-being of physically frail nursing home residents and, therefore, these needs should be considered together. Supporting the needs for autonomy, relatedness and competence should, consequently, have a central role in nursing home culture-change interventions.

SUPPLEMENTARY MATERIALS

Supplementary Table 1. Completers-only Means, SDs and correlations of the basic needs satisfaction scales, depressive feelings (GDS) and satisfaction with life (SWLS)

	Scale	M	SD	1.	2.	3.	4.	5.
T0 Need satisfaction								
1. Autonomy	1-5	4.21	0.59	–				
2. Relatedness	1-5	4.28	0.55	.52**	–			
3. Competence	1-5	3.25	0.73	.24*	.21*	–		
4. Balance score	0-8	5.45	1.41	-.13	-.20	.80**		
T1 Well-being								
5. GDS	0-8	1.14	1.89	-.50**	-.13	-.25*	-.19	–
6. SWLS	7-25	19.57	4.35	.38**	.27**	.18	.14	-.65**

** p < .01 (2-tailed). * p < .05.

Supplementary Table 2. Completers-only Beta's and additional explained variance of the multiple regression models

	GDS T1			SWLS T1		
	H2	H4		H2	H4	
		Step 1	Step 2		Step 1	Step 2
Autonomy	-.57***	-.60***	-.61***	.32**	.33**	.34**
Relatedness	.21	.19	.14	.09	.10	.14
Competence	-.15	–	–	.09	–	–
Balance			-.24**			.21*
R^2 Change	.30	.28	.06	.16	.19	.04

Notes: GDS = Depressive feelings, SWLS = Satisfaction with Life, H2 = Analysis for hypothesis 2, H4 = Analyses for hypothesis 4.
* p < .05. ** p < .01. *** p <.001.

5

Facilitators and Barriers to using a Person Centered Care Innovation

a nursing home staff perspective

6

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ABSTRACT

Background and Objectives. Person-centered care (PCC) innovations have the potential to improve resident well-being in nursing homes, but they can be difficult to implement in this high-pressure context. The current study investigates facilitators and barriers experienced by nursing staff in relation to their intention to use a PCC innovation aimed at nursing home resident well-being, and its actual implementation.

Design. An explorative mixed method design combined interviews with a longitudinal survey study on determinants and the intention to use the innovation (baseline) and actual implementation (3 months follow-up).

Settings and Participants. Seventeen nursing homes within one Dutch care organization were invited to participate. Interviews were conducted with 11 nursing staff, and the survey was completed by 132 nursing staff at baseline and 63 nursing staff at follow-up. The sample included mostly female licensed practical nurses, with a mean age of 43-49 years.

Methods. The innovation consisted of three components of Assessment, Planning Support, and Daily Support of resident well-being. Facilitators or barriers were those determinants that were (1) discussed in the interviews as important, and (2) clearly prevalent (or absent) in the survey study, and (3) significantly related to intention or implementation in the survey study. The most important facilitators and barriers were those that also had a unique contribution to the explanation of either intention or actual implementation of one of the three innovation components as shown in one of the six multiple regression analyses.

Results. Facilitators were related to the innovation and the user, and barriers were related to the user and the organization. The most important facilitators and barriers differed considerably between the outcome measures. Compatibility with daily work and collegial support facilitated respectively intention and implementation of well-being support; knowledge impeded actual implementation of planning; and missing a clear implementation plan and an unstable context impeded actual implementation of well-being assessments.

Conclusions. Barriers and facilitators nursing staff experience vary depending on the PCC innovation activity. PCC implementation plans to support small behavioral changes should ensure easy integration in daily caring tasks and take advantage of the team, while a stable nursing home context and a detailed implementation plan for nursing staff are essential for supporting regular well-being assessments.

INTRODUCTION

Improving the well-being of nursing home residents is a main aim of the nursing home culture-change movement, specifically through empowering nursing staff, making nursing homes more homelike, and providing person-centered care (PCC; Koren, 2010; Mccormack & Mccance, 2006). PCC can be understood as a personal way to connect with residents, treating them as unique persons with their own subjective experiences and preferences, who are more than their physical illness (Brooker, 2004; Edvardsson, 2015; Edvardsson, Winblad, & Sandman, 2008). PCC can be beneficial for the well-being of nursing home residents (e.g., Chenoweth et al., 2009), and also for nursing staff (e.g., Jeon et al., 2011), as it enables nursing staff to provide the care they want to provide (Edvardsson, Sandman, & Borell, 2014). However, it can be challenging for nursing staff to implement PCC innovations in the high pressure environment of the nursing home (Mentes & Tripp-Reimer, 2002). The current study investigates perceived facilitators and barriers reported by nursing staff for using a PCC innovation aimed at assessing and supporting well-being of nursing home residents.

The effectiveness of any intervention depends on whether the innovation is used as intended, but intervention studies often overlook the influence of the users delivering the innovation (e.g., their motivation), and practical implementation difficulties (e.g., time constraints) on innovation uptake (Vernooij-Dassen & Moniz-Cook, 2014). Insight into such factors can guide intervention planning and facilitate effective implementation (Boersma, Weert, Lakerveld, & Dröes, 2015). We differentiate here between the decision or *intention* to use an innovation, and the actual usage or *implementation* of the innovation (Fleuren, Paulussen, Van Dommelen, & Van Buuren, 2014). Both can be affected by several critical determinants related to the innovation itself (e.g., relevance for the client), features of the user (e.g., experiencing social support), of the organization (e.g., adequate staffing), and the socio-political context (i.e., legislation and regulations; Fleuren, Wiefferink, & Paulussen, 2004). Users may perceive such determinants as either hindering or facilitating innovation usage (Gijzen, Hoir, Boonekamp and Need, 2016).

Only recently, studies are beginning to investigate the implementation processes of PCC interventions in the nursing home. A variety of determinants are found to be important, such as improved relations with residents, teamwork, leadership, and a range of organizational factors like staffing, workload, flexibility of the organization, and availability of a clear implementation plan (Boersma, van Weert, van Meijel, & Dröes, 2017; Chenoweth et al., 2015; Mileski & Veen, 2018; Van Haeften-van Dijk,

Van Weert, & Dröes, 2015). Many of these studies emphasized the effect of nursing staff attitude towards the innovation (e.g., Boersma et al., 2017; Quasdorf et al., 2017), as reported by various stakeholders: researchers, coordinating professionals, family members, managers, administrative personnel, health care team members, care aids and nurses. As nursing staff are often the primary change agents carrying out the innovation in their day-to-day routines, the current study specifically examines the perspective of nursing staff on potential determinants.

Implementation studies on PCC in the nursing home often adopt interview or focus-group methods (e.g., Buist, Verbeek, De Boer, & De Bruin, 2018; Moore et al., 2017), which provide valuable detailed information on determinants experienced as important facilitators or barriers. However, such qualitative methods limit the comparability of determinants regarding the degree to which each determinant is present, and to what extent they are associated with either the intention to use or actually implement innovations. Only few studies in the nursing home context have additionally adopted quantitative methods to measure the presence of facilitators and barriers in the facility (e.g., Kaasalainen et al., 2010), still disregarding the opportunity to analyze the relations between determinants and innovation usage as seen in other healthcare contexts (e.g., childhood obesity, child protective services, regional health services, and multidisciplinary chronic pain rehabilitation; Kuunders et al., 2017; Rijbroek, Strating, & Huijsman, 2017; Trompetter, Schreurs, Heuts, & Vollenbroek-Hutten, 2014; Van Der Kleij, Crone, Reis, & Paulussen, 2016).

Combining qualitative and quantitative methods can provide valuable detailed information on experienced importance of facilitators and barriers, as well as on their prevalence and relation to PCC innovation uptake. Furthermore, nursing staff may perceive different facilitators and barriers depending on the kind of activity they have to carry out, and a quantitative method enables comparison between these activities. This may lead to a more specific and more effective implementation plan to support nursing staff.

The current study investigates the nursing staff perspective on the importance and prevalence of determinants, and the relation of these determinants to both the intention to use a PCC innovation aimed at nursing home resident well-being, and its subsequent implementation. The innovation in the current study consisted of three parts: (a) using *assessment* forms of resident well-being, (b) using a *planning* form to support well-being, and (c) making small behavioral changes in *daily* contact-moments to *support* well-being.

Two research questions are investigated with a mixed methods approach in the current study: (1) which determinants facilitate or impede using a PCC innovation aimed at well-being? and (2) which determinants are most important for the intention to use, and actually implement the separate innovation components?

MATERIALS AND METHODS

Sample and procedure

This explorative mixed method research included an interview study and a longitudinal survey study. All nursing staff providing physical care to residents within 17 nursing homes of one Dutch care organization received a mandatory training in assessing and supporting resident well-being (see Figure 1 for flowchart of participation). The studies were carried out in accordance with the Declaration of Helsinki and approved by the ethics committee of the Faculty of Behavioral, Management and Social Sciences at the University of Twente: no. 15016 and no. 17731. Study participation was voluntary, data was only included upon informed consent, and participants were assured that their answers would be treated confidentially.

Interview study

To recruit participants for the interview study, a written request was placed on a private web page of eight (of the 17) nursing homes of the care organization, employing n = 262 nursing staff. Eleven nursing staff self-assigned to the study, and received an email containing the interview questions concerning experienced facilitators and barriers. The individual semi-structured interviews were conducted by telephone by the first author (female postgraduate psychologist) 2-11 weeks after the last training session (M = 4 weeks). Participants were aware of the interviewer's involvement in innovation design and research, and were assured that both positive and critical feedback would be welcomed. The interview was conducted at a time convenient to the participant, and no relationship was established prior to the study. The interviews were audio recorded (duration 15-29 minutes) and transcribed verbatim.

Survey study

The 430 nursing staff of the other nine nursing homes were invited by email to participate in the survey study three weeks after the last training session. A baseline questionnaire was completed by 132 nursing staff, and covered potential determinants and the intention to use the innovation. A follow-up questionnaire three months later measured actual implementation of the innovation, which was completed by 63 nursing staff.

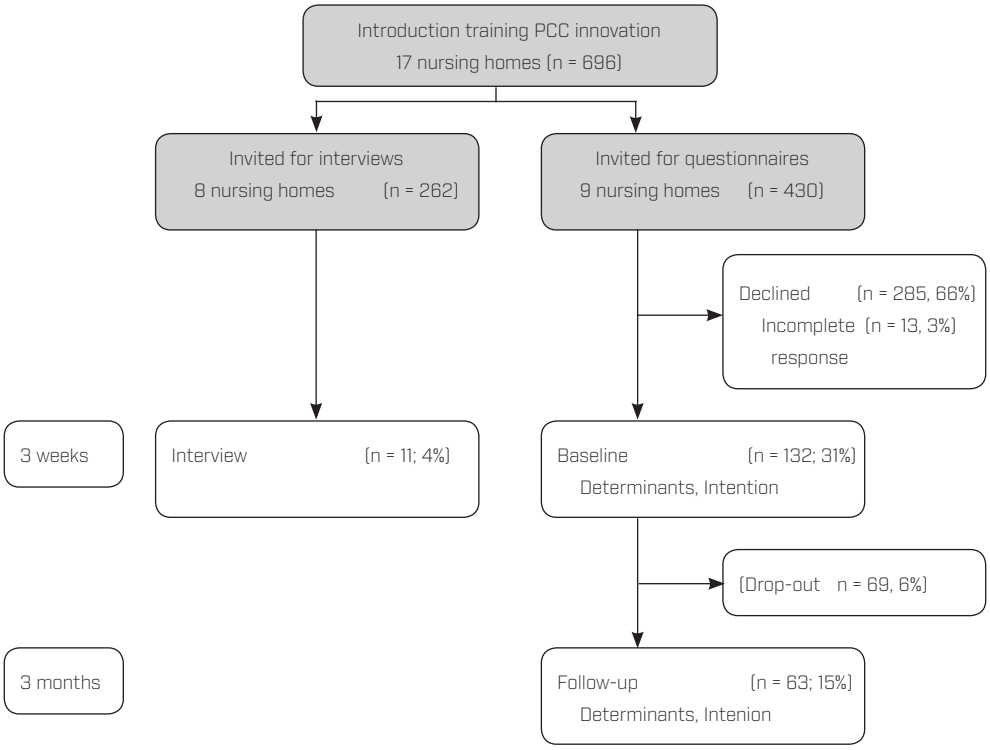

Figure 1. Flowchart of participants in the interview study and the survey study

The PCC innovation

The innovation implemented in this study aimed at assessing and supporting resident well-being. It is partly based on the Self-determination theory, which states that people who experience satisfaction of their basic psychological needs for autonomy, relatedness and competence experience high levels of well-being (Ryan & Deci, 2000); which can also be applied to older adults living in nursing homes (Custers, Westerhof, Kuin, & Riksen-Walraven, 2010; Kloos, Trompetter, Bohlmeijer, & Westerhof, 2018). The innovation comprised of 3 main activities:

(1) In *Assessment* of well-being, nursing staff observed residents for two weeks to assess their current state of happiness and engagement (being absorbed in an activity) on two separate 1-5 scales. High scores indicated more happiness or engagement and detailed descriptions of resident feelings and behavior corresponding to each score were provided in a manual. Assessments were included in resident documentation and discussed in teams.

(2) In *Planning Support* of well-being, nursing staff formulated a tailored action plan to improve the well-being of one resident through the satisfaction of one basic psychological need (i.e., autonomy, relatedness or competence). Six planning components were described in a structured form: (a) the targeted need, (b) a detailed action, (c) the timing, (d) assistance, (e) executor, and (f) an evaluation date, which is included in resident documentation and evaluated.

(3) In *Daily Support* of well-being, nursing staff continually tried to support well-being during daily contact moments, by making small behavior changes that supported autonomy, relatedness and competence of their residents. Examples of supporting caregiver behaviors for autonomy (e.g., offering meaningful choices), relatedness (e.g., attentive listening), and competence (e.g., giving compliments) are presented on three small cards that easily fit in the uniform pocket.

The activities were introduced in a training consisting of four two-hour interactive face-to-face meetings, in groups of about 14 participants. The sessions were guided by one of three professional trainers from an education facility for nursing staff. The first meeting covered group discussions on happiness and engagement, and autonomy, relatedness and competence in the nursing home. In each of the subsequent three meetings, nursing staff practiced one of the activities by observing photos and video fragments of residents and nursing staff, and observing the residents in their unit.

Interview protocol

Each semi-structured interview was randomly assigned to discuss either *Assessment* of well-being (n = 6) or *Support* of well-being (both *Planning* and *Daily* Support; n = 5), although participants were also free to discuss other parts of the innovation. The interview started with general implementation questions (e.g., '*Do you want to implement/what is holding you back from implementing* [the activity]?'). Furthermore, questions were included regarding the core elements of the Measurement Instrument for Determinants of Innovations (Fleuren, Paulussen, Van Dommelen, & Van Buuren, 2014), namely: the Innovation (e.g., '*What are positive points/points of improvement of* [the activity]*?*'), the User (e.g., '*What do you need from colleagues to start working with* [the activity]*?*'), and the Organization (e.g., *'What do you need from the organization to start working with* [the activity]*'*).

Survey measurements

Dependent variables

Intention to use the innovation, and actual implementation were included as dependent variables.

Intention to use the innovation at baseline was measured with three items, one for each activity (i.e., Assessment; Planning Support and Daily Support of well-being), with answer options on a scale from 1 *completely disagree* to 5 *completely agree*. An example item is: *'I intend to use the happiness and engagement assessment form in the coming period'*.

Actual implementation at follow-up was also measured with three items, one for each activity (i.e., Assessment; Planning Support and Daily Support of well-being). An example item is: *'In the past four weeks, I used the happiness and engagement assessment form'*, with answer options on a scale from 0 *for no resident* to 7 *for every resident*.

Determinants of intention and implementation

Availability of critical determinants that may affect the intention to use and implementation the innovation was measured based on the Measurement Instrument for Determinants of Innovations (MIDI) (Fleuren et al, 2014). The 17 most relevant potential determinants for the current innovation were selected by nine experts who were involved in designing and implementing the method (i.e., four scientific researchers, two trainers and three managers of the participating care organization). Survey participants were instructed that the determinants covered the entire innovation, and the wording of some items was adapted to fit the current innovation (see Supplementary Data for exact wording of questionnaire items).

Most determinants were measured with single items, and on a scale from 1 *completely disagree* to 5 *completely agree*. Seven determinants were related to the *Innovation* (Table 3). Nine determinants were related to the *User* (Table 4), of which three measured the *ability to implement* the three innovation components, and three determinants measured three *personal drawbacks*. The personal benefit of experiencing *more meaningful work* was measured using four items (alpha .92). Finally, five determinants were associated to the *Organization* (Table 5), of which two (i.e., *implementation coordinator*, and *unstable context*) were measured with *yes* and *no* answer options.

Additional variables

Demographic information and work-related information was gathered at baseline. In addition, staffs' level of attention for supporting well-being was measured on a percentage Visual Analogue Scale, asking '*During your daily work, what percentage of the time do you think you are concerned with* [(1) happiness and engagement/(2) the three basic psychological needs] *of the residents?*'.

Analyses

Quantitative data was analyzed with IBM SPSS 24, all tests were two-tailed, with the alpha level set to 0.05. For the survey, only data from participants who completed the entire questionnaire were included, omitting baseline data of 13 participants from analyses. Differences between drop-outs and completers at follow-up in demographic variables and baseline intention to use the innovation were analyzed using χ^2 tests and logistic regression analyses.

The interview data was analyzed using Atlas.ti 8.0. Based on a first analysis of all interviews, an initial code scheme was created deductively by the first and second author, based on the core elements of the MIDI determinant list (i.e., Innovation, User, Organization; Fleuren et al., 2014). Secondly, subcategories were created inductively through independent coding by the first and second author, which were discussed until a consensus was reached. Finally, these subcategories received MIDI determinant labels when applicable. All interviews were then reanalyzed using the final code scheme.

The interview and survey data were analyzed concurrently. To investigate which determinants facilitated or impeded the use of this PCC innovation (research question 1), we combined information on determinant importance, presence, and the relation to intention/implementation. First, we considered determinants to be important when they were discussed in the interview. Second, we considered determinants to be present when a large majority of ≥ 60% of survey participants responded '*agree/totally agree*', and determinants to be absent when ≥ 40% of survey participants responding totally '*disagree/disagree*', comparable, though more lenient, to the methods used by Verberne and colleagues (2018). Third, we considered the significance of the Pearson correlations of the determinants with baseline intention to use the innovation, and with actual implementation at follow-up. Correlations were calculated for each activity separately, with correlations of $r \leq .29$ interpreted as weak, $r \leq .49$ as moderate, and $r \geq .50$ as strong (Cohen, 1988). In the current study, *facilitators* are those determinants that were important, present, and significantly

positively related to outcome measures. *Barriers* are those determinants that were either important, present, and significantly negatively related to outcome measures, *or* important, absent and significantly positively related to outcome measures (although technically this can also be considered absence of a facilitator).

Furthermore, to establish the most important determinants for the intention to use the innovation and actual implementation of the separate innovation components (research question 2), we further investigated the unique relations to intention and implementation. Six multiple regression analyses were conducted on the survey data for intention and for implementation of each of the three components separately, including only determinants that were significantly correlated to the relevant outcome measure in the previous analyses for the first research question.

RESULTS

Participants and drop-out

Characteristics of participants in both the interview study and the survey study are presented in Table 1.

Interview Study

A total of 11 professional nursing staff participated in the interviews, all were women, with a mean age of 42.5 years (range 22 to 58 years). Most of these participants worked as licensed practical nurse, for 17-24 or 25-32 hours per week. The participants had on average 13.3 years (range 2 to 33 years) of experience working in a nursing home, and were employed in four different nursing homes, although most participants (n = 6) worked in the same nursing home.

Survey study

The 132 participants (31%) who completed the baseline questionnaire had a mean age of 47.5 years (SD = 10.7). They had on average 19.6 years of experience (SD = 10.6) in working in nursing homes. Most participants were female, worked as licensed practical nurse, and worked 17-24 hours per week. At baseline, participants estimated they spent a large percentage of worktime on happiness and engagement, and on the basic psychological needs. A total of 63 participants (48% of baseline sample) also completed the follow-up questionnaire. Follow-up completers did not differ significantly from drop-outs on any of the demographic variables or baseline intention to use the innovation (not in Table).

Table 1. Characteristics of participants in the questionnaire study and the interview study

	Interview Sample	Survey Sample	
	(n = 11)	Baseline (n = 132)	Follow-up (n = 63)
Age, M (SD)	42.5 (12.6)	47.5 (10.7)	49.1 (9.5)
Gender, n (%)			
Female	11 (100)	122 (92)	58 (92)
Male	0	10 (8)	5 (8)
Work Experience, M (SD)	13.3 (9.6)	19.6 (10.6)	21.4 (10.6)
Caregiver function, n (%)			
Registered nurse	4 (36)	15 (11)	7 (11)
Licensed practical nurse	7 (64)	112 (85)	53 (84)
Nurse assistant	0	2 (2)	1 (2)
Student	0	2 (2)	2 (3)
Unknown	0	1 (1)	0
Hours working per week, n (%)			
>40	0	1 (1)	0
33-40	2 (18)	11 (8)	6 (10)
25-32	5 (46)	38 (29)	15 (24)
17-24	4 (36)	66 (50)	34 (54)
9-16	0	15 (11)	7 (11)
1-8	0	0	0
0	0	1 (1)	1 (2)
% of work time spend on			
Happiness and Engagement M (SD)	-	77.0 (19.0)	77.3 (17.7)
Basic psychological Needs M (SD)	-	73.3 (22.5)	72.6 (22.6)

Intention to use the innovation and actual implementation

Interview study

Six interviewees specifically discussed their intention to use the innovation. Two of them intended to use the innovation, two did not, and two were not sure. All interviewees discussed the actual implementation of the innovation, of whom only three interviewees stated they had continued to use the innovation after the training ended.

Table 2. Survey data of baseline usage intention and actual implementation at follow-up of the three activities

	Assessment	Plan Support	Daily Support
Baseline intention			
Scale	1-5	1-5	1-5
M (SD)	3.2 (0.8)	3.2 (0.7)	3.7 (0.8)
Agree/totally agree (%)	37	36	68
Neutral (%)	47	52	25
Totally disagree/disagree (%)	16	12	7
Follow-up Implementation			
Scale	0-7	0-7	0-7
M (SD)	1.5 (1.1)	1.6 (1.3)	4.8 (2.6)
(Almost) all residents (%)	-	2	33
About half/majority (%)	3	2	27
A few/minority (%)	14	14	14
No/ one resident (%)	81	83	25
Correlation			
Intention * Implementation (r)	.14	-.14	.30*

* $p < .05$.

Survey study

At baseline, only about a third of survey participants intended to implement the Assessment of well-being and the Planning Support of well-being, while a majority of participants intended to use Daily Support of well-being (see Table 2). At follow-up, most nursing staff had not used Assessment of well-being or Planning Support of well-being for any of their residents, while a third of participants did use Daily Support of well-being for all their residents, and most nursing staff used it for at least half of their residents. Intention to use the innovation was related to implementation only for Daily Support of well-being.

Facilitators and barriers for using the innovation

Below, we consecutively discuss determinants related to the innovation, determinants related to the user and determinants related to the organization, in which we describe facilitators and barriers in terms of importance, presence, and relation to intention/ implementation of the innovation.

Determinants related to the innovation.

Table 3 shows the interview and survey results for determinants regarding the innovation.

Importance

The interviews showed three main themes of important determinants related to the innovation: compatibility, effectiveness and ease of use. Innovation was described as *compatible* to work and other currently used well-being methods (e.g., using life history information), although it also required extra work and interviewees generally disliked the extra paperwork. The innovation was especially relevant for new residents, or in the case of well-being problems, although activating residents was not always desirable for people with dementia.

> *M207: "I think it fits well in our unit. We are already focusing on happiness and engagement of residents and to ensure that this is as optimal as possible. I think it fits well in our unit."*

Regarding *effectiveness*, all but one interviewee discussed already working on resident well-being, or that the innovation was too similar to existing methods. However, everyone still agreed that the innovation was effective for improving systematic well-being observations, and for gaining more insight in supporting residents' needs and well-being.

> *M210: "With this, you can very well draw a conclusion about how a resident feels and what you can do."*

Finally, the innovation was described as *easy to use,* clear and complete. However, several interviewees struggled with deciding where to report results in the client reports, and indicated they would prefer a digitalized form for *Assessing well-being*.

> *M208: "Well exactly how you put that, under what heading, how you should place that. […] yes well, you have autonomy and participation and mental well-being. Hey then you go look a bit like well I'll put it under there. But is that the right place where you mention something?"*

Presence

More than 60% of survey participants agreed that the innovation was *compatible* to current daily work (Table 3). Many participants agreed that the innovation was *relevant for residents.* Participants were somewhat more neutral, however, about

the *observability of resident outcomes*, and the probability of the innovation leading to *improved well-being*, or to *satisfied residents*. Most participants indicated that the innovation consisted of *clear procedures*, but participants were divided in their opinion of the *complexity* of the innovation.

Relations

Compatibility was weakly to moderately positively related to baseline intention to use all three innovation components. All other determinants were weakly to moderately related to baseline intention to use one or more innovation components**,** and two determinants (i.e., *relevance for client* and *complexity*) were related to actual implementation at follow-up of one component (i.e., Daily Support).

Facilitators and barriers

All things considered, *compatibility with working method* was an innovation related facilitator for using the innovation.

Table 3. Determinants related to the innovation: interview codes (n = 11), and survey study means, SDs, frequencies, and Pearson correlations with intention (n = 132) and actual implementation (n = 63)

Interview Codes	Survey Determinants		(totally) disagree	(totally) agree	Assessment		Planning Support		Daily Support		
					Intent	Implement	Intent	Implement	Intent	Implement	
	The innovation...	M (SD)	(%)	(%)	(r)	(r)	(r)	(r)	(r)	(r)	Conclusion
Compatibility	is compatible with working method	3.6 (0.6)	2	62	.23**	.07	.27**	-.02	.35**	.22	Facilitator
	is relevant for the client	3.6 (0.6)	3	59	.19*	.05	.11	-.13	.22*	.35**	-
Effectiveness	has observable resident outcomes	3.1 (0.7)	16	29	.27**	.09	.22*	-.11	.23**	.23	-
	improves resident satisfaction	3.4 (0.7)	7	43	.09	-.01	.17	-.20	.23**	.09	-
	improves resident well-being	3.2 (0.6)	5	26	.29**	.24	.30**	.06	.25**	.08	-
Ease of use	consists of clear procedures	3.5 (0.7)	8	56	.16	.01	.25**	-.24	.25**	.11	-
	is too complex	2.8 (0.9)	37	23	-.20*	.18	-.20*	.18	-.23**	-.29*	-

Note: Intent = intention, Implement = actual implementation; Scale of all determinants = 1-5; % neither agree nor disagree not included in the table
* p < .05. ** p < .01.

Determinants related to the user

Table 4 shows the interview and survey results of user related determinants

Importance

The interviews showed two themes of determinants related to the user: the importance of the team, and possible users of the innovation. The importance of the *team* was described in two ways: a collective team decision was needed before using the innovation, and team support and team discussions of resident well-being were needed for accurate implementation.

> *M204: "Yes, well, of course that everyone supports it. That you don't, yes, that you start doing it together, such a project."*

The innovation was described as especially relevant for new colleagues, but nursing staff also described themselves, and case managers as *possible users*, stating that improving resident well-being is an important *professional obligation* for nursing staff, but not their main task. Providing physical care or other daily tasks were sometimes prioritized, and activity supervisors or welfare employees were appointed as better able to take action to improve well-being.

> *M201: "Yes, because I am busy with yes, I would say the [physical] care. The other things, the daily stuff."*

Presence

More than 60% of participants experienced *social support from colleagues* when needed, and indicated they had the *knowledge* to implement the innovation (Table 4). Most participants felt most *able* to implement Daily Support of well-being, compared to the other innovation components. Participants were overall rather undecided about *experiencing more meaningful work*, as well as about the experienced *personal drawbacks* that the innovation takes too much time, costs too much energy and takes much time away from physical care.

Relations.

Having the necessary *knowledge* was negatively related to implementation of one component (i.e., Planning Support), and positively related to implementation of another (i.e., Daily Support). Almost all other determinants, including e*xperiencing support from colleagues* were weakly to moderately related to baseline intention to use one or more innovation components, or to actual implementation of one component (i.e., Daily Support).

Facilitators and barriers

All things considered, *experiencing support from colleagues* (in particular importance of team) was a user related facilitator of using the innovation, while having the needed *Knowledge* (in particular being more relevant for new colleagues) had an ambiguous position as both a user related barrier (for Planning Support) and facilitator (for Daily Support).

Table 4. Determinants related to the user: interview codes (n = 11), and survey study means, SDs, frequencies, and Pearson correlations with intention (n = 132) and actual implementation (n = 63)

Interview Codes	Survey Determinants				Assessment		Planning Support		Daily Support		
	Nursing staff...	M (SD)	(totally) disagree (%)	(totally) agree (%)	Intent (r)	Implement (r)	Intent (r)	Implement (r)	Intent (r)	Implement (r)	Conclusion
Team	experience collegial support	3.6 (0.7)	5	62	.12	.16	.12	-.07	.15	.32*	Facilitator
Possible user	have the necessary knowledge	3.8 (0.7)	4	72	-.09	.04	.06	-.26*	.15	.30*	Facilitator and barrier
	feel able to implement activities										
	Assessment	3.2 (0.8)	16	36	.31**	.16	.25**	-.03	.11	.24	-
	Planning Support	3.2 (0.8)	15	36	.26**	.16	.25**	-.00	.18*	.33**	-
	Daily Support	3.6 (0.6)	3	54	.10	.07	.04	-.04	.14	.33**	-
	experience more meaningful work	3.2 (0.8)	18	39	.37**	.14	.37**	-.00	.18*	-.03	-
	experience personal drawbacks										
	Takes too much time	3.3 (0.9)	17	15	-.21*	-.20	-.20*	.01	-.20	-.15	-
	Takes too much energy	2.7 (0.9)	40	21	-.27**	-.04	-.34**	-.03	-.38**	-.14	-
	Less time for physical care	2.8 (0.8)	34	44	-.21**	.04	-.14	.01	-.10	-.27*	-

Note: Intent = intention, Implement = actual implementation; Scale of all determinants = 1-5; % neither agree nor disagree not included in the table
* p < .05. ** p < .01.

Determinants related to the organization

Table 5 shows the results of the interviews and the surveys of the determinants related to the organization.

Importance

The interviews revealed three important themes regarding determinants related to the organization: time, implementation planning, and training. Not receiving the necessary *time* to pay close attention to residents and improve their well-being was discussed as being frustrating, and as the most important barrier to implementing the innovation. Furthermore, it was described that it remained unclear how much time would be provided for this in the future due to organizational restructure.

> *M210: "But in this regard there is sometimes not enough time, so little time. That that is not always feasible and that such a form is very nice and you try it too, but it is not always feasible. And sometimes that does not feel right at all, really."*

Interviewees described that the *implementation process* required some additional planning. Other practical things (e.g., providing physical care) currently received priority over the innovation, so interviewees indicated that the innovation should be specifically prioritized and practiced more. Several options for daily implementation planning were proposed, for example by staying a bit longer after shifts, and assessing well-being three times a week. Continued implementation required more reminders, evaluation and continued education.

> *M209: "Yes of course one day you work less with it than the other. Because, for example, there are other priorities that day."*

Finally, concerning the *training* to introduce participants to the innovation, interviewees preferred "training on the job", and disliked that various other trainings were simultaneously planned. While one interviewee thought the training was not essential for implementing the activities, the training content was mostly described as useful and informative, especially concerning the discussions with colleagues from other nursing homes.

> *M210: "[...] and also the experiences of other colleagues in other locations. [...] Yes, and that you think gosh, that it never occurred to me before. And then you try that in practice and then it sometimes seems to work."*

Presence

More than 40% of survey participants did not experience that there was *enough time* available, nor that there was *adequate staffing* (Table 5). Furthermore, more than 40% of survey participants did not experience that there was a *clear implementation plan,* nor were aware of a *coordinator* who was responsible for implementation of the innovation in their nursing home. Finally, over 60% of participants indicated that the *organization* was in the middle of an organizational restructure.

Relations

Both *time* and a *clear implementation plan* were weakly positively related to baseline intention to use one or two of the innovation components (i.e., Assessment, Plan Support), and moderately positively related to actual implementation of one component (i.e., Assessment). The *unstable context* was moderately negatively related to actual implementation of that same component (i.e., Assessment). Finally, the other determinants were related to intention of one innovation component, or not related to any of the outcome measures.

Facilitators and barriers

Taken together, not enough *time,* missing a *clear implementation plan*, and an *unstable context* (in particular restructuring and multiple simultaneous trainings) were organization related barriers for using the innovation.

Table 5. Determinants related to the organization: interview codes (n = 11), and survey study means, SDs, frequencies, and Pearson correlations with intention (n = 132) and actual implementation (n = 63)

Interview Codes	Survey Determinants		(totally) disagree	(totally) agree	Assessment		Planning Support		Daily Support		
					Intent	Implement	Intent	Implement	Intent	Implement	
	The organization provides...	M (SD)	(%)	(%)	(r)	(r)	(r)	(r)	(r)	(r)	Conclusion
Time	enough time	2.7 (0.9)	43	17	.16	.33**	.27**	.06	.08	-.03	Barrier
	adequate staffing	2.4 (0.8)	56	8	.17	.07	.29**	-.10	.15	.11	-
Implementation	clear implementation plan	2.6 (1.0)	46	20	.26**	.42**	.27**	.03	.13	.07	Barrier
planning	an unstable context[1]	0.8 (0.4)	16	84	.02	-.37**	.06	-.16	.09	.13	Barrier
	an implementation coordinator[1]	0.5 (0.5)	54	46	-.07	.04	.11	.12	.10	.23	-
Training											

Note: Intent = intention, Implement = actual implementation; [1]Measured with dichotomous answer-options yes/no; Scale of all other determinants = 1-5;
% neither agree nor disagree not included in the table
* p < .05. ** p < .01.

The most important determinants for each outcome measure

Assessing Well-being

The previous analyses showed that twelve determinants were significantly related to the *intention* to use well-being Assessments. When combined in one multiple regression analysis, only *experiencing more meaningful work* (*beta* = .39, *p* = .003) was uniquely related to intention, explaining 25% of variance.

Furthermore, combining the three determinants that were significantly related to the *actual implementation*, showed that only *a clear implementation plan* (*beta* = .28, *p* = .04) and an *unstable context* (*beta* = -.28, *p* = .02) explained 25% of the variance in implementation of the activity of well-being Assessment.

Planning Support

Combining the thirteen determinants that were significantly related to the *intention* to use Planning Support, showed that only *experiencing more meaningful work* (*beta* = .31, *p* = .01), and the *drawback of taking too much energy* (*beta* = -.25, *p* = .02), were uniquely related, explaining 29% of variance.

Knowledge was the only determinant related to the *actual implementation* of Planning Support, explaining 7% of variance.

Daily Support

Of the ten determinants that were significantly related to the intention to use Daily Support, only *compatibility* (*beta* = .25, *p* = .02), and the *drawback of taking too much energy* (*beta* = -.26, *p* = .008) were uniquely related, explaining 22% of variance.

Finally, when combining all seven determinants that were related to the *actual implementation* of Daily Support of well-being, *collegial support* was the only unique significant predictor (*beta* = .27, *p* = .03), explaining 28% of implementation variance.

DISCUSSION

The current study combined qualitative and quantitative approaches to investigate the positive and negative determinants perceived by nursing home staff in relation to the use of a PCC innovation aimed at improving the well-being of nursing home residents. First, we analyzed which determinants facilitated or impeded the use of this innovation based on importance, presence and relation to the intention to use the innovation and actually implement the innovation, and found facilitators and barriers on various levels. Three facilitators were found; one related to the innovation (*compatibility with working method*), and two to the user (*support from colleagues*; *knowledge*). Additionally, four barriers were found, *knowledge* was a barrier related to the user, while not enough *time,* missing a *clear implementation plan*, and the *unstable context* were organization related barriers.

Second, we analyzed which determinants were most important for baseline intention to use the innovation and follow-up implementation of the three separate innovation activities: well-being assessment, planning and support. When looking at unique relations, the most important determinants differed considerably between the outcome measures. *Compatibility with daily work* was one of the two most important determinants for the intention to use daily support, while experiencing *support from colleagues* was most important for actually implementing daily support. *Knowledge* was the most important barrier for actual implementation of planning support. Missing a *clear implementation plan* and the *unstable context* were the most important barriers for actual implementation of well-being assessments. Below, we discuss the most important facilitators and barriers in greater depth.

The facilitative effect of compatibility with the daily working method was also found in a meta-analysis of qualitative research, showing that psychosocial innovations for people with dementia are easier implemented when they can be integrated in the daily caring tasks (Lawrence, Fossey, Ballard, Moniz-cook, & Murray, 2012). However, nursing staff did not always seem to appreciate the necessity of the innovation, which was discussed as too similar to other methods, and most beneficial for nursing staff with less experience. Knowledge actually impeded implementation, and nursing staff indicated that they were already investing a lot in resident well-being, in line with other literature (Chenoweth et al., 2015). However, other researchers have described that healthcare professionals may say that they are practicing PCC, when they are not (Moore et al., 2017). In our study physical care was described as still being prioritized over well-being, which is also a common finding in this context (e.g., Boersma et al., 2017). This ambivalence seemingly underlines the need for PCC

innovations in this context. Nursing staff relied on the organization to prioritize this innovation, for example by providing enough time to implement the innovation.

Additionally, nursing staff indicated that implementation of the innovation was a collective team-decision. Other studies also found the facilitative effect of well-functioning teams with less hierarchical and more open communication structures (Quasdorf et al., 2017; Snoeren & Janssen, 2014), and the impeding effects of collaboration problems with colleagues (Boersma et al., 2017). Indeed, entire units can exhibit a more or less PCC climate (Edvardsson, Sandman, & Rasmussen, 2012), indicating that this is also a team-endeavor. In addition to the individual approach of the current study, future studies should therefore investigate team measurements of determinants, intention to use PCC innovations, and the actual implementation of the innovation in the nursing home context.

Finally, clarity within the organization seemed to be a prerequisite for actually implementing regular well-being assessments. Others also reported the impeding effect of going through a restructure (Boersma et al., 2017). Additionally, it showed that nursing staff may need more detailed instruction regarding how to implement the innovation in day-to-day care activities (Chenoweth et al., 2015; Quasdorf et al., 2017), which challenges the suggestion that flexible implementation plans might work better in the dynamic context of the nursing home (Snoeren & Janssen, 2014).

The current study also highlighted the general difficulty of implementing a PCC innovation in the nursing home, which fits with international findings (Edvardsson et al., 2014; Lawrence et al., 2012). Nursing staff only had limited intention to use this innovation and implemented it to an even lesser extent. Comparing innovation components, nursing staff tended to be more inclined to make small behavioral changes (i.e., Daily Support), compared to using forms for documenting well-being and improvement plans. Others found that the intention to use such documentation strategies and subsequent implementation may improve with continued experience (Mamhidir et al., 2017), or integration of the forms in the electronic client reports (Boersma et al., 2015), which was also requested by the nursing staff in the current study.

One strength of the current study is that various sources of information (i.e., importance, presence and relation to intention to use the innovation and actual implementation) were included to determine the facilitators and barriers of the innovation. Although the exact criteria can be debated (e.g., relevance for client was only just below the 60% criterion), combining all information provided a clear unified

picture. However, predicting nursing staff's intention and actual implementation remained difficult, shown in the weak to moderate correlations, and the limited explained variance of 25-28% of the intention to use the innovation and 7-28% of actual implementation. This is rather low compared to what meta-analyses showed for clinical behavior (e.g., providing care, compliance with guidelines, documentation) in healthcare professionals (34%-59% for intention, and 26%-34% for implementation; Godin, Bélanger-Gravel, Eccles, & Grimshaw, 2008). Using PCC innovations aimed at improving well-being may involve less concrete behavior, making it more difficult to predict. As far as we know, no other studies have investigated explained variance of the intention to use such innovations and actual implementation in the nursing home context, so it is not possible to compare these results.

This is the first study to use the Measurement Instrument for Determinants of Innovations (Fleuren et al., 2014) in the nursing home context. With the classification of determinants related to the innovation, the user and the organization, the instrument provided a useful framework for analyzing the interviews, and suitable standardized questions for measuring presence of determinants. The applicability of this instrument in the current context may be improved by including a determinant about the (content and planning of) the training. This was an important theme in the interview study, and has been previously reported as an important facilitator in other studies (e.g., Chenoweth et al., 2015; Moore et al., 2017), as well as being included in other frameworks (e.g., CFIR; Damschroder et al., 2009). Furthermore, a group of experts systematically selected the assessed determinants in the current study, but determinants that were not included may have had an additional impact on the intention to use the innovation or implementation (e.g., professional obligation which was discussed in the interviews). Additionally, support from team leaders was not included in the survey due to changing team leaders during the survey study. Future researchers should investigate the feasibility of including more determinants (Fleuren et al., 2014), for example by presenting each participant a random selection of only a few determinants.

Finally, there are a few methodological limitations to this study. First, possible changes in experienced facilitators and barriers over time due to experience with the innovation were not accounted for, as determinants were only measured at baseline. Second, most determinant items did not differentiate between the three innovation components. However, determinants still showed different relations to the intention to use, and implement the three components. Third, nursing homes in the Netherlands are rather advanced in their efforts towards providing PCC, which may limit generalizability, although the reluctance of nursing staff to implement

the innovation is comparable to previous international findings. Finally, the limited number of interviews may not have led to saturation, and the survey study did not reach the 150 participants recommended for this kind of study (Godin et al., 2008), so results should be interpreted with caution. This signifies the general difficulty of getting nursing staff to participate in scientific studies (e.g., García-Sierra, Fernández-Castro, & Martínez-Zaragoza, 2015), and unfortunately we could not gather information on non-participation or drop-out.

There is something to be said for capitalizing on the natural interests of nursing staff by improving facilitators to make small behavioral changes to improve resident well-being. The rationale for introducing systematic well-being assessments was to increase awareness of and subsequent efforts to improve resident well-being. But when nursing staff are consciously making behavioral changes to improve resident well-being, they quite possibly automatically become more attentive to the current state of resident well-being. Integrating the perspective of nursing staff in all stages of innovation development and implementation can help to inform where most investment is required. The current innovation was created in close collaboration between university and a care organization, but the voice of nursing staff could have been more pronounced. Using a bottom-up approach may empower nursing staff, and create an innovation that is person-centered towards both residents and nursing staff (Edvardsson et al., 2014; Edwards et al., 2003), which may subsequently improve the implementation plan and implementation rates (Kaasalainen et al., 2010; Rapaport, Livingston, Murray, Mulla, & Cooper, 2017).

Conclusions

The results of the current study underline the importance of designing a detailed implementation plan for PCC innovations, taking into account the endpoints (i.e., intention to use the innovation or actual implementation), and the type of activity targeted (i.e., assessments, planning, or small behavioral changes). For example, a plan to improve nursing staff's intention to make small behavioral changes should ensure easy integration in daily caring tasks and take advantage of the team, while a stable nursing home context and a detailed implementation plan for nursing staff are essential for supporting regular well-being assessments. Implementation research in the nursing home does not often isolate these specific areas due to limitations surrounding the qualitative methods that are primarily used to explore such experiences (e.g., Kloek et al., 2018; Kolkman, Fleuren, Wouters, de Groot, & Rijnders, 2017); thus, including a quantitative method has clear added value. Furthermore, such implementation plans could benefit from input from nursing staff, as they shared some specific implementation ideas in our interview study.

6

SUPPLEMENTARY MATERIALS

Supplementary Table 1. Determinant survey questions

Determinants	Survey question
The innovation...	
is compatible with working method	The renewed approach fits in well with how I am used to working
is relevant for client	I think the renewed approach is relevant for the residents
has observable resident outcomes	I can clearly see what the effects are for the residents if I use the renewed approach
improves resident satisfaction	Residents will generally be satisfied if I use this renewed approach
improves resident well-being	I expect that the renewed approach will actually increase the happiness and engagement of the residents
consists of clear procedures	I find it clear which activities and forms I can use in which order
is too complex	I find the renewed approach too complicated to use in my daily work
Nursing staff..	
experience collegial support	When needed, I can count on sufficient help in using the renewed approach from colleagues
have the necessary knowledge	I have sufficient knowledge to be able to use the renewed approach
are able to implement activities	Would you be able to perform the following activities if you wish?
Assessment	Filling in the assessment form
Planning Support	Making an action plan to increase autonomy, connectedness or competence
Daily Support	Supporting autonomy, relatedness and competence during daily work
experience more meaningful work	(4 items:)
	I get more satisfaction from my work
	I have a better relationship with the residents
	I can do even more for the residents
	I can make more meaningful contact with the residents
experience personal drawbacks	
Takes too much time	It takes me too much time
Takes too much energy	It costs me too much energy
Less time for physical care	As a result, I cannot focus enough on other tasks, such as physical care
The organization provides...	
enough time	I get enough time to use the renewed approach as intended in my daily work
adequate staffing	There is sufficient staff to be able to use the new approach as intended
clear implementation plan	Moments are planned at our location to discuss the renewed approach, for example during team meetings
an unstable context	Are there, apart from the introduction of the renewed approach, other changes that you will face now or soon? (e.g., reorganization, merger, cutbacks, staff turnover, other training courses, other innovations)?
an implementation coordinator	I know that there are one or more people to contact to arrange the introduction of the renewed approach at our location

6

Summary & General Discussion

7

INTRODUCTION

This thesis presents research with a positive psychology perspective on the well-being of nursing staff and nursing home residents. Positive psychology specifically focuses on the positive aspects of psychosocial experiences besides the negative aspects (Seligman & Csikszentmihalyi, 2000). This is important because there has been limited research regarding the positive aspects of working and living in a nursing home, despite the fact that nursing homes are often described as a high pressure work environments for the ever-shrinking nursing workforce, as well as a lonely living environment for the ever-growing older adult population (Donoghue, 2010; Slettebø, 2008). The aim of this thesis was to investigate how well-being can be monitored and improved in the nursing home.

This thesis consists of two parts. In the first part, two chapters centralize the well-being of nursing home staff, and the second part includes three chapters in which the well-being of nursing home residents is centralized. Well-being was investigated both in terms of the hedonic aspect of *feeling good* (happiness; emotional well-being; subjective well-being; job satisfaction) and the eudaimonic component of *doing well* (psychological well-being; social well-being; engagement). The Basic Psychological Needs Theory (BPNT, a sub-theory of the Self-determination theory; Ryan & Deci, 2017) was a central well-being theory in most of our studies. This theory states that the satisfaction of three basic psychological needs of autonomy, relatedness, and competence are related to well-being. Two interventions to improve well-being were developed and provided to nursing staff: a positive psychological intervention aimed at improving their own well-being, and a person-centered care innovation combining well-being assessments with basic psychological needs support aimed at improving resident well-being.

In this final chapter, the results of the five studies are first summarized, followed by a discussion of the key findings and future directions in four main themes, and some methodological considerations of this thesis as a whole, and finally an overview of implications for future research and practice is given.

SUMMARY OF STUDIES

Part I: Nursing home staff well-being

Chapter 2 addressed the question to what extent the satisfaction of the basic psychological needs for need for autonomy, relatedness, and competence at work are important for the well-being of nursing staff. Two cross-sectional survey studies (n = 125 and n = 75) examined the satisfaction of each need at work, balanced need satisfaction among the three needs, and need valuation in relation to general well-being and work engagement. First, the results showed that the need for competence was most highly satisfied, and most highly valued by nursing staff. Second, in line with the BPNT, the satisfaction of all three needs at work were significantly related to well-being in both studies, each explaining unique variance of well-being in one of the studies. However, the other study showed the most consistent relationship between autonomy and work engagement. Third, the balance hypothesis (Sheldon & Niemiec, 2006) proposes that the satisfaction of all three needs must be in balance for optimal well-being, but the balance of need satisfaction did not explain any additional variance of well-being beyond the level of need satisfaction in either sample. Fourth, the universality claim of the BPNT indicates that three needs are important for well-being, independent of subjective valuation of the needs, and the absence of any moderation effect of subjective need valuation on the relationship between the satisfaction of the three needs and well-being in our study supported this claim. Taken together, the results of Chapter 2 indicate the value of supporting all three basic psychological needs of autonomy, relatedness, and competence of nursing staff at work.

Chapter 3 examined whether the well-being of nursing home staff could be improved with an 8-week online multi-component positive psychology intervention that had demonstrated effectiveness previously among people with suboptimal well-being. A group-randomized controlled trial of nursing staff of four nursing homes was conducted, with measurements of general well-being, job satisfaction and work engagement at baseline (n = 128) and following the training period (n = 107). Furthermore, we explored the acceptability of the intervention for nursing home staff. The results revealed that although the positive psychology intervention was acceptable for most nursing staff, it was not effective in improving well-being in its current form, even for nursing staff with low initial well-being. Various possible explanations for the lack of effectiveness were discussed, including the generally high baseline levels of well-being and engagement, and the content of the intervention being only limitedly targeted at lower educated people and their work-context. Furthermore, the influence of the mandatory aspect and the rather individual online

self-help format of the training remain unknown. The process evaluation findings suggested that a more concise, work focused positive psychology intervention that includes some form of autonomy support may enhance the effectiveness of a positive psychology intervention for nursing staff in the nursing home context.

Part II: Nursing home resident well-being

Chapter 4 addressed how well nursing staff are able to assess the well-being of residents after training, using two single item 5-point scales of happiness and engagement. The validity of nursing staff proxy-assessments (n = 49 nursing staff) were compared to resident self-reports (n = 49), and the correspondence between nursing staff was examined. Furthermore, brief written motivations were evaluated on understanding of well-being. Nursing staff tended to overestimate resident well-being compared to resident self-reports, and assessments varied considerably between colleagues. Nursing staff who worked more hours tended to estimate higher levels of resident well-being than nurses who worked less hours, but we did not identify any caregiver characteristics that were associated with assessment accuracy. Furthermore, qualitative data was evaluated, which showed that nursing staff understood happiness and engagement as stable personality or situational aspects, rather than feeling good or being absorbed in activities. Taken together, the results indicated that such nursing staff assessments using single item measures are not a valid monitoring method to improve well-being documentation in client reports.

In *Chapter 5*, we investigated whether the satisfaction of the three basic psychological needs of autonomy, relatedness, and competence is important for the well-being of nursing home residents. A longitudinal survey study was conducted with physically frail older adults on self-reported satisfaction of the basic psychological needs at baseline (n = 128) and well-being at follow-up (five to eight months later, n = 91). The need for autonomy and relatedness were most highly satisfied, compared to competence. In line with the BPNT, the satisfaction of each of the basic psychological needs were significantly related to well-being for nursing home residents. However, autonomy seemed to be of particular importance, with the strongest and only unique relationship to well-being. Finally, in line with the balance hypothesis (Sheldon & Niemiec, 2006), the results indicated that a balanced satisfaction of the needs was related to well-being, independent of the level of autonomy and relatedness satisfaction. In other words, high satisfaction of one need cannot compensate for low satisfaction of another need. Taken together, although competence may require extra attention, given the lower satisfaction scores, the results indicate the value of supporting all three basic psychological needs of nursing home residents.

Finally, *Chapter 6* examined the facilitators and barriers that nursing staff experience when using a person-centered care innovation aimed at resident well-being. The exploratory mixed method design combined interviews concerning the importance of determinants (n = 11), and a longitudinal survey study on the presence of determinants and their relationship to the intention to use the innovation at baseline (n = 132) and actual implementation three months later (n = 63). Nursing staff were rather reluctant to (1) *assess well-being* and to (2) *plan their support* of the basic psychological needs for residents, while they were more inclined to make small behavioral changes to (3) *daily supporting* the basic psychological needs. The results showed that facilitators were related to the innovation and the user, and barriers were related to the user and the organization, but the most important facilitators and barriers differed considerably between the outcome measures. Compatibility with daily work and collegial support facilitated intention and implementation of well-being support, while knowledge impeded actual implementation of planning support; and missing a clear implementation plan and an unstable organizational context impeded the implementation of well-being assessments.

DISCUSSION OF KEY FINDINGS AND FUTURE DIRECTIONS

With these results, the current thesis makes several contributions to the literature of positive psychology and long-term care concerning well-being in the nursing home. Below follows a discussion of the key findings of the research presented in this thesis in relation to the literature, combined with a reflection on future directions, divided into the four main themes of *well-being*, *the basic psychological needs*, *positive psychology intervention*, and *person-centered care innovation.*

Well-being as central outcome

- *A positive perspective on well-being in the nursing home provides added value for both nursing staff and residents*

This thesis proposes a positive psychology perspective on well-being, in terms of what makes life worth living, or work worth doing, in a nursing home. The results of Chapter 2 and 3 indicate the added value of this positive perspective of *nursing staff well-being*. Currently, research is predominantly concerned with the negative aspects of nursing staff work, such as the increased levels of stress and burnout

(e.g., Sanchez, Mahmoudi, Moronne, Camonin, & Novella, 2015), which paints a rather bleak picture of working in this profession. When we adopt the positive psychology perspective, however, the results are more encouraging. We found rather high general well-being and work-related well-being scores, which were comparable to that of the Dutch national norm-groups (Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes, 2011a; Schaufeli & Bakker, 2003). Although these results could be somewhat inflated due to social desirability, they are in line with a previous study in Sweden and Spain (Yepes-Baldó, Romeo, Westerberg, & Nordin, 2018).

More comprehensive (international) research is still needed, but our results indicate that nursing staff both can have an increased risk of stress related problems, and at the same time acceptable levels of well-being. This is in line with positive psychology proposing that ill-being is related, but conceptually separate from well-being (Lamers, Westerhof, Bohlmeijer, ten Klooster, & Keyes, 2011b). It therefore seems reasonable to invest in both reducing nursing staff distress, as well as in supporting nursing staff well-being. Previous research has underscored the potential benefits of a positive approach, such as improved physical and mental health (e.g., Keyes, Dhingra, & Simoes, 2010), intention to stay in the organization (Decker, Harris-Kojetin, & Bercovitz, 2009), sociability, and effective conflict resolution skills (Lyubomirsky, King, & Diener, 2005). As discussed below, the current thesis examined two opportunities for taking such a positive approach: whether support of the basic psychological needs at work is beneficial for well-being, and whether a positive psychology intervention would be effective.

For *nursing home residents*, person-centered care (PCC) already paved the way to including personal experiences of people receiving care, in addition to the traditional focus on physical care (Edvardsson, 2015). Yet, nursing home research and practice still strongly emphasize frailty and deficits. Even when presented as *well-being* research, studies often measure predominantly negative concepts, such as stress, pain, and depressive feelings. Of course, this statement may appear contradictory as the Geriatric Depression Scale was used in Chapter 4 and 5 (GDS; Jongenelis et al., 2007), but, this scale actually measures a balance of negative as well as positive feelings, which matches the concept of subjective well-being perfectly when it is combined with a life satisfaction assessment (Diener, Emmons, Larsen, & Griffin, 1985). Other scholars are now advocating for the use of a more strength-based perspective on well-being within PCC (e.g., Corazzini et al., 2019; Vernooij-Dassen & Moniz-Cook, 2016), suggesting that nursing homes should be places where older adults thrive, not just survive (Bergland & Kirkevold, 2006).

Interpreting results from a positive psychology perspective may change the way we think about older adults, in terms of positive experiences, strengths and resources (Wolverson, Clarke, & Moniz-Cook, 2016). Our results indicate that extra attention for the positive aspects of resident well-being is warranted, especially for the more active aspect of resident engagement. While nursing home resident well-being was slightly better than in previous Dutch studies of nursing home residents (Custers, Kuin, Riksen-Walraven, & Westerhof, 2011; Custers, Westerhof, Kuin, Gerritsen, & Riksen-Walraven, 2013; Custers, Westerhof, Kuin, & Riksen-Walraven, 2010; Jongenelis et al., 2007), their moderate subjective well-being scores still left much room for improvement (Chapter 5) and residents reported even lower engagement than subjective well-being (Chapter 4). All things considered, this thesis proposes that implementing a positive psychology perspective on the well-being of staff as well as older adults has added value in the nursing home.

Future direction: What is well-being in the nursing home?

Resident well-being is one of the core proposed outcomes of PCC (McCormack & McCance, 2006), and thus an essential aspect for monitoring the progress of PCC innovations in the nursing home. However, an important question in this regard still remains: what exactly constitutes well-being in the nursing home? Adopting a positive perspective on resident well-being within PCC reveals the variability in well-being conceptualizations for older adults in long-term care, most referring to one of the countless definitions of Quality of Life (QoL; Halvorsrud & Kalfoss, 2007). This heterogeneity makes it difficult to compare study outcomes, and the need for more coherence is increasingly recognized, resulting for example in defining common data elements of well-being in long-term care research (Edvardsson et al., 2019).

As positive psychologists, we conceptualize well-being as including both *feeling good*, and *doing well* (Keyes, 2002), but the suitability of the positive psychology well-being theories that take this approach are predominantly examined with younger and middle-aged adults, and only very limitedly among older adults. A more systematic integration of the fields of positive psychology and PCC literature is needed to ultimately arrive at a joint definition of well-being that is both universal and suitable to older adults. Some scholars have recognized this need, assessing the suitability of several theoretical well-being frameworks in the nursing home by comparing them on a set of predefined criteria (Gerritsen, Steverink, Ooms, & Ribbe, 2004). Others have taken older adults' perspective on well-being as a starting point (Minney & Ranzijn, 2016; Bergland & Kirkevold, 2006), which can be compared to existing frameworks. The current thesis took yet another approach, exploring the suitability

of a positive well-being theory in the context of the nursing home. Together, these efforts mark the beginning of this exploration, and further research is required to firmly operationalize well-being in nursing home practice.

Attention to basic psychological needs

- *Satisfaction of the basic psychological needs is beneficial for well-being of nursing staff and nursing home residents*

This thesis proposed that the Basic Psychological Needs Theory (BPNT) may provide a valuable well-being framework for the nursing home context. While an abundance of research has supported the BPNT in various domains (Ryan & Deci, 2017) the nursing home context has thus far largely been disregarded. The few studies with nursing staff were not conducted in the nursing home, or did not measure need satisfaction at work (e.g., Gillet et al., 2018; Ferrand, Courtois, Martinent, Rivière, & Rusch, 2017), and studies with nursing home residents found limited support for the theory, did not measure all three needs separately, and were mostly cross-sectional (Custers et al., 2010; Kasser & Ryan, 1999). The results of our two cross-sectional survey studies with nursing home staff (Chapter 2), and a longitudinal survey study with nursing home residents (Chapter 5) indicated that this theory is indeed suitable for nursing staff and residents: the satisfaction of the three basic psychological needs was related to the well-being of nursing staff and residents. Just like plants requiring soil, water and sunlight to grow, nursing staff and nursing home residents seem to require autonomy, relatedness and competence to experience well-being.

While satisfaction scores of the three needs were generally positive, there was also room for improvement. For nursing staff especially the satisfaction of the need for autonomy and relatedness at work could be enhanced, which is comparable to previous findings for healthcare nurses (Trépanier, Fernet, & Austin, 2016). This suggests that the attention for environmental aspects of '*sharing power*' and '*effective staff relations*' in the person-centered nursing framework, are not only instrumental to providing PCC (McCormack & McCance, 2006), but may also be important for nursing staff well-being. Nursing home residents, on the other hand, experienced lowest satisfaction of the need for competence, compared to autonomy and relatedness. This difference was not found in previous research, where the three different adopted questionnaires may not all have truly tapped into need *satisfaction* (Ferrand, Martinent, & Durmaz, 2014). Our result emphasizes that besides '*resident direction*' (autonomy) and '*close relationships*' (relatedness; Koren, 2010),

'*feeling competent or effective*' should also be considered as an important domain of nursing home culture change.

With this in mind, it can be concluded that a nursing home environment that supports the three basic psychological needs may be beneficial for the well-being of staff and residents. BPNT literature proposes several ways to support autonomy (e.g., offering meaningful choices), relatedness (e.g., showing warm interest and trust) and competence (e.g., slowing down the pace and providing timely feedback; Baard, Deci, & Ryan, 2004; Bangerter, Heid, Abbott, & Haitsma, 2017; Custers et al., 2011), but further research is needed to examine what works best in this environment.

- *The three basic psychological needs are uniquely beneficial for well-being, but autonomy may be particularly important*

This thesis also contributed to the overall theory on this subject, by examining several propositions of the BPNT in the nursing home context. The BPNT proposes that three needs are *uniquely* important for well-being (Ryan & Deci, 2000), like plants gaining different essentials from soil *and* sunlight *and* water to thrive. However, previous studies have not always supported this, showing that only one or two needs were uniquely related to the well-being of healthcare professionals and older adults (e.g., Bernard, Martin, & Kulik, 2014; Ferrand et al., 2014). In Chapter 2 of this thesis, the satisfaction of all three needs at work was uniquely related to work engagement of nursing staff (study 1). However, the need for autonomy was also revealed as particularly important for the well-being of nursing staff (study 2) and nursing home residents (Chapter 5). This is in line with other studies highlighting the central role of the need for autonomy (Ryan, Soenens, & Vansteenkiste, 2019), and the emphasis on autonomy in the context of the nursing home (Lyttle & Ryan, 2010; Tummers, Groeneveld, & Lankhaar, 2013; Vallerand, O'Connor, & Blais, 1989). This indicates that special attention must be given to the satisfaction of the need for autonomy for all persons in this context.

- *Balanced need satisfaction is beneficial for well-being of nursing home residents, but not in the work-context of nursing home staff*

Besides the unique contribution of all three needs, the balance hypothesis suggests that the satisfaction of all three needs should be in balance for optimal well-being (Sheldon & Niemiec, 2006). However, thus far only a handful of studies have tested this hypothesis, and these have mainly concerned general need satisfaction and well-being of students (e.g., Sheldon, Abad, & Omoile, 2009). Chapter 5 showed

that balanced satisfaction of all three needs was indeed beneficial for the general well-being of nursing home residents, even when controlling for the level of satisfaction in autonomy and relatedness. This indicates that just like a plant will dry out if it only gains nutriments from the soil and lots of sunlight, but not water, high satisfaction of autonomy and relatedness cannot compensate for low satisfaction of the need for competence.

Chapter 2 described the first two studies to examine the balance hypothesis in the context of work, showing that a balance in the satisfaction of the three needs at work does *not* seem to be beneficial for well-being of nursing home staff. A previous study found that a balance in *overall general* need satisfaction across distinct life contexts is important for well-being (Milyavskaya et al., 2009). We propose that as long as such general balance is secured, balanced satisfaction of all three needs in one specific context (e.g., work) may not be essential for well-being, which should be examined in future research.

- *The basic psychological needs are beneficial for the well-being of everyone, independent of need valuation.*

This thesis also examined the universality claim of the BPNT, suggesting that the basic psychological needs are universal requirements for well-being (Ryan & Deci, 2000). Only a few recent studies have investigated whether satisfaction of the three needs is indeed beneficial for well-being, independent of how important people *think* the needs are, with inconclusive results (e.g., Chen et al., 2015b; Custers, Cillessen, Westerhof, Kuin, & Riksen-Walraven, 2014). The small cross-sectional study with nursing staff in Chapter 2 supported the universality claim, indicating that support of all three basic psychological needs at work would be beneficial for the well-being of all nursing staff, even though they value the need for competence most highly. However, seeing the very limited and exclusively Dutch sample in our study, more research on this topic is needed. We are currently developing further research to examine the effects of need valuation in a bigger sample of nursing home staff across Europe, Africa and Australia.

- *Future direction: Adapt the measurement of basic psychological need satisfaction to the nursing home context*

Our studies were among the first to introduce the BPNT in the nursing home environment, so it is not surprising that the currently available measurements of the satisfaction of the basic psychological needs are not fully applicable to this context.

For example, some of the nursing staff pointed out that the questionnaire we used to measure need satisfaction at work (van den Broeck, Vansteenkiste, Witte, Soenens, & Lens, 2010) only included items on relatedness to *'people at work'*, while missing essential items specifically tapping into the relatedness with nursing home residents. Furthermore, nursing home residents indicated that some of the competence questions included in the general need satisfaction scale (Gagné, 2003) did not fit their current experience (e.g., *'do you feel like you are learning new things'*). The applicability of such items in the nursing home context should thus be investigated, for example using a '*think aloud*' method.

The underlying question in this regard is what these three basic psychological needs actually mean in the context of the nursing home. Even when autonomy, relatedness and competence are important for everyone, across the life span, and independent of need valuation, their *content* may differ in specific contexts, but there is a dearth of qualitative research to investigate this. We have therefore conducted an additional interview study with nine older adults, their primary caregiver, as well as their informal caregiver, to examine narratives regarding the basic psychological needs of nursing home residents. We are still analyzing the data, but the preliminary findings of this study indicate that participants often describe competence in terms of *physical* (dis)abilities, which are inevitably declining. Given this rather narrow understanding, measurements should ensure representation of a wider range of *'expressing one's abilities'*, and *'feeling effective in attaining desired outcomes in challenging tasks'* (Ryan, Huta & Deci, 2008).

Perhaps *wisdom from life experience*, or *preservation of physical competence* become more important aspects of competence in older age, and it may be valuable to consult research from other frameworks for further suggestions. For example, Kitwood (1997) proposed the psychological need for "*occupation*" as one of five psychological needs for people with dementia, which has been described in terms of involving residents in everyday tasks and activities (Edvardsson, Varrailhon, & Edvardsson, 2010). A systematic comparison that encompasses the current use of autonomy, relatedness and competence in long-term care research, with the BPNT definitions, may give better insight in the content of the basic psychological needs in this context. Together, these efforts may ultimately result in a more personalized basic need satisfaction assessment in the nursing home, essentially making measurements more person-centered and providing valuable information for future interventions.

Positive psychology intervention to improve nursing staff well-being

- *Our online multi-component positive psychology intervention is acceptable but not effective in improving nursing staff well-being*

Besides the theoretical contributions to the BPNT, the current thesis also contributed to a broader empirical basis of positive psychology interventions to improve well-being. While several meta-analyses have shown the effectiveness of positive psychology interventions (Bolier et al., 2013b; Hendriks, Schotanus-Dijkstra, Hassankhan, de Jong, & Bohlmeijer, 2019; Weiss, Westerhof, & Bohlmeijer, 2016), our study was the first to examine the effectiveness of an online multi-component positive psychology intervention for nursing home staff. The results of Chapter 3 showed that nursing staff generally accepted the positive psychology training, but it was not effective in improving nursing staff well-being. This indicates that this is not a one-size-fits all intervention, as the effectiveness in one population (Schotanus-Dijkstra et al., 2017) was not generalizable to our lower educated nursing home staff, in line with previous findings for persons with lower levels of education (Bolier et al., 2013a). This may partly be explained by the relatively high baseline well-being scores of nursing staff that are discussed above. It should be noted, however, that the maintenance of these well-being levels in the demanding nursing home context still requires continuous support (Bakker, 2011). As nursing staff generally appreciated the intervention as personally relevant and beneficial, further investment in developing positive psychology interventions that are better tailored to the nursing staff context and preferences seems necessary.

- *Future direction: Tailor the positive psychology intervention to improve nursing home staff well-being*

Our study offered several opportunities for intervention improvement, for example by focusing more on the work context instead of the personal lives of nursing staff, and especially by reducing the amount of text and exercises. More concise interventions may facilitate turning positive activities into habits, although it may be advisable to still maintain the effective multi-component approach (e.g., Hendriks et al., 2019). Additional ways to improve suitability in this context can be found in literature, such as using short pieces of information in video fragments (Ouweneel et al., 2013), and providing additional guidance, for example, from team leaders or nursing home psychologists in the context of team meetings (Gable, Impett, Reis, & Asher, 2004; Sin & Lyubomirsky, 2009).

Finally, because nursing staff are often reluctant to take the time to focus on their own well-being (Bolier et al., 2014; Crane & Ward, 2016), we provided the intervention as a mandatory training, and showed that this may be acceptable for nursing staff. However, the results additionally showed that the moderate intrinsic motivation of nursing staff left room for improvement. It may therefore be valuable to provide support for the three basic psychological needs within the design of such positive psychology interventions as well, for example by offering the choice which activities to complete (supporting autonomy), implementing the training in team-setting (supporting relatedness), and providing regular feedback (supporting competence). Such support could improve effectiveness by enhancing both intrinsic motivation for the intervention and nursing staff well-being (Ryan & Deci, 2000). Future studies should investigate the influence of the mandatory aspect, and whether our proposed adaptations indeed improve effectiveness and acceptability of the positive psychology intervention for nursing home staff.

Person-centered care innovation to improve resident well-being

Finally, this thesis proposed a PCC innovation with a positive psychology perspective, consisting of three components: making regular well-being assessments, planning support of one of the basic psychological needs for one resident, and daily support of the three basic psychological needs in daily contact moments. The main findings of the two studies we conducted on the validity and implementation of this innovation, and future directions are outlined below.

- *Nursing staff assessments of resident well-being are not valid as a monitoring method*

First, we targeted nursing staff assessments of resident well-being, because it has been shown that the psychosocial aspects of care that are essential for monitoring well-being improvements are often missing in client reports (Broderick & Coffey, 2013). Previous studies showed that nursing staff have difficulty to accurately assess well-being experiences of people with dementia (e.g., Devine et al., 2014). We therefore provided short and simple single question scales of resident happiness and engagement, trained nursing staff to use these scales, and provided detailed scoring manuals (Dichter et al., 2014). Further, we only included self-reports of mentally lucid residents (not people with dementia), and used comparable tools for proxy-assessments and self-reports. However, even with these adaptations Chapter 4 showed that nursing staff generally over-estimated resident well-being compared to self-reports, in line with previous studies (Kane et al., 2005), and we were

not able to identify which specific nursing staff could best provide the assessments. One reason for these results may be that nursing staff were concerned with rather stable concepts (personality or situational aspects), instead of truly assessing the more fluctuating concepts of *feeling good* and *being absorbed in activities*. It is thus important to pay attention to shared definitions. Furthermore, weighing several observations within two weeks into global happiness and engagement assessments may be rather difficult. It may be more suitable to take an experience sampling approach, gathering simultaneous proxy-assessments and self-reports of situational happiness and involvement. Finally, the variability between colleagues in their well-being assessments may actually be rather enlightening at team-level, and future studies should examine whether exchanging their diverse qualitative observations gives nursing staff more insight into the specific situations or activities that lead to resident happiness or engagement. However, given the above, nursing staff assessments in their current form do not provide a valid indication of nursing home resident well-being to include in client documentation.

Future direction: Investigate alternative ways to monitor resident well-being

Future research should therefore investigate alternative methods for including the psychosocial aspects of care documentation. Rather than documenting *well-being* as such, however, documenting the (sources of) satisfaction of the basic psychological needs could provide possible opportunities for well-being improvement. This may improve the validity of proxy-assessments, as it concerns more specific information, which may be easier to assess (although it can still be quite difficult, see Custers et al., 2013). Furthermore, with PCC assigning high value to resident perspectives (Brooker, 2004), it is also important to facilitate regular self-reports of resident well-being. We aimed to support nursing home resident quantitative self-reports, by adopting an interview method in which we first posed each question in an open-ended manner, subsequently providing only those answer options that fit their initial response (e.g., '*yes*' would lead to only indicating '3 *sometimes*', '4 *often*' or '5 *always*'; Chapter 4). This assists residents to translate their narratives into the answer categories, which was generally effective, apart from the often given answer of 'just normal' (Dutch *gewoon*), which does not fit any of the categories.

It is important to note that such quantitative methods may not do sufficient justice to the more detailed narrative experiences of nursing home residents. Several Dutch Universities are now investing efforts to develop qualitative methods to structurally include the perspective of older adults on the quality of nursing home care.

For example, Maastricht University is training nursing staff to interview residents, their informal caregiver, and a primary caregiver about their experiences ('Connecting conversations'; Sion et al., 2019), and Tilburg University is training nursing staff to collect narratives with a single question: '*you receive care from organization X, can you tell me about it?*' ('The narrative as quality instrument'; Roman, Waterschoot, Luijkx, 2018). Furthermore, technologies also provide exciting opportunities to facilitate (self-reported) well-being documentation. Leyden Academy is developing a new method for nursing staff, residents, and significant others to digitally report resident experiences with text or pictures (micro-narratives), which they self-signify to give meaning to it ('Narrative Accountability'; Huijg, Gosliga & Slaets, 2019). The University of Twente is examining the suitability of text mining to analyze the narratives about the satisfaction of autonomy, relatedness and competence of older adults (Kloos, Verhardt, Drossaert, & Westerhof, 2019). Especially when combined with other technologies, for example with a Siri-like system that conducts qualitative experience sampling of residents' basic psychological need satisfaction, such text mining presents an exciting opportunity for automatically extracting and reporting relevant information in client reports. Future research should further invest in the development and implementation of such qualitative and technological applications that facilitate resident self-reports.

- *Nursing staff experience various facilitators and barriers for using our PCC innovation, which differ depending on the innovation component*

It is increasingly recognized that more attention should be payed to the implementation process of PCC innovations, since they are only effective when they are actually implemented by nursing staff. Previous research on implementation of PCC innovations has often relied on interviews or focus-groups (e.g., Buist, Verbeek, De Boer, & De Bruin, 2018), whereas we adopted a mixed methods approach to enable comparison between various facilitators and barriers that nursing staff experience when implementing the three components of the PCC innovation (i.e., well-being assessments, planning support, and daily support). The results of Chapter 6 revealed several determinants that had also been found in previous studies, for example stability in the organization, the importance of the team, and compatibility to working method (Boersma, van Weert, van Meijel, & Dröes, 2017; Lawrence, Fossey, Ballard, Moniz-Cook, & Murray, 2012; Quasdorf et al., 2017), but additionally highlighted that different determinants facilitate or impede innovation usage, depending on the innovation component. When introducing a PCC innovation in the nursing home, it is essential to develop a detailed implementation plan that takes into account

the kind of activities that are targeted. For our PCC innovation, an implementation plan to support regular well-being assessments should ensure a stable nursing home context (i.e., focus on one training at the time and no reorganizations), and a detailed instruction for nursing staff, while an implementation plan to support small behavioral changes should ensure easy integration in daily caring tasks, and support from colleagues. With regards to the latter, the importance of the team was apparent throughout the thesis, providing satisfaction of the need for relatedness (Chapter 2), providing varying views on resident well-being (Chapter 4), and being the main deciding body for actual implementation of a PCC innovation (Chapter 6). Future studies and implementation efforts should thus take the team unit better into account, for example by measuring implementation of PCC innovations and its facilitators and barriers on team-level.

Future direction: Tailor the PCC innovation to improve resident well-being

Improving the aforementioned facilitators may enhance implementation of the PCC innovation, which was currently very limited, signifying a general difficulty of implementing PCC innovations (Edvardsson et al., 2014; Lawrence et al., 2012). Overall, nursing staff were more interested in making small behavioral changes to support the basic psychological needs of nursing home residents during daily contact moments (i.e., daily support), compared to well-being assessments and planning support of the basic needs. This latter component was additionally described as not being a useful tool, and considering knowledge actually impeded its implementation, it may be justified to omit the planning support component from future developments. Efforts invested in PCC innovations to improve well-being may also have been impeded by nursing staff over-estimating resident well-being as discussed above (*why should I invest in improving something that is already good?*). Participants generally felt they were already investing a lot in resident well-being, in line with other literature (Chenoweth et al., 2015). Interestingly, further analyses (not included in Chapter 6) shows that this idea impeded implementation of well-being assessments, while facilitating implementation of the component of daily support. Apparently, nursing staff appreciate the value of continuous support of the basic psychological needs in daily contact moments, even when they feel they are already doing this. Based on our studies, adjustments should be made to the well-being assessment component of the PCC innovation as described above, and nursing staff should receive further support to make small behavioral changes during daily contact moments to improve resident well-being. Of course, future research should additionally investigate the effectiveness of such changes on resident need satisfaction and well-being.

STRENGTHS AND LIMITATIONS

This thesis is one of the first to investigate well-being in the nursing home from a positive psychology perspective, and from both nursing staff and nursing home resident viewpoints. This thesis emphasizes the value of using mixed methods in the nursing home context (Rapaport, Livingston, Murray, Mulla, & Cooper, 2017), by truly integrating the quantitative and qualitative results. In Chapter 3, we incorporated the qualitative evaluations to provide further insight into why the positive psychology intervention was not effective, and in Chapter 4, we included a qualitative analysis of the brief motivations to examine why nursing staff over-estimated resident well-being (Chapter 4). Moreover, in Chapter 6, we proposed a mixed-method design to disentangle a wealth of information into clinically valuable results: combining information on determinant importance (interviews), with information on presence of determinants and their relation to intention and implementation (longitudinal surveys).

Several general limitations of the research in the current thesis should also be discussed. All studies were conducted in nursing homes of two care organizations in rural areas of the Netherlands, with generally less diversity in culture and SES, and these facilities were already rather advanced in their efforts towards providing PCC. This may limit generalizability towards urban parts of the Netherlands and (non-Western) countries. Additionally, the resident self-reports (Chapter 4 and 5) were conducted with nursing home residents without major cognitive impairments. With the government policies striving for aging-in-place (e.g., Dutch Long-term Care Act), nursing home residents are becoming increasingly fragile. Thus, further research is needed to examine the generalizability of our results to people with dementia.

Second, we did not measure the effectiveness of our PCC innovation in terms of improvements in quality of care or resident well-being (Bird, Anderson, Macpherson, & Blair, 2016). While such analysis was actually planned, the intermediate nursing home reorganization in one of the participating facilities made our multi-training group-randomized controlled design unfeasible. Future studies should therefore test whether the small behavioral changes to support the basic psychological needs actually improve resident (and nursing staff) well-being. This thesis still provides valuable information on the preconditions of effectiveness, however: the (in)validity of well-being assessments and basic psychological needs support, as well as determinants for implementation.

Third, our strong focus on the nursing staff that provide physical care is not completely in consonance with the nursing home culture change movement advocating changes on all levels of the nursing home (Koren, 2010). Comparable to other PCC interventions (Mccormack et al., 2010), study participants requested that cleaners, activity staff, facilitative staff, volunteers and significant others would additionally be included in the continuation of the project. Furthermore, the rather passive role that older adults had in our PCC innovation does not fit the strengths-based perspective of positive psychology, and the realization that successful aging depends on active self-management of well-being (Steverink, Lindenberg, & Slaets, 2005). A positive psychology intervention targeted to older adults may also be feasible (Greenawalt, Orsega-Smith, Turner, Goodwin, & Rathie, 2018), and empowering older adults to contribute to the well-being of nursing home staff can have beneficial effects for the satisfaction of the basic psychological needs and well-being of both the nursing staff and the older adults themselves (Vernooij-Dassen, Leatherman, & Rikkert, 2011). Future studies should adopt a whole-nursing home approach, actively involving all relevant stakeholders.

A related limitation of this thesis was that both the positive psychology intervention and the PCC innovation were largely developed in a top-down fashion. While we worked in close cooperation with educational staff and managers of the care organization, and included nursing staff in pilot testing, others have gone further, involving nursing staff to make decisions on which specific areas to focus that fit the individual unit (supporting autonomy; Edvardsson, Sandman, & Borell, 2014). Future studies may want to involve all stakeholders in each stage the design, for example by using the CeHREs roadmap, a holistic framework that outlines an iterative process of technology development in which users and other stakeholders continuously provide feedback to reshape the technology to match their needs (Kip & van Gemert-Pijnen, 2018). This may improve compatibility with daily work and life in the nursing home, and could additionally be beneficial for the satisfaction of all three basic psychological needs of these stakeholders (Knight, Patterson, Dawson, & Brown, 2017).

IMPLICATIONS FOR PRACTICE

With these limitations and the key findings in mind, the current thesis provides several implications for nursing home practice, which are summarized below:

Prioritize well-being

Create a nursing home culture that supports the well-being of nursing staff and residents from a positive psychology perspective.

Support the basic psychological needs

Make changes that support the need for autonomy, relatedness, and competence of nursing staff at work, and facilitate nursing staff to make small behavioral changes to support the basic psychological and nursing home residents.

Take a whole nursing home approach

Support the three basic psychological needs of all stakeholders (e.g., nursing staff, activity staff, facilitative staff, volunteers, and significant others, as well as the nursing home residents) by actively involve them in both the development and implementation of innovations to improve well-being in the nursing home.

Support implementation of well-being innovations

Ensure easy integration in daily caring tasks and take advantage of the team when introducing an innovation of small behavioral changes to support basic psychological needs, and provide a stable nursing home context and a detailed implementation plan for nursing staff when introducing regular well-being assessments.

IMPLICATIONS FOR FUTURE RESEARCH

This thesis also provides several implications for future research, which were described above in the discussion of key findings and limitations of this thesis, and summarized below:

Examine the meaning of well-being in the nursing home

Systematically compare conceptualizations of well-being that are used in long-term care literature regarding positive psychology and well-being frameworks such as the BPNT, to arrive at a well-being definition that is universal and suitable for older adults.

Further examine the BPNT in the nursing home

Examine whether balanced need satisfaction is only important for well-being across contexts, not within a specific context, and examine the universality claim of the BPNT in a larger sample of nursing staff. Invest in making the measurement of basic psychological need satisfaction more person-centered in the nursing home context and test the generalizability of this theory among people with dementia.

Monitor well-being in the nursing home

Conduct comprehensive international research on nursing staff well-being, and develop alternative ways of monitoring resident well-being, taking advantage of narrative methods and technology.

Tailor well-being interventions in the nursing home and test the effectiveness

Examine whether a more concise work-focused positive psychology intervention with additional guidance and support of the basic psychological needs is acceptable and effective in improving nursing staff well-being, and examine the influence of the mandatory aspect. Examine the effectiveness of small behavioral changes of nursing staff to support the basic psychological needs of nursing home residents, and find a way to actively involve nursing home residents in such interventions.

CONCLUDING REMARKS

It is surprising to see that positive psychology has yet to enter the context of nursing home care, as it seems to compliment the holistic perspective of PCC and provides a wealth of literature on potential aspects that constitute or can improve well-being. At the same time, positive psychology can evolve further by investigating the applicability of theories and interventions for older adults and nursing staff. Further emphasis regarding the positive sides of well-being is clearly needed; however, advocating for a solely positive view could be naïve and misguided, as it may not correspond with the experiences of nursing home staff and residents. Truly taking a person-centered perspective of nursing home care means that the entire person is taken into account: inclusive of both their physical and mental experiences, and both their negative and positive experiences. However, nursing homes may first need to change direction and incorporate positive psychology theories on the road towards achieving truly person-centered and holistic care.

7

Appendices

8

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Samenvatting

summary in Dutch

Hoofdstuk 1 is de algemene inleiding van dit proefschrift, waarin de context van de verschillende studies wordt beschreven. Het start met een beschrijving van werken en leven in het woonzorgcentrum, wat over het algemeen niet wordt gezien als een aantrekkelijke plek. Voor de steeds kleiner wordende groep zorgmedewerkers biedt het een werkomgeving met hoge werkdruk en door de steeds groter wordende groep ouderen wordt het vaak omschreven als een eenzame leefomgeving. Hoewel er steeds meer wordt ingezet op persoonsgerichte zorg, met meer aandacht voor de ervaringen van de bewoners, is er nog maar weinig aandacht voor de positieve aspecten van het werken en wonen in woonzorgcentra. In dit proefschrift wordt een positief psychologisch perspectief geïntroduceerd op het werken en wonen in een woonzorgcentrum.

Positieve psychologie richt zich specifiek op de positieve aspecten van welbevinden, die naast de negatieve aspecten kunnen bestaan. Daarbij kan op twee manieren naar welbevinden worden gekeken. De hedonistische traditie beschrijft welbevinden in termen van *je goed voelen* (geluk; emotioneel welbevinden; subjectief welbevinden; werkplezier). Maar een leven waarin men uitsluitend hedonistisch welbevinden nastreeft zal waarschijnlijk niet bevredigend zijn. De eudaimonische traditie welbevinden beschrijft in termen van *goed doen*, of psychologische groei (psychologisch welbevinden; sociaal welbevinden; betrokkenheid). In dit proefschrift worden beide perspectieven gecombineerd. Daarnaast wordt de theorie van psychologische basisbehoeften gebruikt als centrale theorie van welbevinden. Volgens deze sub theorie van de zelfdeterminatie theorie is de vervulling van drie fundamentele psychologische behoeften essentieel voor welbevinden: de behoefte aan autonomie, verbondenheid en competentie.

Het doel van dit proefschrift was om te onderzoeken hoe welbevinden in het woonzorgcentrum kan worden gemonitord en verbeterd. Het proefschrift is opgedeeld in twee delen. In het eerste onderdeel wordt het welbevinden van zorgmedewerkers centraal gesteld en in het tweede deel het welbevinden van bewoners van woonzorgcentra.

DEEL I: WELBEVINDEN VAN ZORGMEDEWERKERS

De werkzaamheden van zorgmedewerkers in woonzorgcentra zijn veeleisend, maar er wordt nog maar weinig aandacht besteed aan het bevorderen van hun optimaal functioneren. Op basis van de zelfdeterminatie theorie kan worden verwacht dat de vervulling van de behoefte aan autonomie, competentie en verbondenheid op

het werk bevorderend kunnen zijn voor het welbevinden van zorgmedewerkers. In hoofdstuk 2 wordt onderzocht in hoeverre deze behoeften worden vervuld op het werk van zorgmedewerkers in woonzorgcentra, welke behoeften zij het meest belangrijk vinden en hoe dit samenhangt met het welbevinden. Ten tweede heeft een online zelfhulptraining gebaseerd op positieve psychologie de potentie om welbevinden te verhogen, maar dit is nagenoeg niet onderzocht voor zorgmedewerkers in woonzorgcentra. In hoofdstuk 3 is daarom gekeken naar de effectiviteit van een positief psychologische online training voor zorgmedewrekers in woonzorgcentra.

In **hoofdstuk 2** is onderzocht in hoeverre zorgmedewerkers ervaren dat hun behoefte aan autonomie, verbondenheid en competentie op het werk worden vervuld en hoe dit samenhangt met het hun welbevinden. Er zijn twee cross-sectionele studies uitgevoerd, waarbij respectievelijk 125 en 75 zorgmedewerkers vragenlijsten hebben ingevuld. De resultaten lieten zien dat zorgmedewerkers in beide studies met name een vervulling van de behoefte aan competentie op het werk ervaarden en deze behoefte ook het meest belangrijk vonden. De zelfdeterminatie theorie voorspelt echter dat de vervulling van *alle drie* de psychologische basisbehoeften op het werk samenhangt met welbevinden, wat werd ondersteund door de resultaten van de eerste studie. Het specifieke belang van autonomie voor welbevinden werd echter ook onderstreept, vooral door de bevindingen van de tweede studie. Daarnaast is gekeken of het belangrijk is dat alle drie basisbehoeften *even hoog* vervuld zijn, of in balans zijn, voor optimaal welbevinden. In de context van het werk bleek dit niet het geval te zijn. Ten slotte is de universaliteit van de basisbehoeften onderzocht. We vonden inderdaad dat de vervulling van de drie basisbehoeften op het werk samenhangt met het welbevinden, onafhankelijk van het belang dat mensen zelf hechten aan de drie basisbehoeften. De resultaten van hoofdstuk 2 onderstrepen hiermee de waarde van het ondersteunen van de drie psychologische basisbehoeften van autonomie, verbondenheid en competentie van zorgmedewerkers op het werk.

In **hoofdstuk 3** wordt een onderzoek omschreven waarmee getoetst is of het welbevinden van zorgmedewerkers kan worden verbeterd met een 8-weekse online interventie. Kennis en opdrachten uit verschillende componenten uit de positieve psychologie (bijvoorbeeld positieve emoties, gebruik van sterke kanten, positieve relaties) kwamen in deze interventie aan bod. Deze interventie is eerder effectief gebleken bij mensen met suboptimaal welbevinden. De vier woonzorgcentra die hebben deelgenomen aan dit onderzoek zijn willekeurig toegewezen aan de interventiegroep en de controlegroep. Algemeen welbevinden, werkplezier en werkbetrokkenheid zijn gemeten bij aanvang (n = 128) en na de trainingsperiode (n = 107). Verder is de acceptatie van de interventie voor zorgmedewerkers onderzocht.

Het onderzoek liet zien dat deze positief psychologische interventie acceptabel was en bovendien werd gewaardeerd door de meeste zorgmedewerkers. In de huidige vorm was het echter niet effectief in het verbeteren van het welbevinden, zelfs niet voor medewerkers met een laag welbevinden bij de start van de studie. Hier zijn verschillende mogelijke verklaringen voor. Deelnemers hadden bijvoorbeeld gemiddeld een relatief hoog welbevinden bij de start van de studie, wat een kleinere ruimte overlaat voor verbetering. Daarnaast was de inhoud maar beperkt toepasbaar in de werkcontext van het woonzorgcentrum en sloot de interventie niet helemaal aan op de zorgmedewerkers, die vaak lager zijn opgeleid dan deelnemers in eerdere studies. Bovendien is het onbekend wat de invloed is van het verplichte karakter van de interventie en de individuele opzet van deze online zelfhulptraining. De evaluaties van de zorgmedewerkers suggereren dat de effectiviteit van deze interventie voor zorgmedewerkers mogelijk verbetert met een meer beknopte, werkgerichte positief psychologische interventie die ook de autonomie van medewerkers ondersteunt.

DEEL II: WELBEVINDEN VAN BEWONERS

De hoofdstukken vier, vijf en zes zijn gericht op het welbevinden van bewoners van woonzorgcentra. Omdat op dit moment nog maar weinig over welbevinden van bewoners wordt gerapporteerd in zorgleefplannen, is in hoofdstuk 4 onderzocht in hoeverre zorgmedewerkers het welbevinden van bewoners kunnen inschatten. Hoofdstuk 5 beschrijft een onderzoek naar de vervulling van psychologische basisbehoeften bij ouderen, omdat de theorie ervan uitgaat dat dit bevorderend is voor welbevinden gedurende de levensloop, maar in onderzoek wordt er grotendeels voorbij gegaan aan deze groep. Daarnaast hebben we een persoonsgerichte zorginnovatie ontwikkeld die het monitoren van welbevinden en de ondersteuning van de drie psychologische basisbehoeften combineerde. Omdat zulke innovaties alleen effectief kunnen zijn wanneer ze ook daadwerkelijk worden gebruikt, is ten slotte in hoofdstuk 6 onderzocht welke bevorderende en belemmerende factoren zorgmedewerkers ervaren bij het implementeren van deze innovatie.

Hoofdstuk 4 gaat in op hoe goed zorgmedewerkers in staat zijn om het welbevinden van bewoners te beoordelen nadat ze een training hebben gevolgd. Hiervoor zijn twee 5-puntsschalen van geluk en betrokkenheid gebruikt. De validiteit van deze proxy-beoordelingen door zorgmedewerkers (n = 49) werd vergeleken met zelfrapportage door bewoners (n = 49). Zorgmedewerkers bleken het welbevinden van de bewoners te overschatten in vergelijking met de zelfrapportages. De inschattingen varieerden ook aanzienlijk tussen collega's. Zorgmedewerkers die meer uren werkten,

hadden de neiging om het welbevinden van bewoners hoger te schatten dan zorgmedewerkers die minder uren werkten. Er konden echter geen kenmerken van zorgmedewerkers geïdentificeerd worden die de meest nauwkeurige inschattingen maakten. Tevens zijn korte schriftelijke motivaties geanalyseerd. Hieruit bleek dat zorgmedewerkers geluk en betrokkenheid vaak als stabiele persoonlijkheidsfactoren beschouwen of situationele aspecten, in plaats van *zich goed voelen* of *helemaal op gaan in een activiteit*. Uiteindelijk gaven de resultaten aan dat de inschattingen van zorgmedewerkers met behulp van deze schalen geen valide methode zijn om het welbevinden van bewoners te monitoren voor documentatie in het zorgleefplan.

In **hoofdstuk 5** is onderzocht in hoeverre de drie psychologische basisbehoeften van autonomie, verbondenheid en competentie werden vervuld bij bewoners van woonzorgcentra en in hoeverre deze vervulling samenhangt met het welbevinden van deze bewoners. Er werd een longitudinaal onderzoek uitgevoerd, waarbij fysiek kwetsbare ouderen zelf rapporteerden in hoeverre hun psychologische basisbehoeften werden vervuld bij aanvang van het onderzoek (n = 128) en hun welbevinden vijf tot acht maanden later (n = 91). De behoefte aan autonomie en verbondenheid werd het hoogst vervuld ten opzichte van competentie. Daarnaast werd gevonden dat de vervulling van alle drie de psychologische basisbehoeften in belangrijke mate samenhangt met het welbevinden van bewoners van woonzorgcentra, in overeenstemming met de zelfdeterminatie-theorie. Autonomie leek echter van bijzonder belang te zijn, met de sterkste en enige unieke relatie met welbevinden. Ten slotte liet dit onderzoek zien dat de vervulling van alle drie de behoeften in balans moet zijn voor optimaal welbevinden van bewoners van woonzorgcentra. Met andere woorden, een hoge vervulling van een behoefte kan niet compenseren voor een lage vervulling van een andere behoefte. Dit onderstreept de waarde aan van het ondersteunen van alle drie psychologische basisbehoeften van bewoners van woonzorgcentra, hoewel wellicht extra aandacht geschonken moet worden aan competentie, omdat deze behoefte duidelijk het laagst werd vervuld.

We ontwikkelden een persoonsgerichte zorginnovatie voor zorgmedewerkers, gericht op het verbeteren van het welbevinden van bewoners. Deze innovatie bestond uit (1) het regelmatig observeren en vervolgens inschatten van het welbevinden van de bewoners in termen van geluk en betrokkenheid op twee 5-puntsschalen, (2) het maken van een op maat gemaakt actieplan om de psychologische basisbehoeften van een specifieke bewoner te ondersteunen, en (3) kleine gedragsveranderingen tijdens dagelijkse contactmomenten om de psychologische basisbehoeften te ondersteunen. Nadat alle zorgmedewerkers van de woonzorgcentra van één zorgorganisatie een training hadden gevolgd over de persoonsgerichte zorginnovatie gericht op het

welbevinden van bewoners, werd hen gevraagd deze innovatie te implementeren.

In **hoofdstuk 6** zijn de bevorderende en belemmerende factoren (determinanten) onderzocht die zorgmedewerkers ervaren bij het gebruik van deze innovatie. Er zijn interviews afgenomen over het belang van deze determinanten (n = 11). Daarnaast is een vragenlijst onderzoek gedaan om te meten in hoeverre deze determinanten aanwezig waren en wat hun relatie was met de intentie om de innovatie te gebruiken (n = 132) en de relatie met de daadwerkelijke implementatie drie maanden later (n = 63). Zorgmedewerkers waren nogal terughoudend om (1) welbevinden in te schatten en (2) een actieplan te maken om de psychologische basisbehoeften van bewoners te ondersteunen, terwijl ze meer geneigd waren tot kleine gedragsveranderingen om (3) dagelijks de basis psychologische behoeften te ondersteunen. Bovendien lieten de resultaten zien dat bevorderende factoren vooral gerelateerd waren aan de innovatie zelf en de gebruiker, terwijl belemmerende factoren gerelateerd waren aan de gebruiker en de organisatie. Bij het ontwerpen van een implementatieplan moet er rekening mee worden gehouden dat de belangrijkste faciliterende en hinderende factoren aanzienlijk verschilden tussen de uitkomstmaten. In het geval van onze innovatie, zou een stabiele context (gericht op één training tegelijkertijd en geen reorganisaties) en een gedetailleerde instructie voor zorgmedewerkers essentieel zijn om te bevorderen dat welbevinden regelmatig wordt ingeschat. Een implementatieplan om kleine gedragsveranderingen te bevorderen moet zorgen voor eenvoudige integratie in dagelijkse zorgtaken en sociale steun door collega's.

Hoofdstuk 7 bevat de discussie van het proefschrift. Hier worden de belangrijkste resultaten van al deze hoofdstukken besproken binnen de thema's welbevinden, de psychologische basisbehoeften, positief psychologische interventie, en persoonsgerichte innovatie.

Welbevinden

Dit proefschrift heeft laten zien dat een positief perspectief op welbevinden in het woonzorgcentrum een toegevoegde waarde heeft, zowel als het gaat om zorgmedewerkers als bewoners. Welbevinden zou daarom prioriteit moeten krijgen in het woonzorgcentrum. Vervolgonderzoek zou zich nog wel moeten richten op de precieze definitie van het concept welbevinden binnen het woonzorgcentrum.

Psychologische basisbehoeften

De vervulling van de psychologische basisbehoeften van autonomie, verbondenheid en competentie leveren een unieke bijdrage aan het welbevinden van zorgmedewerkers

en bewoners van woonzorgcentrum. Deze drie psychologische basisbehoeften zouden dus ondersteund moeten worden in het woonzorgcentrum. Daarnaast lijkt vooral autonomie lijkt een belangrijke rol te hebben voor welbevinden. Een balans in de vervulling van de drie basisbehoeften lijkt bevorderend te zijn voor welbevinden van bewoners van woonzorgcentra, maar niet in de werk-context van zorgmedewerkers. Ten slotte lijkt de vervulling van de drie psychologische basisbehoeften bevorderend te zijn voor welbevinden, onafhankelijk van het belang dat mensen zelf hechten aan de drie basisbehoeften. In vervolgonderzoek zou de methode om de basisbehoeften te meten echter beter aangepast moeten worden op de context van het woonzorgcentrum.

Positief psychologische interventie

De online multi-component positief psychologische interventie werd wel geaccepteerd door zorgmedewerkers, maar is niet effectief gebleken in het bevorderen van welbevinden. In vervolgonderzoek zou de interventie beter aangepast moeten worden voor de context van het woonzorgcentrum.

Persoonsgerichte innovatie

De inschattingen van zorgmedewerkers over het welbevinden van bewoners zijn niet toereikend gebleken als monitoringsmethode. Alternatieve manieren om het welbevinden van bewoners te monitoren zouden verder onderzocht moeten worden, bijvoorbeeld door het in kaart brengen van de vervulling van de psychologische basisbehoeften, of het meten van welbevinden op een kwalitatieve manier. Daarnaast zouden zorgmedewerkers verdere ondersteuning moeten ontvangen voor het implementeren van welbevinden innovaties, specifiek aangepast op het soort activiteit dat zij moeten gaan uitvoeren. Ten slotte zouden alle belanghebbenden meer actief betrokken moeten worden bij de ontwikkeling en implementatie van innovaties om welbevinden te verbeteren.

Al met al betekent een werkelijk persoonsgericht perspectief in het woonzorgcentrum dat de hele persoon in aanmerking wordt genomen: inclusief de fysieke *én* mentale ervaringen en hun negatieve *én* positieve ervaringen. Hiervoor zullen woonzorgcentra nu eerst vooral meer aandacht moeten schenken aan een positief psychologisch perspectief op welbevinden.

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About the Author

NOORTJE KLOOS (1989)

Noortje Kloos was born in Delft, the Netherlands. She lived in Nootdorp for 8 years and then moved with her family to Huizen, where she graduated from high school (Atheneum) at Erfgooiers College in 2008. After a gap year, when she recovered from back surgery, Noortje studied Clinical and Health Psychology at Utrecht University and obtained her Bachelor's degree in 2012. She went on with the research master Social and Health Psychology at the Utrecht University, for which she obtained her Master's degree in 2014.

During her highschool years and later as a Bachelor student, Noortje worked as a nurse aid in a local nursing home, providing physical care to older adults. As a Master student, she worked as a student-assistant at the Self-regulation Lab at Utrecht University. In November 2014, she started with her PhD project at the Department of Psychology, Health and Technology, in close cooperation with Zorggroep Sint Maarten. Noortje is a passionate researcher in the area of social and health psychology, with a strong interest in what makes life worth living and work worth doing in a healthcare environment. She likes to combine applied intervention research with research of a more fundamental nature.

During her PhD trajectory, Noortje supervised several Bachelor's and Master's graduation students, and several Bachelor research groups and also worked as a tutor at the University of Twente. She is an enthusiastic and invested teacher who tries to take a 'practice what we study' approach, for example by supporting students' need for autonomy, relatedness and competence during supervision. Noortje continues her work at the Department of Psychology, Health and Technology as teacher.

Noortje lives in Amersfoort. In her free time, she enjoys knitting, playing the piano, volleybal, fitness group lessons, watching series, and spending time with friends (often over lunch).

List of Publications

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Kloos, N., Drossaert, C. H. C., Bohlmeijer, E. T., & Westerhof, G. J. (2019). Online positive psychology intervention for nursing home staff: A cluster-randomized controlled feasibility trial of effectiveness and acceptability. International Journal of Nursing Studies, 98, 48–56. doi: 10.1016/j.ijnurstu.2019.06.004

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Dutch publication

Kloos, N. (2019). Positieve psychologie in het woonzorgcentrum: welbevinden van medewerkers en bewoners. Tijdschrift Positieve Psychologie, 03, 18-23.

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