International Journal of Gerontology 8 (2014) 12–17

Contents lists available at ScienceDirect

International Journal of Gerontology

journal homepage: www.ijge-online.com

Original Article

Care Goal Setting and Associated Factors: Semistructured Interviews with Multidisciplinary Care Providers in Facilities for Elderly People☆

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ARTICLE INFO

Article history:
Received 16 August 2012
Received in revised form
28 June 2013
Accepted 14 August 2013
Available online 7 March 2014

Keywords:
care goal,
health care providers,
nursing home care,
qualitative analysis,
residents

SUMMARY

Background: The purpose of this study was to identify care goals set by care providers, their associated factors, and assess the process of care goal setting in facilities for elderly people.
Methods: Semistructured interviews were conducted with care providers (e.g., physicians, nurses, physical therapists, occupational therapists, care managers, caregivers), and responses were qualitatively analyzed and categorized by content.
Results: A total of 30 care providers from seven facilities were interviewed. Six themes emerged pertaining to care goals for elderly residents. "Daily care goals" and "long-term care goals" reflected the conditions of residents and their care goals. "Staff awareness of residents and work", "relationships among care providers", and "relationships between care providers and families of residents" influenced care goals. The categories "difficulty of setting care goals", "difficulty of evaluation", and "hesitancy in getting involved" were reflected in "conflicts and complaints about ideal care and the feasibility of setting goals".
Conclusion: Care providers were conflicted in care goal setting given the coexistence of long- and short-term care goals, both of which were influenced by several factors. In addition to the health conditions of residents, personnel structure and relationships among care providers and families affected the process of care goal setting.

1. Introduction

Ever since long-term care insurance was implemented in Japan in April 2000, the number of facilities catering for elderly with care needs has been on the rise[1]. These facilities, which include nursing homes and long-term health facilities, aim to provide comprehensive care by harnessing the diverse skills of multidisciplinary health care providers.

High quality care is founded in appropriate goal setting[2]. A number of quality indicators related to elderly care have been reported, including management of medical conditions among institutionalized elderly and management of geriatric syndromes[3,4]. In addition, the care indicators can be divided into six areas: room, home, social interaction, meal services, staff care, and resident involvement (e.g., decision making)[5]. According to Takada et al[6], limitations imposed on the facility or care provider might account for difficulties in improving and maintaining quality of life levels expected by residents. Although the studies above extracted quality indicators for care and describe the characteristics of goals set by care providers, still lacking is a detailed understanding of the care goals that are actually set, the process of setting these goals, and a thorough analysis of background factors that impact this process.

The aim of this study was to identify care goals and their associated factors, and assess the process of setting these goals by multidisciplinary health care professionals and care staff. In the present study, "care goal" means the care providers' setting goal of

☆ This study was performed by the nonprofit organization Association of Living for Ideal Care Enhanced (ALICE) (Tokyo, Japan), and was partially funded by a Grant-in-Aid (2006) from the Welfare and Medical Service Agency (Tokyo, Japan). We were commissioned as researchers of ALICE and received honoraria. We have no other conflicts of interest to disclose.
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http://dx.doi.org/10.1016/j.ijge.2013.08.003

the recommended condition of older people and the condition of elderly achieved by care provided. Care providers were people working in the medical or care service in the care facilities for the elderly.

2. Participants and methods

Semi-structured interviews in Japanese were conducted with the interview guide shown in Table 1. Care goals and their associated factors, as well as the process of setting these goals, were qualitatively analyzed.

2.1. Participants

The targets were seven facilities in Japan: four long-term health care facilities for elderly people, two nursing homes, and one private residential home. Facilities were spread throughout Japan (2 in the Kanto region, 2 in Kansai, 1 in Hokuriku, 1 in Shikoku, and 1 in Kyushu/Okinawa). Participants were care providers (both full- and part-time) working at these facilities. Five interviewers, including two authors (T.O. and A.T.), interviewed the participants.

2.2. Data collection

Target facilities were those that agreed to participant observation for research purposes. Data were collected by six researchers (i.e., university researcher, graduate student, research student, occupational therapist, physical therapist, and nurse) from October 2006 to December 2006[6]. The period of stay for data collection was 0.5–2 days at each facility. Interviewers worked toward rapport building with participants. To standardize the interview, an interview guide was developed. Semistructured interviews were conducted using an interview guide with a particular focus on care goals and ideal care (Table 1). The interview guide was revised as necessary to be applicable to all participant professions. Specifically, scenarios and examples of the satisfaction of providing care, as well as successful and unsuccessful cases, were incorporated into the interview guide to allow for variation in responses. In addition, the participants were led to talk about “ideal care goals” and factors that hinder them by asking about “ideal care”. By the ingenuity of these interviews, the care goals and their associated factors, and the process of setting these were made clear. Interviews were performed in common spaces or in private rooms during or outside working hours to ensure that interviewees could participate comfortably in the daily care provision environment. The interview time was set to around 30 minutes. We adhered to the participants' request to refrain from recording interviews, and prepared interview transcripts instead. In practice, we took notes during the interviews and made documents, which were shared among researchers.

Table 1
Final form of the interview guide that incorporated revisions to make the guide applicable to interviews involving all professions.

Q1. When do you feel satisfaction regarding work related to elderly care?
Q2. When do you feel that the care you provided was successful? In such instances, please explain the type of relationship you had with the resident.
Q3. When do you feel that care has been successful?
Q4. When do you feel that care has been unsuccessful?
Q5. What types of care, including that related to daily living and rehabilitation, do you feel contribute to a better life for residents?
Q6. If you were a resident, what type of facility and care would you desire?
Q7. Please feel free to comment on any other issues you would like to discuss.

2.3. Data analysis

Issues related to resident care goals and their related factors, as well as the process of setting these goals, were qualitatively and inductively analyzed[7,8]. Specifically, we documented interview records, broke data down into contextual units (performed by T.O.), and codified and categorized the content. The content was then grouped in the order of subcategory and category. Subsequently, to analyze the entire care goal setting process, we reassessed relationships between subcategory and data, category and data, subcategory and category, and between categories using the method of constant comparison[8]. Concepts represented by categories were classified into themes of care goals and associated factors. These processes were repeated after all interviews were finished. Finally, noninterviewer researchers (i.e., nurses and graduate students with clinical experience) confirmed the contents, and following a series of analyses a model conceptual diagram detailing the relationships between various concepts was generated.

2.4. Ethical considerations

This study was approved by the ethics committee of Kyoto University Faculty of Medicine (E-236). Directors of all seven facilities provided written consent. Afterwards, consent was obtained from participating care providers after explaining the study objectives, content, and measures taken to protect privacy. Interviews were conducted during or outside working hours, and efforts were made to ensure that daily operations were not interrupted. Interview records were prepared and managed to maintain participant anonymity.

3. Results

3.1. Participant characteristics

Participants were 30 care providers (13 men and 15 women; the sex of two participants was not recorded) working at seven long-term health facilities. Table 2 shows characteristics of participants' occupations. The breakdown was as follows: 11 certified care workers, three helpers, two care workers, three nurses, two physical therapists, two occupational therapists, one physician, three care managers, one certified social worker, one massage practitioner, and one lifestyle advisor (hereafter, collectively referred to as “care providers”). We were not participants gathering a certain number of people to each job, and did not made any comparison of each job, because the purpose of this study was to understand the variation, which was “care goals and their associated factors and the process of setting these goals”.

Table 2
Characteristics of participants' occupations ($n = 30$).

	<5 y	5–9 y	≥10 y	Unknown	Total
Certified care workers, helpers, and care workers	8	4	2	2	16
Nurses	1	2	0	0	3
Care managers	1	1	0	1	3
Physical therapists and occupational therapists	0	2	0	2	4
Physician	0	0	0	1	1
Certified social worker	1	0	0	0	1
Massage practitioner	0	0	1	0	1
Lifestyle advisor	0	1	0	0	1

3.2. Data analysis

Interview data were analyzed using a qualitative method. This study was carried out in order to clarify care goals and their associated factors and the process of setting these goals, and the interviews were focused on the goals of care. However, the data obtained in the interview showed that care goals and contents of care providing were mixed. When analyzing data, the language data expressed in a certain context were dealt with as "care goals".

Care providers considered care goals as "daily care goals" and "long-term care goals" (Table 3). Factors related to these goals included "staff awareness of residents and work", "relationships among care providers", and "relationships between care providers and families of residents" (Table 4). Conflicts were reflected in "conflicts and complaints about ideal care and the feasibility of setting goals" (Table 5).

Six themes were derived from content analysis of interview records.

(1) Daily care goals

Eight subcategories were grouped into four categories: (i) personal care activities which comprised activities of daily living (ADLs; e.g., motility, excretion, and meals) and instrumental ADLs and leisure (e.g., housework, shopping, and taking walks). This domain arises during the course of daily care and can be observed objectively (can do/cannot do, did do/did not do), making information sharing easy among care providers; (ii) living environment and preferences, which comprised interactions with others (e.g., adequate degree of interaction with others), ensuring privacy (e.g., admission to a private room), freedom within the facility (e.g., ability to spend time watching over each resident), and the interests and roles of residents. These reflect resident individuality, and represent many instances in which care cannot be provided now, but is anticipated to be possible in the future; (iii) physical aspects which comprised maintenance of diseases and disabilities; and (iv) emotional aspects which comprised joy (e.g., changes in expression and smiling).

(2) Long-term care goals

Four subcategories were grouped into three categories: (i) living in a way that reflects the individual (an abstraction of daily care provision) which comprised life history of the resident (coming to terms with one's life history prior to admission to the facility) and express intentions of the residents (residents preferably express their intentions naturally). (ii) return to at-home care (goal of being discharged from the facility) which comprised support that anticipates discharge; and (iii) end-of-life care (a type of support provided by the facility) which comprised support within the facility that reflects multifaceted long-term care policies.

(3) Staff awareness of residents and work

Seven subcategories were grouped into three categories: (i) significance of one's own existence which comprised joy of being appreciated (receiving words and feelings of appreciation from residents) and sense of being needed (instances in which residents recalled the care provider's face);, (ii) awareness as a care provider which comprised carrying out one's duties (fulfilling a task), professionalism regarding elderly care (extracting what residents desire and devising goals), and one's own growth (learning through interactions with residents); and (iii) concern for elderly people comprised affinity towards elderly people (having had interactions with grandparents), and mentor (enjoy talking with elderly people and feeling the weight of their words).

(4) Relationships among care providers

Three subcategories were grouped into two categories: (i) smooth functioning of the team which comprised a common understanding among different care providers (achieving an outcome through collaborations with different specialists); and (ii) quantitative and qualitative limitations in personnel organization comprised complaints toward other care providers (differences in morale among care providers) and inadequate personnel organization (care provision is inadequate due to personnel issues).

Table 3
Themes and categories related to elderly care goals.

Theme	Category	Subcategory	Example of content
Daily care goals	Personal care activities	Activities of daily living	"Walking and standing improved, ordinary bathing became possible, and both upper and lower extremities are used in moving to the toilet"
		Instrumental activities of daily living and leisure	"Given that residents have lived each life, provide support so that the resident can resume ordinary activities such as grooming, eating, taking walks, going out, and bathing. For each resident to be able to live naturally, Activities that promote joy or engender purpose."
	Living environment and preference	Interactions with others	"(If I were a resident,) I don't want excessive care. I don't want to be ignored. It's all about striking a balance."
		Ensuring privacy	"Since there is no privacy in the facility (if I were a resident), I want care that protects privacy."
		Freedom within the facility	"Care that allows the freedom of going out and having drinks."
		Interests and roles	"For instance, allowing residents to carry out actions, which they used to perform in their roles at home, such as watering plants."
	Physical aspects	Maintenance of diseases and disabilities	"Maintain conditions so that residents don't space out or their (activity) level doesn't decrease."
	Emotional aspects	Joy	"Observe residents' expressions and gestures, particularly when a resident does not talk, or if a resident is alone."
Long-term care goals	Living in a way that reflects the individual	Life history of the resident	"Accepting the resident's life history, and working toward allowing the resident to live life, which is typical for each resident."
		Express intentions of the residents	"Rather than doing something special, working toward letting the resident live a life where they can naturally express themselves."
	Return to at-home care	Support that anticipates discharge	"Hoping that, when considering returning to at-home care, the residents will be able to carry out activities of daily living, such as changing clothes and getting up, at least to some extent."
	End-of-life care	Support within the facility	"(Since we also carry out terminal care, many residents die. Thus,) one goal is to be able to carry out end-of-life care with a positive mindset."

Table 4
Themes and categories relating to factors associated with care goals.

Theme	Category	Subcategory	Example of content
Staff awareness of residents and work	Significance of one's own existence	Joy of being appreciated	"I feel happy when residents remember my face or when their facial expressions change."
		Sense of being needed	"I focus on residents who require care at the end of one's life."
	Awareness as a care provider	Carrying out one's duties	"Coordinating various care providers and how to set goals are important aspects."
		Professionalism regarding elderly care	"Effectively discover and extract what residents want to do."
		One's own growth	"Since my thinking and how I work have changed through interactions with residents, my knowledge increased."
	Concern for elderly people	Affinity towards elderly people	"I've always liked elderly people who have extensive life experience."
		Mentor	"Even in hard times, when I talk with residents with a lot of energy, I feel weight in their words as mentors of life."
Relationship among care providers	Smooth functioning of the team	Common understanding among care providers	"I feel that practice during conferences with my seniors or occupational therapists is effective. It allows me to enjoy work every day."
	Limitations in personnel organization	Complaints toward other care providers	"Problems are with personnel shortages, individuals who only do work allocated to them, and working under time pressure."
		Inadequate personnel organization	"Although I want to spend more time interacting with residents, the number of staff is limited."
Relationships between care providers and families of residents	Establishing ties with the family	Involvement with and being attentive toward the family of residents	"Although interacting with care providers and families of residents is difficult, when it goes well, for example, when I feel close to the family and when the families express gratitude, I feel that I become more aware of the level of achieving goals."

(5) Relationships between care providers and families of residents

Establishing ties with the family comprised involvement with and being attentive toward the family of residents.

(6) Conflicts and complaints about ideal care and the feasibility of setting goals

Four subcategories were grouped into three categories: (i) difficulty of setting care goals which comprised the difficulty of prediction (inability to decide based on conditions of residents due to social background); (ii) difficulty of evaluation which comprised difficulty determining the extent of goal achievement (situations in which ADL improves, but physical function decreases due to aging); and (iii) hesitancy in getting involved which comprised confusion about whether the relationship is long-term or transient and alternative types of care (performing a different type of care when one cannot provide ideal care).

4. Discussion

By qualitatively analyzing the contents of interviews with care providers at facilities for elderly people, we succeeded in identifying background factors that influence care goals and goal setting, as well as analyzing the care goal setting process in actual care settings. The two themes "daily care goals" and "long-term care goals" extracted from our analysis overlap with previously reported care quality indices[2,5,9]. Interestingly, background factors (e.g., interpersonal relations and conflicts among care providers) influenced care goals. Moreover, conflicts arising between daily care goals and long-term care goals also became apparent.

Fig. 1 summarizes the relationships between care goals and how these goals were set. Care goals were a mixture of "daily care goals" and "long-term care goals", and care providers struggled with providing ideal care and setting goals. This was particularly so, given the fact that diseases and disorders span various domains[10], and each resident's condition differed. Care goals were also influenced by the surrounding environment. For instance, in

Table 5
Themes and categories related to conflicts.

Theme	Category	Subcategory	Example of content
Conflicts and complaints about ideal care and the feasibility of setting goals	Difficulty of setting care goals	Difficulty of prediction	"Convalescence (admission to a hospital) has the goal of going home, outpatient services allow one to live each day to the fullest. Yet the goal of residents at care facilities is unclear. Although returning to at-home care is possible, it is difficult."
	Difficulty of evaluation	Difficulty determining the extent of goal achievement	"Since the condition of residents changes in many ways, it is difficult to determine the extent of goal achievement."
	Hesitancy in getting involved	Confusion about whether the relationship is long-term or transient	"I'm always conflicted about whether to address requests from residents on the spot as they arise, or whether it would be better to call them to perform activities (e.g., recreation), from a longer-term perspective by taking the initiative in advance."
		Alternative types of care	"Given the risks, constant monitoring is required by family members of residents with dementia. I think it is essential for family caregivers to find time for themselves."

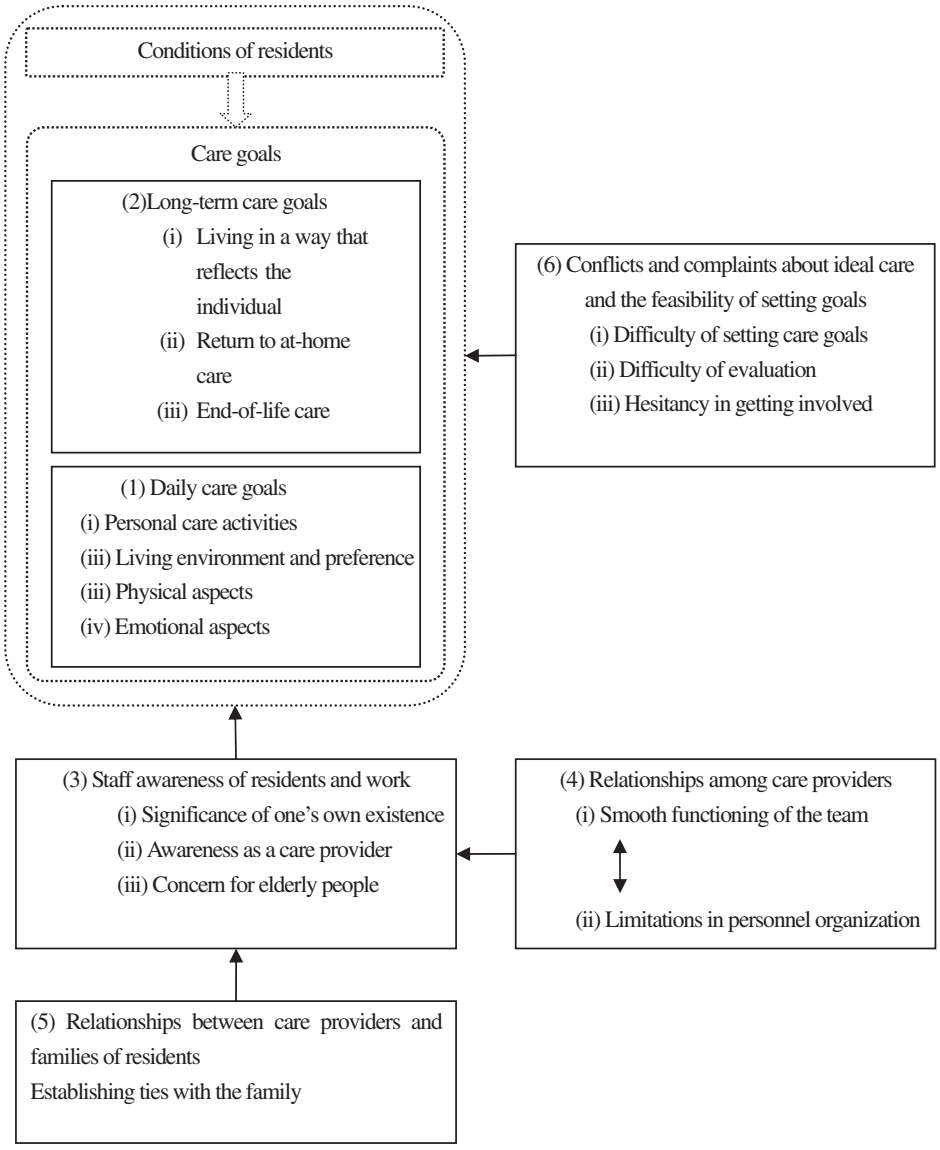

Fig. 1. Conceptual diagram of care goals, their associated factors, and conflicts. The arrows indicate the direction of influence between categories.

the long-term care facility setting, care is provided and goals are set from the perspective of rehabilitation. Goals in this setting are not limited to recuperation, but also span independence support and care prevention. Desired in rehabilitation is the setting of primary goals for participation that are in line with a resident's particular condition and impairments, complemented with secondary goals related to activity levels and mental/physical function levels that support such goals[11]. Our findings would suggest that "long-term care goals" are primary goals related to participation level. In turn, in addition to being secondary goals that can include some environmental factors, "daily care goals" can be considered short-term goals of the day-to-day care process. Although "personal care activities" in "daily care goals" are relatively observable, physical aspects and emotional aspects are unobservable abstract representations. "Emotional aspects" are especially difficult to observe, and are easily swayed by the observation skills of care providers. "Living environment and preference" not only extend beyond the physical environment, but also span and encompass the human environment and each resident's values. This, combined with the difficulties associated with pinpointing the desires of each resident, gave rise to a "hesitancy in getting involved".

Effective care requires placing weight on the subjective needs of elderly people[12]. The multilayered structure of care goal setting[11], the setting of various care goals that reflect the prognosis and values of residents, and struggles experienced by staff as they worked to realize these goals were evident in the categories "difficulty of setting care goals" and "difficulty of evaluation". Moreover, not only is goal sharing between residents and care providers important, goal sharing between care providers in the team setting is essential as well. Nozaki and Itakura[13] pointed out discrepancies that arise in collaborations between nurses and care workers; in particular, the viewpoints of life and medicine that give rise to dilemmas in such collaborations. Although successful collaborations among care providers and between different care specialists were considered worthwhile, diversity in care goals was also a source of conflict. Understanding elderly residents on multiple fronts may have promoted a "hesitancy in getting involved" with elderly residents. However, "limitations in personnel organization" made it difficult to share goals among care providers, and each care

provider internally struggled with pursuing what they felt was ideal care.

"Smooth functioning of the team" was largely responsible for keeping care provider turnover low. Iwasaki et al[14] raised the point that collaborations with other specialists constituted a rewarding aspect for nurses working at special elderly nursing homes. This is similar in principle to "smooth functioning of the team". Moreover, communication among care providers and interacting with care providers of different disciplines may lead to rewarding experiences.

Some care providers had an "affinity towards elderly people", realizing the "significance of one's own existence" through caring for residents. Indeed, while becoming aware of "one's own growth", care providers "carrying out one's duties" with "professionalism regarding elderly care", felt satisfaction in daily care provision by achieving a "common understanding among care providers". However, various issues hampered ideal care, giving rise to "complaints toward other care providers" and frustrations over "inadequate personnel organization". This not only reflects relationships among care providers, but also the discontent that arises from care providers having their own care ideals. These issues were exacerbated by problems such as care provider shortages.

Staff satisfaction and burnout are common concepts in the fields of nursing and care[15–17]. Given the chronic shortage of manpower, preventing attrition is particularly important, not only to secure manpower, but also from the standpoint of accumulating and developing care skills. Given the fact that job satisfaction among care providers influences resident satisfaction[18–20], and care provider stress influences the psychological health of residents[21], systems that support care providers need to be developed and implemented.

A few limitations of this study are worth noting. First, data were not analyzed by facility type (i.e., long-term health care facilities, nursing homes, and private nursing homes). Second, given that the facilities participated under the condition that the study was carried out inside the facility, interviewees were limited to those who consented to the study. Thus, one must consider the implications that interviewees tend to respond with socially acceptable answers in interview surveys. In other words, our findings are significant in that, despite the fact that the participant population was highly dedicated to care provision, we still managed to identify various background factors and conflicts that arose during care goal setting. Third, we did not make comparisons by occupation, given that the number of interviews was not uniform across specialties. Cross specialty comparisons in the future will lead to both a better understanding of characteristics specific to each specialty, as well as help foster a mutual understanding between different health care professionals.

In conclusion, care goals at facilities for elderly people were sorted into "daily care goals" and "long-term care goals". The process of setting care goals not only involved the conditions and prognosis of residents, but was also influenced by associated factors (e.g., structure of a facility, personnel structure, and relationships between care providers and families). Moreover, care providers struggled with care goal setting. In order to ensure continuous high quality care, a staff support system aimed at securing adequate personnel and skill development, as well as information sharing among residents, families, and various care providers involved in care, must be developed.

Acknowledgments

We are grateful to Dr Shuzo Nishimura, Dr Takahiro Higashi, Ms Setsuko Ino, Ms Chisako Yamamoto, Mr Keisuke Tokunaga, Mr Naoya Ono, and Ms Naoko Koizumi, who contributed important advice and practice on research planning, interviewing, and data analysis.

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Ohura T, Higashi T, Ishizaki T, Nakayama T. Testing validity and reliability of a newly developed instrument to assess the subjective needs of institutionalized elderly. *Clinical Gerontologist* 38(1): 88-102, 2015.

Title: Testing validity and reliability of a newly developed instrument to assess the subjective needs of institutionalized elderly

Short running head: Instrument to assess subjective needs of the elderly

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Conflict of Interest: This study was conducted by the non-profit organization Life-Designing, and was partially funded by a Grant-in-Aid (2007) from the Welfare and Medical Service Agency and a grant from Seijoh University (2011). TO, TH, and TN were commissioned as researchers of Life-Designing and received honoraria.

ABSTRACT

This study aimed to examine the validity and reliability of an instrument designed to assess the needs of institutionalized elderly. The instrument comprised 25 items covering 4 domains: basic activities of daily living, instrumental activities of daily living, environment and lifestyle, and emotion. These items were extracted from interviews with care providers of institutionalized elderly individuals. Confirmatory factor analysis showed that the model was validated by (n=120, χ^2/d.f. = 1.090, RMSEA = 0.03) and all standardized path coefficients ranged from 0.28 to 0.87. Internal consistency was high for each domain (Cronbach's alpha, 0.79-0.85). The reproducibility test (n=18) showed that 14 of 25 items showed weighted kappa coefficients ≥0.60 (i.e., substantial agreement). Therefore, we conclude that the present instrument was satisfactorily valid and reliable.

Key words: Elderly, Long-term care, Health service needs and demand, Validity and reliability

Short running head: Instrument to assess subjective needs

INTRODUCTION

With a rapidly increasing aging population, caring for elderly individuals is becoming one of the most pressing concerns in developed countries (Ebrahim, 2002; Tulchinsky & Varavikowa, 2009). In response to the growing demand for systematic long-term care, the Japanese government started the universal long-term care insurance system in 2000 (Ikegami, 1997; Tsutsui et al., 2005; Tsutsui et al., 2007; Houde et al., 2007). Since then, the number of long-term care facilities has continued to increase (Ministry of Health, Labour, and Welfare, 2008). To provide appropriate care for the elderly, it is essential to establish care objectives. Given the diversity of life histories and physical/mental conditions of the elderly, the goals also vary by each individual (Kane et al., 2009), and thus accurate comprehension and assessment of the individual needs of the elderly who require care is a challenge for frontline care providers.

The concept of needs includes "felt needs," which are determined by the subjective desires of care recipients (Watson, 1969), while "normative needs" are those determined by the care providers. Assessment of these needs in everyday clinical practice should involve not only symptomatology and behaviors as observed by providers, but should incorporate care recipient perceptions as well (Slade, 1994). Most studies that have compared perceptions of care between care providers and care recipients have reported that care providers overemphasize needs related to the aspects of their own specialty (Rothwell et al., 1997; Löfmark et al., 1999; Okamoto et al., 2002; Litwin et al., 1998). Moreover, these studies only asked questions to detect negative issues that could be addressed by care providers, such as "(care recipient) worries" and "what is lacking (in daily care)," rather than addressing how care or

support might be provided in order to achieve independent living of elderly people.

A previous study reported that the elderly who had needs for social participation were generally less satisfied with life than those who did not have such needs (Okamoto, et al., 2004). Furthermore, elderly residents might have been critically discouraged because health care providers did not understand their hopes (Okinaka, 2007). Another study reported that female residents participated in more activities than male residents did (McGuinn & Mosher-Ashley, 2001). Among elderly men, watching television was identified as the most preferred activity and activities related to watching television might improve their socialization and mental status (Kracker, et al., 2011). All of these activities are based on individual's interests and needs according to his/her preference or value (Foster, 1980; Foster, 1983; Curley, 1982).

Only a few studies (Dijkstra et al., 1999; Kane et al., 2003; Wressle et al., 2006) have used validated questionnaires to focus on understanding the comprehensive and subjective needs of institutionalized elderly. Moreover, no validated quantitative instrument has been designed to ask questions such as "how do they wish to live" and "what do they want to do" of institutionalized elderly.

Given this context, we aimed to validate a newly developed instrument designed to understand the subjective needs of institutionalized elderly.

METHODS

This study comprised three phases as described in Table1.

Phase 1: Instrument to assess subjective needs

Prior to developing the instrument, we interviewed 30 care staff members (11

certified care workers, three helpers, two care workers, three nurses, two physical therapists, two occupational therapists, one physician, three care managers, one certified social worker, one massage practitioner, and one lifestyle advisor) who cared for institutionalized elderly regarding their care goals in Japan. That study suggested two care goals: long-term care goals and daily care goals. The former was consisted of the following three categories; living in a way that reflects the individual, return to at-home care, and end-of life care. The latter was consisted of the following four categories; personal care activities, living environment and preferences, physical aspects, and emotional aspects (Ohura et al., 2014).

To improve wording clarity and ease of understanding, the instrument was revised based on input from nurses working at two facilities in Japan (both are geriatric intermediate care facilities in Hyogo prefecture). Afterwards, a preliminary survey was conducted at the two facilities and 31 elderly residents were interviewed with this instrument.

For each item, participants were asked to "check the pertinent box based on how important you feel each of the following is in daily life." Responses were rated on a 5-point Likert scale (5: strongly agree, 4: agree, 3: neither agree nor disagree; 2: disagree; 1: strongly disagree).

Phase 2: Testing factorial validity and internal consistency

Confirmatory factor analysis was conducted to test the factorial validity of the 25 items derived from the four areas extracted from the qualitative research based on the structured interview with the elderly residents (described below).

Participants and setting

Participants were elderly residents from 10 facilities (i.e., 2 nursing homes and 8 geriatric intermediate care facilities) in Kyoto, Shiga, and Ishikawa Prefectures. All participants were capable of communication and were not severe cognitively impaired.

Data collection

From January to March 2008, we conducted structured interviews using the newly developed 25-item instrument that asked about the daily subjective needs of the elderly and their level of satisfaction with the care they were given. Interviews were conducted by four healthcare professionals (one occupational therapist and 3 nurses) using standardized methods. Basic information, including gender, age, duration of residence, Mini Mental State Examination (MMSE) (Folstein et al., 1975), and activities of daily living (ADL) (Mahoney et al., 1965; Shah et al., 1989; McDowell, 2006) were obtained from records and facility staff.

Elderly participants were given gifts worth about 500 yen (about 4.8 USD/ 3.5 EUR at the time of writing), and facilities were given book coupons based on the number of times they completed the survey.

Phase 3: Testing reproducibility

In this phase, reproducibility of the instrument was assessed by conducting the structured interviews twice (one week interval).

Participants and setting

Participants were elderly residents of one geriatric intermediate care facility in

Hyogo Prefecture who were able to communicate and not cognitively impaired.

Data collection

In November 2011, we conducted structured interviews as was done in Phase 1. One interviewer (occupational therapist) conducted the interview using the standardized method, and the second survey was conducted about one week later. The collection of basic information and provision of gifts were performed as described in Phase 2.

Statistical Analysis

In Phase 2, data from participants were excluded if two or more components were missing. For participants with only 1 data component missing, the median value for that item was substituted. Following this, we performed confirmatory factor analysis (CFA) and calculated Cronbach's α coefficients. CFA was performed using a generalized least squares method to examine the four domains and the factor structure of the 25-item questionnaire based on the results of our previous study. Correlations between each of the factors were calculated, with statistical significance set at $P < 0.05$. We assessed data model fitness with the χ^2 statistic, Root Mean Square Error of Approximation (RMSEA), the Goodness of Fit Index (GFI), and Adjusted Goodness of Fit Index (AGFI). The model was rejected if χ^2 was large relative to that for degrees of freedom (d.f.), and accepted if χ^2 was small (Marsh HW et al., 1988). The goodness-of-fit was evaluated by the following criteria: RMSEA <0.10 (<0.08 in reasonable approximate fit) (Browne MW & Cudeck R, 1993), and GFI >0.85, AGFI >0.80 (Marsh HW et al., 1988). Cronbach's α coefficients were calculated by excluding missing information for each

domain of subjective needs (Pett et al., 2003; Acock, 2012).

In Phase 3, quadratic weighted kappa coefficients were calculated to determine the consistency in answers between the first and second surveys (Norman et al., 2008; Kundel et al., 2003; Acock, 2012; Armitage et al., 2002), with a kappa coefficient of ≥0.6 considered "substantial agreement" (Landis et al., 1977).

CFA was performed using IBM SPSS Amos19.0. Cronbach's α coefficients and quadratic weighted kappa coefficients were calculated by Stata12.

Ethical considerations

All participants were given oral and written information, and consent was obtained from each individual. The study protocol for Phases 1 and 2 was approved by the Kyoto University Graduate School and Faculty of Medicine, Ethics Committee (E347). The study protocol for Phase 3 was approved by the Seijoh University Faculty of Rehabilitation and Care, Ethics Committee (2011C0019) and the Kyoto University Graduate School and Faculty of Medicine, Ethics Committee (E1292).

RESULTS

Phase 1: Instrument development

Based on the four categories of questions (Personal care activities, Living environment and preferences, Emotional aspects and Physical Aspects) from our previous study (Ohura et al., 2014), we reformulated concepts for the present study as follows. The category of personal care activities was divided into the two concepts of Activities of Daily Living (BADL) and Instrumental Activities of Daily Living (IADL).

Living environment and preferences became the concept of Environment and Life style (EL) as it was. Emotional aspects category and physical aspects category were combined into one concept of Emotion (EM) because items for these two categories were inseparable.

The developed instrument comprised 25 items from the four domains including BADL, IADL, EL, and EM domains. Construct validity based on the previous study and the above processes was determined for this newly-developed instrument. Completion of the instrument, either by interviewing or self-rating of an elderly individual, required 20-30 minutes.

Phase 2: Factorial validity and internal consistency

Of the 129 elderly residents, 123 responded to the instrument and data from 120 participants were included in the final analysis. Substitution of missing data was done for four cells (Q4, Q13, Q15, Q25), in which median values for the remaining 119 responses were inserted. Table 2 summarizes participant characteristics. Of the 120 Phase 1 participants, 98 (82%) were women, 103 (86%) were ≥75 years of age, and 82 (68%) were able to walk or use a wheelchair independently.

The instrument was constructed using the 4-factor model (BADL, IADL, EL, EM) as determined by our previous qualitative study. The model (Fig. 1) revealed a fair fit to the data: χ^2 statistic = 293.2 (d.f. = 269, P = 0.148), RMSEA = 0.03, GFI = 0.80, AGFI = 0.76. Standardized path coefficients in the model ranged from 0.28 to 0.87. Of these 25 items, path coefficients for 23 items were 0.41 and higher.

Cronbach's alpha coefficients for BADL, IADL, EL, and EM domains were

0.85, 0.79, 0.83, and 0.81, respectively.

Phase 3: Reproducibility

Of the 18 participants, 16 (89%) were women, 15 (83%) were ≥75 years of age, and 5 (28%) were able to walk or use a wheelchair independently (Table 2). Reproducibility, as assessed with quadratic weighted kappa coefficients, is summarized in Table 3. The kappa coefficient range was 0.33-0.80 for BADL, 0.43-0.78 for IADL, 0.41-0.84 for EL, and 0.46-0.72 for EM. Of the 25 instrument items, 13 (BADL, 2/7; IADL, 4/5; EL, 5/8; EM, 3/5) had kappa coefficients ≥0.60 (i.e., substantial agreement). Q18 (role performance) had the highest reproducibility, with the kappa coefficient of 0.84.

DISCUSSION

In this study, we developed an instrument to understand the subjective needs of institutionalized elderly and confirmed its factorial validity and satisfactory internal consistency. With regard to reproducibility, substantial agreement was obtained for 15 of 25 instrument items (BADL 2/7，IADL 4/5，EL 5/8，EM 3/5).

Factorial validity and internal consistency of the 25-item instrument

The 25-item instrument that aimed to understand the subjective needs of institutionalized elderly was constructed on the 4-domain model as follows: “self care” as the BADL and IADL domains, “living environment and preference” as the EL domain, and “physical aspects” and “emotional aspects” as the EM domain. These

domains were extracted from the interview survey conducted in our previous qualitative research. With regard to factorial validity, the χ^2statistic and RMSEA indicated good fits for the model, while results from the GFI and AGFI were suboptimal. There has been no consensus to draw a conclusion when the results of model fitness indicators vary.

To improve the model, we conducted a confirmatory factor analysis of 22-item model which excluded items of factor loading less than 0.45 (Q11, Q13, Q15). However, model fitness was not substantially improved (χ^2 statistic = 237.7 [d.f. = 203, P = 0.048], RMSEA = 0.04, GFI = 0.82, AGFI = 0.77) comparing with 25-item model. Therefore, we considered the 25-item model that is based on the results of the qualitative research to assess individual's needs as valid, and items reduction was not desirable.

Although statistical indicators give some clues to assess the appropriateness of the model, we stand for the idea that too much dependance on these objective criteria under values the importance of careful observation and abstraction of constructs (Toyoda, 2002). Our model was derived from multiple interviews of practitioners in a real world setting and qualitative analysis based on the established method. Overall, we considered the 25-item model as valid to characterise the subjective needs of institutionalized elderly.

Internal consistency for each domain of the instrument was confirmed by the high Cronbach's alpha coefficients.

Reproducibility of the instrument and characteristics of subjective needs

Reproducibility was lower for the BADL domain compared with the others. The items included in the BADL domain address basic physiological needs (Maslow, 1987),

and query about items such as “go to the toilet when one wants to (Q1)” and “take a bath when one wants to (includes bathing independently or with help) (Q2)”. These items can change easily depending on physical condition, which may explain the relatively low reproducibility. On the other hand, among categories with high reproducibility, the items in IADL and EL domains pertaining to higher-order desires, including self-esteem, preference, and one’s lifestyle, are considered “esteem needs,” which are based on each person’s life history and values. Compared with BADL domain items, these are relatively stable and non-urgent (Maslow, 1987).

Activities and occupations give life meaning (Hasselkus, 2002). Role performance (Q18), which had the highest kappa coefficient, affects elderly dignity. Previously, the elderly care process (Saliba, 2002), the management of medical conditions of institutionalized elderly (Saliba et al., 2004b), and the management of geriatric syndromes (Saliba et al., 2004a) have been reported as quality indicators of elderly care. Moreover, the six factors of room, home, social interaction, meal service, staff care, and involvement (e.g., for decision making) have been suggested to determine care quality (Chou et al., 2001). The present study clearly showed that variability was low with respect to needs related to life history and values, regardless of the dependency state of institutionalized elderly.

Limitations

This study has some limitations. First, many of the institutionalized elderly participants were women. Thus, subjective needs possibly reflected the female perspective more than the male perspective. Gender differences in activities

participation among the elderly are well known (McGuinn & Mosher-Ashley, 2001). Although we confirmed gender differences in each item, results showed no significant differences in consideration of the multiple testing (data is not shown). As the reason, we considered that the number of men was small, and this instrument did not include each leisure activities seeking gender preferences. We consider two reasons that gender difference was not found as follows. The number of men was too few comparing with women to find a gender difference with statistical significance, and the instrument in the present study did not include items of leisure activities that might vary by gender (e.g. making sweets for female, do-it yourself for male).

Second, subjective needs of the elderly could have been overemphasized since a researcher, rather than a direct care provider, conducted the structured interview. However, one positive outcome of the study may be that the subjective needs of the elderly, which are typically hidden given their relationship with the care providers, were uncovered through this research. Finally, given that this study targeted only elderly individuals capable of communication and not cognitively impaired, generalization of the results to the entire institutionalized elderly population should be made with caution.

Implications for practice

The instrument we developed can be used to understand the subjective needs of institutionalized elderly in typical care settings. It emphasizes that the needs of the elderly individual, should not be determined by whether he/she is able to complete certain relevant tasks, but based more on his/her desires to do so (Okamoto, et al., 2004). It is important for care givers to know what elderly residents want (Curley, 1982; Foster,

1981). The requirements of good primary care include being subject-centric and comprehensive, and paying due consideration to respect and dignity (Oliver, 2009). Moreover, the subjective needs of the elderly and their values are critical for examining quality of care (Vaarama et al., 2008a). Quality assessments of long-term care, not limited to the medical and technical aspects of care, are increasingly required when considering care recipient satisfaction (Wunderlich et al., 2001) and client-centered views (Vaarama et al., 2008b). By knowing the subjective needs of the elderly, care providers can modify the care to meet them. Furthermore, for issues that are beyond his/her or facilities' effort, some advocacy may be necessary for political discussion.

This newly developed instrument can be administered easily in a short period of time (20-30 minutes only), and care providers would be able to recognize items of individual value about how to meet the needs of the elderly. Furthermore, this new 25-item instrument may help new staff or students who are not familiar with interviewing elderly people to understand their subjective needs.

CONCLUSION

We developed and validated a 4-domain, 25-item instrument to better understand the subjective needs of institutionalized elderly. This instrument can be used for establishing care goals and development of guidelines which would provide and promote a higher quality of life for institutionalized elderly.

ACKNOWLEDGEMENTS

We thank Ms. Setsuko Ino, Ms. Naoko Koizumi, Ms. Taka Mifune, and Ms.

Emi Noda for their support.

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Figure legends

Figure 1. Confirmatory factor model of the questionnaire to assess the subjective needs of institutionalized elderly. ADL, activities of daily living; IADL, instrumental activities of daily living; EL, environment and lifestyle; EM, emotion. χ^2 statistic = 293.2 (df = 269, P = 0.148), χ^2/d.f. = 1.090, RMSEA = 0.03, GFI = 0.80, AGFI = 0.76.

Table 1. Procedures of this study of three-phase

Phase 1: Developing the instrument to assess subjective needs

1. The categories* extracted from the interview of 30 staff members who cared for institutionalized elderly regarding their care goals were rebuilt into the new concepts for developing the instrument
   Four categories based on the qualitative study of the interview as follows: “self care,” “living environment and preference,” “physical aspects,” and “emotional aspects”
2. Improving wording clarity and ease of understanding
   Revised based on input from nurses working at the facilities
3. A preliminary survey at two facilities
   Thirty one institutionalized elderly individuals were interviewed using this instrument

Phase 2: Testing factorial validity and internal consistency

1. Elderly residents from 10 facilities
   Structured interviews using the newly developed 25-item instrument that asked about the daily subjective needs of the elderly
2. Statistical Analysis
   Performed confirmatory factor analysis (CFA) and calculated Cronbach's α coefficients

Phase 3: Testing reproducibility

1. Elderly residents of one geriatric intermediate care facility
   Assessed by conducting the structured interviews twice (interval was about 1week)
2. Statistical Analysis
   Calculated quadratic weighted kappa coefficients

*: These categories were shown in the past study (Ohura et al., in press). In the present study, we rebuilt them into the new concepts.

Table 2. Participant characteristics

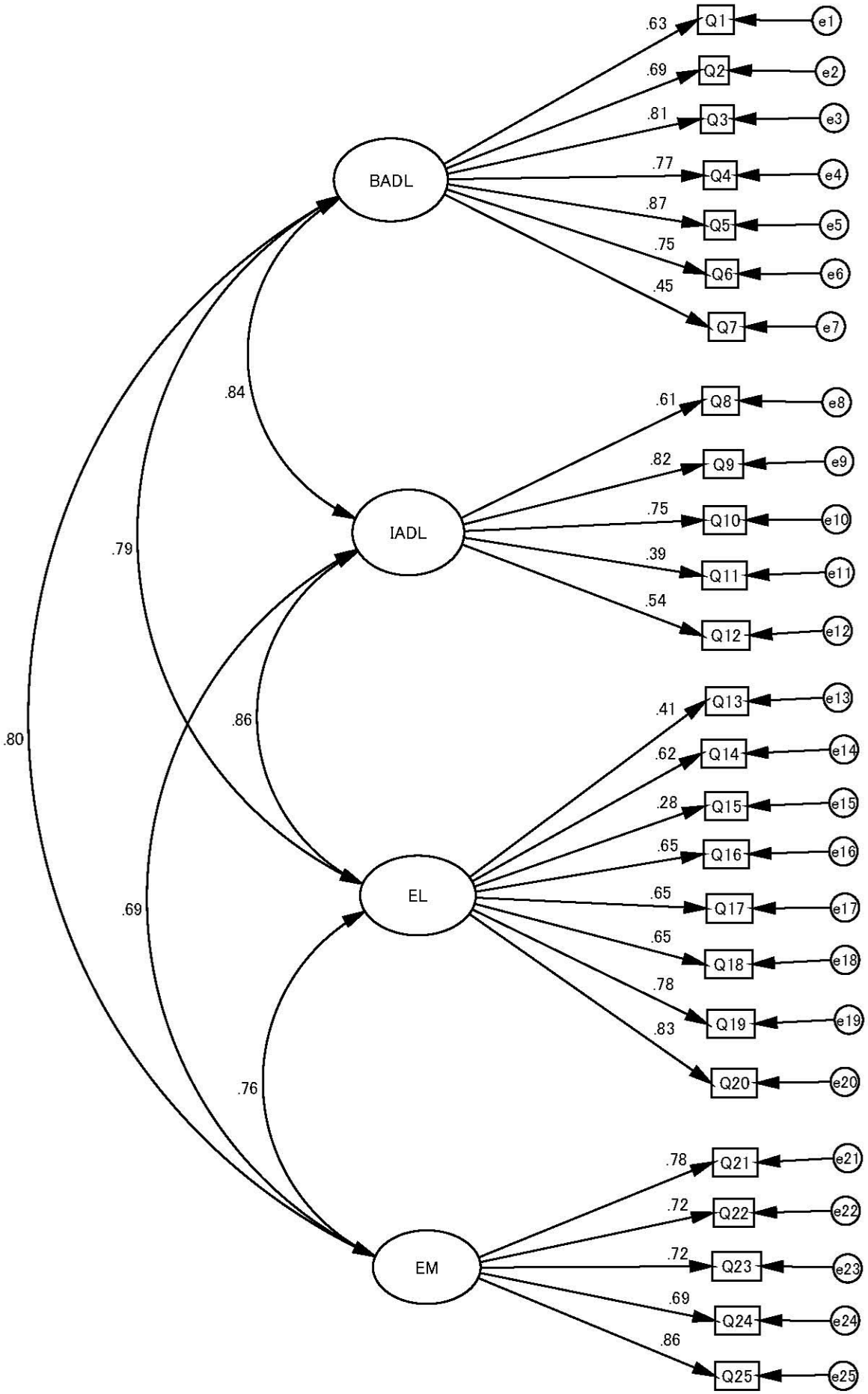
		Phase 2		Phase 3	
		N=120	%	N=18	%
Type of facility					
	NH	16	13.3%	-	-
	GICFs	104	86.7%	18	100.0%
Gender					
	Female	98	81.7%	16	88.9%
	Male	22	18.3%	2	11.1%
Age					
	<74 years	17	14.2%	3	16.7%
	≥75 years	103	85.8%	15	83.3%
Length of stay					
	<6 months	34	28.3%	3	16.7%
	≥6 months	86	71.7%	15	83.3%
Independence in					
	Moving: walking	45	37.5%	4	22.2%
	Moving: wheelchair	37	30.8%	1	5.6%
	Transfer	73	60.8%	7	38.9%
	Using the lavatory (N=118)	59	50.0%	3	16.7%
	Eating	81	67.5%	6	33.3%
	Changing clothes	57	47.5%	5	27.8%
MMSE					
	≥24	62	51.7%	8	44.4%
	23-18	58	48.3%	10	55.6%

GICFs: Geriatric intermediate care facilities
NH: Nursing home
MMSE: Mini Mental State Examination

Table 3. Quadratic weighted kappa coefficients between the first and second surveys (n=18)

Domain		Items	kappa coefficie	*p value*
BADL	Q1	Go to the toilet when one wants to (includes both independently or with help)	0.33	*0.08*
BADL	Q2	Take a bath when one wants to (includes both independently or with help)	0.12	*0.30*
BADL	Q3	Desire to eat at one's own pace (includes both independently and with help)	0.43	*0.03*
BADL	Q4	Desire to change clothes at one's own pace (includes both independently and with help)	0.51	*0.01*
BADL	Q5	Desire to brush teeth (includes washing dentures) when one wants to (includes both independently and with help)	0.65	*< 0.01*
BADL	Q6	Desire to move around the facility when one wants to (includes both independently and with help)	0.47	*< 0.01*
BADL	Q7	Desire to go outside the facility when one wants to (includes both independently and with help)	0.80	*< 0.01*
IADL	Q8	Desire to shave or put on makeup when one wants to (includes both independently and with help)	0.43	*0.03*
IADL	Q9	Desire to go shopping when one wants to (includes both independently and with help)	0.72	*< 0.01*
IADL	Q10	Desire to interact by phone or letters when one wants to (includes both independently and with help)	0.75	*< 0.01*
IADL	Q11	Desire to control money at one's discretion	0.62	*< 0.01*
IADL	Q12	Desire to cook, do laundry, and clean by oneself (includes both independently and with help)	0.78	*< 0.01*
EL	Q13	Desire to eat one's preferred meals (includes take-out and eating out)	0.64	*< 0.01*
EL	Q14	Desire to talk with family or people other than staff	0.49	*0.02*
EL	Q15	Desire for more time to oneself and own space	0.63	*< 0.01*
EL	Q16	Desire to talk more with staff	0.60	*< 0.01*
EL	Q17	Desire to carry out one's preferred hobbies (e.g., reading, sports, games)	0.68	*< 0.01*
EL	Q18	Desire to carry out activities that give one a role in the facility, such as manual work	0.84	*< 0.01*
EL	Q19	Desire to move around for health	0.41	*0.04*
EL	Q20	Desire to go out to any location when one wants to (e.g., taking a walk, shopping, leisure)	0.58	*< 0.01*
EM	Q21	Desire to live without worrying about health	0.46	*< 0.01*
EM	Q22	Desire to be free of bodily pain	0.72	*< 0.01*
EM	Q23	Desire to live feeling good without getting depressed	0.55	*< 0.01*
EM	Q24	Desire to live enjoyable days	0.70	*< 0.01*
EM	Q25	Desire to live without worry (e.g., health, food, clothing, shelter, living, and relationships)	0.72	*< 0.01*

No variables were missing. Between the two surveys was a one-week interval.


BADL
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Ohura et al. BMC Res Notes (2016) 9:52
DOI 10.1186/s13104-016-1851-7

BMC Research Notes

RESEARCH ARTICLE Open Access

Gaps between the subjective needs of older facility residents and how care workers understand them: a pairwise cross-sectional study

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Abstract

Background: To promote active daily living and improve the quality of life of older facility residents, it is important that care staff understand their day-to-day activities and needs. However, only a few studies have examined the needs of older residents and how care workers understand them. This study aimed to examine the subjective needs of older residents at aged care facilities, care workers' understanding of these needs, and the gaps that exist between them.

Methods: Structured interviews with older residents with no severe cognitive impairment in ten Japanese aged care facilities and a questionnaire survey of care workers were conducted in 2008 regarding resident subjective needs. The questionnaire, which had satisfactory factorial validity, internal consistency, and reproducibility, consisted of seven items on basic activities of daily living (BADL), five items on instrumental ADL (IADL), eight items on environment and lifestyle (EL), and five items on emotion (EM). Pair-wise analyses were performed to compare responses.

Results: Responses of 115 pairs were analyzed (residents ≥75 years, 85 %; 21 men, 94 women). Median proportions of residents with IADL (66 %) and EL (69 %) needs were lower compared with those with BADL (83 %) and EM (91 %) needs. Median proportions of care workers understanding IADL (55 %) and EL (60 %) needs were lower compared with those understanding BADL (87 %) and EM (87 %) needs. Less than half of the care workers understood IADL needs for household chores (30 %) and money management (43 %), and an EL need for playing a role (41 %).

Conclusions: Gaps were found between resident subjective needs and how care workers understood them. Specifically, care workers underestimated older residents' IADL and EL needs, especially with regard to playing a role. These results highlight the need for care workers to set goals based on each resident's subjective needs and plan strategies for care provision accordingly.

Keywords: Care for older people, Subjective needs, Older facility residents, Care workers

Background

Recent years have seen a rapid increase in aging populations in developed countries [1]. Among them, Japan has the highest proportion of people aged 60 years or older in the world (32 % in 2013) [2]. Various studies, ranging from biomedical aspects to psychology and social science-related themes, have been conducted on aging [3].

The Japanese government instituted a universal long-term insurance system in 2000 [4]. The initial number of facility service users was 520,000, but this expanded to 890,000 in 2013 [5]. Various types of facilities covered by long-term care insurance for older people exist in Japan, including special nursing homes, health service facilities, and sanatorium-type medical care facilities. Special nursing homes provide regular nursing care, and sanatorium-type medical care facilities provide medical services and

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care. Health service facilities, which are similar to geriatric intermediate care facilities, provide rehabilitation and care, and support discharge to home.

The quality of long-term care can be evaluated from medical and technical perspectives, as well as a care receiver's sense of satisfaction [6]. When considering care quality, comprehensive and efficient measures of care quality for older people have been developed [7], and some studies have advocated that care providers should understand the individual needs of those they care for [8, 9]. To better understand the subjective needs of aged care facility residents, a 25-item instrument for care providers to assess older people's needs [10] was developed based on an interview study [11]. This instrument showed satisfactory factorial validity, internal consistency, and reproducibility in the context of assessing the subjective needs of institutionalized older people [10].

To improve active daily living and quality of life (QOL) of older facility residents, it is paramount that care staff understand their day-to-day activities and needs. This study aimed to examine the subjective needs of older residents at aged care facilities, care worker's understanding of these needs, and gaps that exist between them.

Methods

We conducted a pairwise cross-sectional study using a 25-item questionnaire [10] to measure both the subjective needs of older facility residents and care workers' understanding of residents' needs.

Questionnaire

We evaluated the activities that residents wished to perform using a 25-item questionnaire [10], which was developed based on semi-structured interviews with care providers regarding care goals (2006) [11] and consideration of previous studies [12, 13]. The questionnaire encompassed the following four areas: basic activities of daily living (BADL), instrumental activities of daily living (IADL), environment and lifestyle (EL), and emotion (EM). Questions were asked in terms of "whether you want to perform each behavior regardless of the need for assistance," rather than "whether you want assistance or not when attempting each behavior". Residents were asked to grade each item using a five-point Likert scale (5: "strongly agree", 4: "agree", 3: "neutral", 2: "disagree", 1: "strongly disagree") (Additional file 1). The questionnaire was validated using data collected in this study ($n = 120$, $\chi^2/df = 1.090$, RMSEA $= 0.03$; all standardized path coefficients ranged from 0.28 to 0.87), and was determined to be reproducible using data collected in 2011 ($n = 18$; 14 of 25 items showed weighted kappa coefficients ≥ 0.60) [10]. This questionnaire [10] was also used to assess how care workers understood the needs of each resident (Additional file 2).

Participants and study setting

We conducted interviews with older residents of 10 facilities in Kyoto, Shiga, and Ishikawa Prefectures (two special nursing homes and eight health services facilities) (January–March 2008). A questionnaire survey was conducted with attending physicians, care managers, nurses, care workers, and rehabilitation staff (physical therapist, occupational therapist, and speech-language therapist). In this study, we only used responses from care workers who could be paired with older residents. Only older residents who were able to verbally communicate were selected arbitrarily by facility staff for this study. With respect to cognitive function, those with a Mini Mental State Examination [14] score ≤ 17 points (severe cognitive impairment) were excluded. Of the 129 older residents who provided consent to participate in the study, six were either discharged or withdrew their consent during the study period. Of the remaining 123 older residents, 119 for whom two care workers could be assigned to complete the questionnaires were included as participants of this study (Fig. 1). With respect to the background of the 10 facilities where the 119 older participants resided, the number of residents at each facility ranged from 84 to 240 (total, 1195 residents) at the time of the survey. The occupancy rate of each facility was between 90 and 100 %, and the number of study participants at each facility (6 to 29 residents) accounted for between 4 and 14 % of the total older residents.

Data collection

We conducted a pilot study at two facilities before this study in order to verify the procedures. The questionnaires completed by care workers were kept in individual envelopes and collected by responsible personnel at each facility. We visited each facility to collect the questionnaires 6–8 days after distribution. We then performed individual interviews to ask each participant questions on the questionnaire form; this process reflects our effort to address potential sources of information bias for healthcare staff. If any participants were discharged from the facility, we excluded their data as well as the matched questionnaires completed by their care workers. Interviews were conducted by four healthcare professionals (one occupational therapist and three nurses) using standardized methods. Basic information including gender, age, duration of residence, Mini Mental State Examination [14], and activities of daily living (ADL) [15] was obtained from the resident records and facility staff.

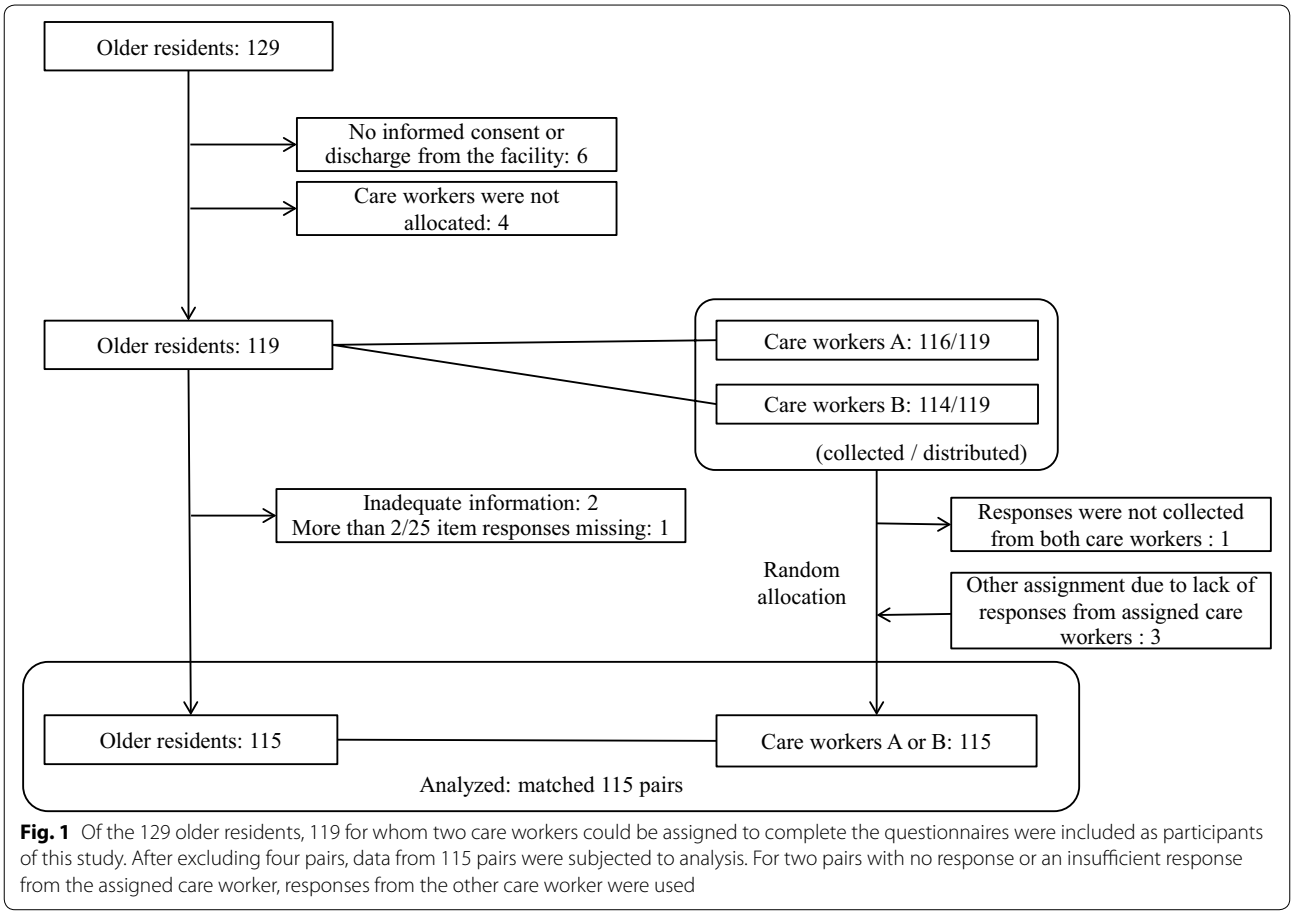

Fig. 1 Of the 129 older residents, 119 for whom two care workers could be assigned to complete the questionnaires were included as participants of this study. After excluding four pairs, data from 115 pairs were subjected to analysis. For two pairs with no response or an insufficient response from the assigned care worker, responses from the other care worker were used

Older participants were given gifts worth about 500 yen (about 4.8 USD/3.5 EUR at the time of writing), and facilities were given bookstore gift certificates according to the number of times they participated in the survey.

Statistical analysis

We matched each older resident with two care workers who engaged in his/her care, and both care workers responded to a questionnaire regarding the resident.

We excluded pairs that provided insufficient responses to the questionnaire (i.e., two or more missing responses to the 25-item questionnaire or missing information regarding resident characteristics). If the care worker who was randomly selected out of the two assigned for each older resident did not respond to the questionnaire or had two or more missing responses, responses from the other care worker were used. Pairs for which none of the assigned care workers provided sufficient responses were excluded from the analyses.

Resident and care worker responses regarding subjective needs were evaluated on a five-point scale, and were each aggregated into two categories (4–5: with subjective needs; 1–3: without subjective needs and neutral). The proportion of residents with subjective needs and the proportion of care workers who understood the resident needs were shown along with 95 % confidence intervals (CIs) [16] for each questionnaire item.

As an additional statistical analysis, the Chi square test was performed to analyze the relationships between basic attributes and the presence or absence of resident needs, and the number of questionnaire forms completed by care workers and their basic attributes, with $p < 0.05$ set as a statistically significant level [17]. Furthermore, to account for multiple comparisons, the Bonferroni correction [17] was used. These analyses were performed using IBM SPSS Statistics 20 [18].

Ethical procedure

The study protocol was approved by the Ethics Committee of Kyoto University Graduate School and Faculty of Medicine (E347). Although not all participating facilities had an ethics committee, the director of each facility approved the study, and notices of the study were posted at all facilities. The study objective was explained to the participants and/or their families, and written consent was obtained. All participating care workers were given

written information, and completed questionnaires were considered their consent to participate. All collected data were subjected to linkable anonymization, and personally identifiable information, such as subject name, was never taken outside the facilities.

Results

Data from 115 pairs were subjected to analysis. For two pairs with no response or an insufficient response from the assigned care worker, responses from the other care worker were used (Fig. 1). Resident and care worker characteristics are summarized in Tables 1 and 2. Of the 115 participants, 94 (82 %) were female, 98 (85 %) were aged 75 years or older, and 82 (71 %) were residents for 6 months and longer. The levels of independence were as follows: 77 (67 %) maintained mobility (either ambulation or wheelchair), 68 (59 %) were able to transfer to a chair or bed alone, and 56 (49 %) were able to use the lavatory (Table 1). Questionnaire forms for each of the 115 residents were filled out by 78 care workers. Of these, 49 (63 %) were female, 37 (47 %) were aged 20–29 years, and 34 (44 %) had fewer than 5 years of work experience (Table 2).

Table 1 Characteristics of older residents

	Resident	
	N = 115	(%)
Gender		
Female	94	(82)
Male	21	(18)
Type of facility		
NH	15	(13)
GICF	100	(87)
Age		
<75 years	17	(15)
≥75 years	98	(85)
Length of stay		
<6 months	33	(29)
≥6 months	82	(71)
Independence in ADL		
Moving: walking	44	(38)
Moving: w/c	33	(29)
Transfer	68	(59)
Using the lavatory (N = 113)	56	(49)
Eating	77	(67)
Changing clothes	55	(48)
MMSE		
≥24	60	(52)
23–18	55	(48)

GICF geriatric intermediate care facility, *NH* nursing home, *W/C* wheelchair, *ADL* activities of daily living, *MMSE* mini mental state examination

Table 2 Characteristics of care workers

	Care worker	
	N = 78	(%)
Gender		
Female	49	(63)
Male	29	(37)
Age		
20–29 years	37	(47)
30–49 years	31	(40)
≥50 years	10	(13)
Length of work		
<5 years	34	(44)
5–9 years	25	(32)
≥10 years	12	(15)
Unknown	7	(9)
Length of work at the facility		
<5 years	36	(46)
5–9 years	24	(31)
≥10 years	6	(8)
Unknown	12	(15)
Number of questionnaires for analysis		
One	52	(67)
Two	19	(24)
Three	4	(5)
Four	2	(3)
Five	1	(1)

No significant differences were found in basic characteristics (age, gender, and years of experience) of care workers by the number of older residents assessed

Table 3 shows resident responses to each questionnaire item. With regard to resident subjective needs, median proportion (minimum–maximum) was 83 % (71–94 %) for BADL needs and 91 % (87–92 %) for EM needs. In contrast, median proportion was 66 % (55–69 %) for IADL needs and 69 % (25–81 %) for EL needs. Only one item (Q19*)* in the areas of IADL and EL had a proportion higher than 80 % (81 %), and only one of the 25 items (Q15) had a proportion lower than 50 % (25 %) (Table 4).

As shown in Table 3, care workers were less likely to understand resident needs in IADL and EL areas than in BADL and EM areas [IADL; 55 % (30–67 %), EL; 60 % (41–84 %), BADL; 87 % (61–97 %), EM; 87 % (77–92 %)]. Care workers poorly understood resident needs for IADL [Q11: keeping money at hand (43 %), Q12: performing household chores themselves (30 %)], and a need for EL [Q18: playing a role (41 %)] (Table 4).

The additional analysis revealed no significant difference in the proportions of residents with subjective needs by gender, age, cognitive function level, level of care needed, and independence in other ADL. Moreover, no significant difference was found in basic characteristics

Table 3 Median proportion of resident subjective needs and resident needs understood by care workers in each area

	Items	Resident subjective needs % (minimum–maximum)	Resident needs understood by care workers % (minimum–maximum)
BADL	7	83 (71–94)	87 (61–97)
IADL	5	66 (55–69)	55 (30–67)
EL	8	69 (25–81)	60 (41–84)
EM	5	91 (87–92)	87 (77–92)

BADL basic activities of daily living, *IADL* instrumental activities of daily living, *EL* environment and lifestyle, *EM* emotion

Table 4 Proportion of resident subjective needs and resident needs understood by care workers

			Resident subjective needs			Resident needs understood by care workers	
			All	N1	(%, 95 % CI)	N2	(%, 95 % CI)
BADL	Q1	Go to the toilet when one wants to (includes both independently or with help)	115	108	(94, 88–97)	98	(91, 84–95)
EM	Q25	Desire to live without worry (e.g., health, food, clothing, shelter, living, and relationships)	114	105	(92, 86–96)	96	(91, 85–95)
EM	Q21	Desire to live without worrying about health	115	105	(91, 85–95)	97	(92, 86–96)
EM	Q23	Desire to live feeling good without getting depressed	115	105	(91, 85–95)	91	(87, 79–92)
EM	Q24	Desire to live enjoyable days	115	101	(88, 81–93)	88	(87, 79–92)
EM	Q22	Desire to be free of bodily pain	115	100	(87, 80–92)	77	(77, 68–84)
BADL	Q4	Desire to change clothes at one's own pace (includes both independently and with help)	114	97	(85, 77–90)	84	(87, 78–92)
BADL	Q3	Desire to eat at one's own pace (includes both independently and with help)	114	95	(83, 75–89)	85	(89, 82–94)
BADL	Q5	Desire to brush teeth (includes washing dentures) when one wants to (includes both independently and with help)	115	95	(83, 75–88)	78	(82, 73–89)
EL	Q19	Desire to move around for health	115	93	(81, 73–87)	53	(57, 47–67)
BADL	Q2	Take a bath when one wants to (includes both independently or with help)	115	91	(79, 71–86)	65	(71, 61–80)
BADL	Q6	Desire to move around the facility when one wants to (includes both independently and with help)	115	89	(77, 69–84)	86	(97, 91–99)
EL	Q17	Desire to carry out one's preferred hobbies (e.g., reading, sports, games)	115	86	(75, 66–82)	55	(64, 53–73)
BADL	Q7	Desire to go outside the facility when one wants to (includes both independently and with help)	115	82	(71, 62–79)	50	(61, 50–71)
EL	Q14	Desire to talk with family or people other than staff	115	81	(70, 62–78)	68	(84, 74–90)
EL	Q20	Desire to go out to any location when one wants to (e.g., taking a walk, shopping, leisure)	115	81	(70, 62–78)	50	(62, 51–72)
IADL	Q10	Desire to interact by phone or letters when one wants to (includes both independently and with help)	115	79	(69, 60–76)	53	(67, 56–76)
EL	Q18	Desire to carry out activities that give one a role in the facility, such as manual work	115	78	(68, 59–76)	32	(41, 31–52)
IADL	Q9	Desire to go shopping when one wants to (includes both independently and with help)	115	78	(68, 59–76)	43	(55, 44–66)
IADL	Q12	Desire to cook, do laundry, and clean by oneself (includes both independently and with help)	115	76	(66, 57–74)	23	(30, 21–41)
EL	Q13	Desire to eat one's preferred meals (includes take-out and eating out)	114	72	(63, 54–71)	56	(78, 67–86)
IADL	Q8	Desire to shave or put on makeup when one wants to (includes both independently and with help)	115	73	(63, 54–72)	44	(60, 49–71)
IADL	Q11	Desire to control money at one's discretion	115	63	(55, 46–64)	27	(43, 31–55)
EL	Q16	Desire to talk more with staff	115	57	(50, 41–59)	30	(53, 40–65)
EL	Q15	Desire for more time to oneself and own space	114	29	(25, 18–34)	13	(45, 28–62)

Responses of residents to each item on the questionnaire are listed in descending order of percentage of residents who claimed that subjective need

BADL basic activities of daily living, *IADL* instrumental activities of daily living, *EL* environment and lifestyle, *EM* emotion, *N1* the number of residents who had the need, *N2* the number of care workers who understood the need (N1), *95 % CI* 95 % confidence interval

No significant difference was found in the proportions of residents with subjective needs by gender, age, cognitive function level, level of care needed, and independence in other ADL

(age, gender, and years of experience) of care workers by the number of older residents assessed.

Discussion

In this study, we measured both resident subjective needs and care workers' understanding of resident needs, and found that while the residents had more subjective needs in the areas of BADL and EM than in the areas of IADL and EL, the care workers understood resident needs in IADL and EL areas to a lesser degree than needs in BADL and EM areas.

Most residents had common subjective needs in the areas of BADL and EM. Proportions of residents who expressed needs in the IADL and EL areas were low compared with those for BADL and EM areas. Of the 25 items, only Q15 ("Desire for more time to oneself and own space") in the EL area had a proportion lower than 50 %. For highly independent residents, such as those in this study who were able to express their intentions, care that prioritizes resident viewpoints (e.g., care that satisfies IADL and EL needs, such as those involving fulfillment of one's roles) will be needed in order to improve resident QOL. Previously, quality indicators focused on the older care process [19], medical management of older facility residents [20], and geriatric syndrome management [21] have been reported on resident care. In addition, six areas (home, room, social interaction, meal service, staff care, and resident involvement) have been reported as care satisfaction indicators [22]. Moreover, for older people with dementia in long-term care facilities, care providers must provide care based on the perspective of individualized care, focusing on person-centered care and understanding resident preferences [23, 24]. In recent years, an intervention study was conducted to address quality improvement in long-term care [25].

The proportions of care workers who understood resident needs in BADL and EM areas were high, compared with IADL and EL areas. Because the items in BADL and EM areas reflect basic physiological needs [26], it is possible that care workers provide support for self-care and have emotional exchanges with residents on a daily basis. One concern, however, is that care workers might provide care assuming that older residents have uniform needs, even for those who have no such needs. As suggested by our results for items in IADL and EL areas, the proportion of care workers who understood resident needs is not necessarily high in these areas. Indeed, care workers were less likely to understand subjective IADL and EL needs, which varied widely by individual or preference, than BADL and EM needs, which most residents had in common. Resident subjective needs and values are key to assessing the quality of care [21], although this might be related to the manpower of facilities and care providing systems. It is necessary to provide care based on the autonomy and dignity of older individuals with a holistic outlook [27]. Previous studies have compared perceptions of care between providers and receivers [12, 13, 28], and have revealed that the providers' perspective differs from that of receivers. Studies in the areas of nursing and care have found that care providers tend to overemphasize needs related to aspects of their own psyche [12, 13], and there were differences in responses regarding the needs of residents, care givers, and professionals [29]. In the present study, care workers' understanding of residents' needs varied by area (BADL, IADL, EL and EM).

The following three needs were expressed by more than 50 % of residents, whereas less than 50 % of care workers understood them: Q11 "keep money at hand" (43 %); Q12 "perform household chores themselves" (30 %); and Q18 "need to play a role" (41 %). The former two were IADL needs and the latter, an EL need. These three items are all related to roles of residents and their demonstration of management ability, and thus linked to resident dignity. As human life activities and roles have meaning in each individual's life, clinical practitioners including care workers should promote and enable the kind of care that allows for the maintenance of role activities based on resident values and life history. Healthcare providers should be trained to probe the psychological needs of residents in daily care [30]. To this end, care workers need to explore ways to better understand resident subjective needs, and shift mindset from care provision limited inside the facility to one that focuses on resident preferences.

This study has some limitations. First, participants were not sampled randomly but selected via convenient sampling. Although each facility staff member selected participants (potentially causing selection bias), care worker understanding of each resident's subjective needs may have been insufficient. This underestimation of resident needs may have been even larger had we employed random sampling. Second, structured interviews were conducted by researchers, and not by usual care providers; therefore, resident subjective needs may have been excessively measured. However, this could be interpreted as having provided the opportunity for potential resident needs to rise to the surface, whereas residents might have refrained from expressing them out of consideration of the relationship with their regular care providers. Furthermore, as our participants were cognitively intact and were able to communicate verbally, application of the results to other older residents requires caution. Previous studies have reported the differences in needs of residents with dementia relative to those without dementia

[31]. Finally, the present findings are based on data collected in 2008, and thus interpretation requires caution due to changes in the environment. However, as there has been almost no major policy change concerning long-term care facilities in Japan since 2008, the results of the present study are likely still valid.

Conclusions

Most aged care facility residents had common subjective needs in the areas of BADL and EM. Proportions of residents who expressed needs in the areas of IADL and EL were somewhat low relative to those with needs in BADL and EM, although more than half of the residents had needs in these areas. This may explain why care workers were likely to understand resident needs less in IADL and EL areas than in BADL and EM areas. It will be necessary for care workers to set care goals based on an understanding of resident subjective needs, and plan policies for care provision accordingly.

Additional files

Additional file 1. Translated version for older residents (original questionnaire was provided in Japanese).

Additional file 2. Translated version for staff (original questionnaire was provided in Japanese).

Abbreviations

QOL: quality of life; BADL: basic activities of daily living; IADL: instrumental activities of daily living; EL: environment and lifestyle; EM: emotion; ADL: activities of daily living.

Authors' contributions

TO, TH, and TN designed the study protocol and carried out data analysis; TO drafted the manuscript; TI, TH, and TN supported the drafting of the manuscript and data analysis; and TN conceived and supervised the study. All authors read and approved the final manuscript.

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Acknowledgements

This work, including the development of the questionnaire [10], was supported by a Grant-in-Aid (2007) from the Welfare and Medical Service Agency and was performed by the non-profit organization Life-Designing. TO, TH, and TN were commissioned as researchers of Life-Designing and received honoraria. The questionnaire used in this study was based on our previous study [11], which was performed by a non-profit organization, Association of Living for Ideal Care Enhanced (ALICE). It was partially funded by a Grant-in-Aid (2006) from the Welfare and Medical Service Agency. TO, TH, and TN were commissioned as researchers of ALICE and received honoraria.

Competing interests

TO and TN have received honoraria for consultations regarding testing the reliability and validity of the Modified Barthel Index from *Asahi Kasei Pharma Corporation* (2013–2014), which had neither a direct nor indirect relationship with the work reported in the present manuscript. There are no other potential competing interests to report.

Received: 15 May 2015 Accepted: 11 January 2016
Published online: 28 January 2016

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