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Measurement properties of the Client-centred Care Questionnaire (CCCQ): Factor structure, reliability and validity of a questionnaire to assess self-reported client-centeredness of home care services in a population of frail, older people.

PART 2/2

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ABSTRACT

BACKGROUND — The increasing and specific use of home care services by frail older people asks for the evaluation of the client-centeredness of these services. To our knowledge, no instrument that measures client-centeredness of home care from this group's unique perspective exists. We therefore tested the factor structure, reliability, content validity and acceptability of the Client-centred Care Questionnaire (CCCQ), an existing instrument developed for general home care users, in a population of frail older people in the Netherlands.

METHODS — We used data from a 2-year clinical trial. Study-population: frail, older people who received home care. Data were collected at baseline (n=600) and 24-month measurements (n=389); retest data (n=67) were collected 7-14 days after the 24-month measurements. Analyses: We performed confirmatory factor analysis, investigated reliability and validity parameters and assessed acceptability.

RESULTS — The factor analysis yielded a bifactor model with essential unidimensionality. Internal consistency was high (omega total .88). We found a test-retest reliability of total test scores of .81; the standard error of measurement was 2.61 (total score range 15-75) and the limits of agreement were -7.03 and 7.86. We rejected three out of four hypotheses for construct validity.

CONCLUSIONS — The CCCQ is sufficiently unidimensional to permit the use of total test scores. We found acceptable reliability values, but considered our results on construct validity inconclusive. Respondents found the CCCQ questions challenging to answer, which is indicative of a high degree of respondent burden. Future instruments that measure client-centeredness of home care from the frail, older client's perspective should therefore be tailored to the specific circumstances of this population.

BACKGROUND

Over the past few decades, a paradigm shift in patient care-delivery has occurred, replacing the provider-driven, biomedical model with a type of practice that embraces a holistic approach to health and care services [1-6]. Research suggests that implementation of this type of practice is associated with improved patient and process outcomes [7;8], and administrators, policy makers, researchers and health care professionals increasingly consider it essential to achieving high-quality patient care [9;10]. However, so far there is no clarity as to how this holistic approach should be conceptualized, and various definitions, theoretical frameworks and terms have been adopted to describe its underlying philosophy [11;12]. One of the terms often used is client-centred care, which has been defined as a method of care delivery that advocates client autonomy, positions the client's values, needs and preferences at the center of the care process, and focuses on a cooperative client-provider relationship [13-15]. Based on the premise that a client-centred approach is intrinsic to a high quality of care delivery, home care organizations have been encouraging the implementation of client-centered practices among their staff [13;16].

Due to aging of the population and the current trend to 'age in place', an increasing share of care services from these organizations is aimed at frail older people with multiple chronic conditions [17]. In the Netherlands, home care services provide assistance with personal care and daily living (such as taking a shower, shaving or household organization), medical care (such as wound care) and in-home therapy and treatment (such as stroke rehabilitation). Research has shown that frail older people use home care services more frequently and have more complex care needs than older people who are not frail [18]. Therefore, frail older home care clients differ from other home care users in terms of care needs and demands; moreover, they might have a distinct perspective on the nature and quality of the way care is delivered to them. These characteristics necessitate the evaluation the extent to which home care organisations successfully achieve client-centeredness in this particular group. However, there is a lack of feasible measurement instruments to perform such an evaluation.

Aiming to fill this void, we investigated whether the Client-Centered Care Questionnaire (CCCQ), an existing instrument designed to measure client-centeredness of home care services from the care receiver's perspective, could be used in a population of frail older people [16]. We considered a reassessment of the CCCQ's measurement properties necessary for two

reasons. First, the CCCQ was developed and tested in a small sample of general home care clients ($n = 107$; mean age = 73.5 years ($SD = 12.5$), female = 74 %; marital status = 52 % married; living situation = 40 % living alone). Since the developers did not report characteristics related to health status, care needs or functioning when describing characteristics of their test population, we have little insight into how well frail, older people were represented in this group. This lack of insight causes insecurity as to whether the CCCQ is reliable and valid to use among frail older home care clients, whose specific circumstances and characteristics set them apart from the general population. Furthermore, while the CCCQ developers reported several reliability and validity parameters of their measurement instrument, they recommended further testing of the instrument's reliability and validity. We therefore evaluated the CCCQ's factor structure, reliability, validity and acceptability in a population of frail older people. This paper reports the results of our study.

METHODS

The Client-centred Care Questionnaire (CCCQ)

The CCCQ is a previously developed, 15-item Dutch questionnaire (total score range 15-75) that assesses the client-centeredness of care delivery from the perspective of home care clients [16]. To develop the CCCQ, researchers first conducted a two-phase qualitative study among clients who had been receiving home care for a long period of time. Study results suggested that clients perceive their care as client-centred when they feel recognized and respected by their caregivers, and when they experience autonomy with respect to the way care is delivered. Based on these outcomes, 15 items were formulated (see Appendix); item 1-10 (subsection A) covers the concept *conduct by caregivers*, and item 11-15 (subsection B) covers the construct *autonomy*. In order to score all items in the same direction, item 7 needs to be reversed (see Appendix). Each item is scored on a 5-point Likert scale that ranges from 1 (totally disagree) to 5 (totally agree), and includes a middle category 'don't know/no opinion'. The developers tested the questionnaire in a sample of clients of three home organizations and reported the following results: a principal component analysis (PCA) yielded one factor, suggesting client-centred care to be a homogeneous construct. Internal consistency was high (Cronbach's $\alpha = .94$). Construct validity was established by testing

hypotheses: the researchers expected a difference in total CCCQ scores between clients of three different home care organizations, a weak correlation of the total CCCQ score with client characteristics, and a strong correlation of total CCCQ scores with clients' overall satisfaction with their care. Outcomes were in line with the researchers' expectations [16].

Study design and participants

We used data from the older Adults: Care in Transition (ACT) study, a 2-year clinical trial that investigated the effectiveness and cost-effectiveness of an integrated care model for frail older people in two areas of the Netherlands (the Amsterdam area and the West-Friesland area)[19]. All study participants were aged 65 and over, lived at home, and received home care from a home care organisation. Study participants were selected by their primary care physicians based on a composite definition of frailty (one or more limitations in either physical, psychological and/or social areas) [20] and meeting a polypharmacy criterion (5 or more drugs prescribed in the last 3 months). Selected individuals were contacted by telephone and asked to consider study participation. When verbal consent was given, eligibility for trial entry was established with the Program on Research for Integrating Services for the Maintenance of Autonomy case-finding tool for disability (PRISMA-7) [21]. Eligible individuals (PRISMA-7 score 3 or higher) were invited to participate in the study. Participants signed declaration of informed consent. The medical ethics committee of the VU University medical centre approved of the study.

Procedures

Interviewers administered the CCCQ as part of a larger in-home, computer-based interview that lasted one-hour and contained multiple questionnaires. The data entry program used by interviewers did not allow for items to remain unanswered. The fifteen CCCQ items were administered halfway through the interview, and took respondents a average of 12 minutes to answer (range: 5 - 20 minutes). We collected data at baseline (n=600) and at 24-months (n=389); retest data were collected between 7 and 14 days after the 24-month measurements in a random sample of 67 study participants in the West-Friesland region. Using the 24-month measurements allowed us to

add useful items for the evaluation of reliability and validity (see below), and to perform a retest. Sociodemographic information about the study population was derived from ACT-study baseline data. The population size difference between the baseline and 24-month sample was due to trial dropout (n=215), the exclusion of individuals who had moved to a long term care facility or stopped receiving home care in between measurements (n=73), and the inclusion of individuals who had started receiving home care between measurements (n=77).

- *Factor structure*

We used CCCQ baseline data to assess structural validity.

- *Reliability*

We used CCCQ baseline data to determine internal consistency, and 24-month and retest CCCQ data to calculate test-retest reliability and measurement error. In order for test-retest data to be suitable for analysis, respondents need to undergo minimal change between test and retest measurements in the domain of the measured concept [22]. We therefore excluded individuals whose experience of client-centeredness had changed in the time period between test and retest by adding a one-item transition question to the retest protocol. The question was composed by the researchers in consultation with a panel of older people, and was as follows: “Compared to 2 weeks ago, do you feel that you are at the center of the care you receive?”. The item was scored on a 5-point Likert scale (“much more (than 2 weeks ago)” to “much less (than 2 weeks ago)”).

- *Construct validity*

We used the 24-months mean CCCQ scores to test hypotheses. Sample characteristics were derived from baseline data (‘sex’, ‘education’) and 24-month data (‘age’). ‘Education’ was recoded into three groups (primary, secondary and higher). We added the following one-item construct question to the 24-month measurement protocol: “I feel that I am at the center of the care I receive”. Similar to the transition question, the item was composed by the researchers in consultation with a panel of older people, and scored on a 5-point scale (“totally agree” to “totally disagree”).

- *Acceptability*

We assessed acceptability at baseline and 24-month measurements.

Statistical analysis

• *Factor structure*

Initially, the developers of the CCCQ found a 1-factor structure. However, as mentioned earlier, CCCQ subsections A and B were formulated based on two client-reported domains of client-centred care (i.e. *conduct by caregivers* and *autonomy*). This two-domain basis gave us reason to consider the possibility of the CCCQ having an underlying factor structure different than the 1-factor structure proposed by the developers. Therefore, we performed a confirmatory item factor analysis (CIFA) for ordered categorical items. CIFA allows researchers to test whether a hypothesized factor structure is supported by actual data, and as opposed to classic confirmatory factor analysis makes use of polychoric correlations [23]. We used the weighted least squares method with mean and variance adjustment (WLSMV) to fit the model.

We aimed to test the fit of three models using Mplus version 6.12. We first tested a 1-factor model, and subsequently tested a 2-factor model that consisted of the two domains *conduct by caregivers* (item 1-10) and *autonomy* (item 10-15). When testing the 2-factor model, we hypothesized item 10 to load on both the factor *conduct by caregivers* and on the factor *autonomy*. We also investigated the fit of a bifactor model. A bifactor model assumes that one general factor is associated with all items, while one or more group factors are simultaneously associated with a subset of items [24;25]. We based our testing of a bifactor model on the conceptual idea that the model accounts for correlations between (1) the 15 CCCQ items that together construct the general factor *client-centeredness* and show the coherence between all items, and (2) for the items that construct the individual group factors *conduct by caregiver* and *autonomy* and show the coherence between sub groups of items [26]. Higher factor loadings on the general factor indicate a higher contribution of these items to the general construct *client-centeredness*, while higher factor loadings on the group factors indicate a loss of information when aggregating the sub domains of client centeredness into one measure [26]. When testing the bifactor model, we again hypothesized item 10 to load on two factors. To fit the model, we considered the following cut-off points of four commonly used model fit indices to be reflective of an appropriate model fit: root mean square error of approximation (RMSEA) < .05, comparative fit index (CFI) and Tucker-Lewis index (TLI) > .95 and weighted root mean square residual (WRMR) < 1.0 [27]. Of the factor solution that fit our data most adequately, we calculated the descriptives (means, medians, SDs) and the model based reliability parameters (omegas) of the items forming the

general factor *client-centeredness*, and the two group factors *conduct by caregivers* and *autonomy*. We also calculated the explained common variance (ECV), which is the ratio of variance explained by the general factor, divided by the variance explained by the general plus the group factors [28;29]. The ECV is an indicator for unidimensionality of a questionnaire: the higher the ECV, the stronger the general factor is in relation to the group factors. So far, no criterion value for ECV exists to determine whether a general factor is ‘strong’ enough to assume unidimensionality [29].

- *Reliability and measurement error*

To assess reliability, we calculated model-based coefficients omega for summed item scores [29;30]. First, we calculated omega total, which is the proportion of test variance due to all the factors in the model (including the general factor) [31]. Since omega total is an estimate of the reliability of the total score of the items, it is similar to Cronbach’s alpha [30]. In addition, we calculated omega hierarchical, which is the proportion of test variance due to only the general factor [30;31]. A high omega hierarchical is suggestive of unidimensionality of a scale – values closer to .75 have been proposed as a subjective guideline as to what determines a sufficiently high omega hierarchical [32]. Furthermore, to assess the model-based and residual reliability of the subscales of both group factors, we calculated omega and omega-s. A coefficient omega of .80 or higher is considered to correspond with an appropriate reliability. A low omega-s does not contribute to the information provided by omega total [31]. To evaluate the test-retest reliability of total scores, we calculated the ICC_{agreement} with a two-way (patients x time) random effects model [33]. ICC values of .70 or higher are generally considered acceptable. To estimate measurement error, we calculated the standard error of measurement (SEM). We derived the SEM from the error variance in the ICC_{agreement} formula, wherein $SEM_{agreement} = \sqrt{(\sigma^2_{time} + \sigma^2_{residual})}$. To calculate the limits of agreement, we used the Bland-Altman method [34].

- *Construct validity*

We tested four hypotheses to assess construct validity. We expected the correlation between the total test scores and the one-item construct question to be .5 or higher (hypothesis 1). We expected the mean of the total test scores to be higher in women (hypotheses 2), people of 80 years and older (hypotheses 3) and people with secondary or primary education (hypotheses 4) [35]. We

used Spearman's rank correlation coefficient to test hypothesis 1, independent sample t-tests to test hypothesis 2 and 3, and a one-way ANOVA with Bonferroni correction to test hypothesis 4 (Table 4) [22]. Since hypotheses 2-4 are one-sided, we calculated one-sided p-values.

• *Acceptability*

Acceptability was assessed by descriptive analyses of the number of '3' scores (response category 'don't know/no opinion'), and floor and ceiling effects.

RESULTS

Factor structure

We tested different model fits. First, we investigated the 1-factor solution proposed by the original authors of the CCCQ. Based on the aforementioned cut-off criteria for the model fit indices, we classified the fit statistics for the 1-factor model as poor. We therefore proceeded to test a 2-factor model. We hypothesized items 1-10 to load on the factor *conduct by caregivers*, and items 10-15 to load on the factor *autonomy*. Since the fit indices of this model also showed a poor model fit, we then tested whether a bifactor model would fit our data. We hypothesized all items to load on the general factor *client-centeredness*, while items 1-10 load on the group factor *conduct by caregivers* and items 10-15 on the group factor *autonomy* (bifactor model A). Although the fit indices suggested an appropriate model fit, we found that items 4 to 10 all had low factor loadings ($< .25$) on the group factor *conduct by caregivers* and that item 10 had a low factor loading on the item *autonomy*. The low factor loadings indicate that these items do not contribute unique information to the group factors. We therefore tested a fourth model (bifactor model B). In bifactor model B we accounted for the low sub factor loadings of items 4 to 10 by constraining the loadings of these items on the group factor *conduct by caregivers*, as well as the loading of item 10 on the group factor *autonomy*, to zero. This reduced the test score range for the group factor *conduct by caregiver* to 3-15 (CCCQ items 1-3) and for the group factor *autonomy* to 5-25 (CCCQ items 11-15). Table 2 presents the fit indices of the 1-factor, 2-factor and bifactor models. Bifactor model B and its factor loadings are shown in Figure 1. Table 1 presents the baseline characteristics of the study population.

Table 1
Baseline characteristics of 600 frail, older home care clients living in the Netherlands.

Age Mean (SD) (Range)	83.0 (6.6) (65.3-99.0)
Sex, female (N (%))	450 (75.0)
Home care use, hours/week Mean (SD) (Range)	4.4 (3.1) (1.0-28.0)
Country of origin (N (%)) the Netherlands Other country	544 (90.7) 56 (9.3)
Marital status (N (%)) Widow/widower or partner deceased Married Divorced Single Not married, living with partner Unknown	342 (57.0) 130 (21.7) 70 (11.7) 52 (8.7) 5 (0.8) 1 (0.2)
Living situation (N (%)) At home, alone At home, with others Other	399 (66.5) 130 (21.7) 71 (11.8)
Primary informal caregiver (N (%))	323 (53.8)
Chronic conditions (self-reported) (N (%)) Urinary incontinence Heart disease Pulmonary disease Diabetes Mellitus Depression Malignancy	248 (41.3) 221 (36.8) 165 (27.5) 169 (28.2) 94 (15.7) 62 (10.3)
Self-reported health (N (%)) Excellent, very good or good health	247 (41.2)
ADL limitations 1 or more limitations	565 (94.2)
Total CCCQ test scores Mean (SD) (Range) Median	53.5 (6.3) (27-73) 54.0

SD = standard deviation; ADL=Activities of Daily Living; CCCQ= Client-Centered Care Questionnaire

Table 2
means, medians, SDs and model-based omegas for bifactor model B.

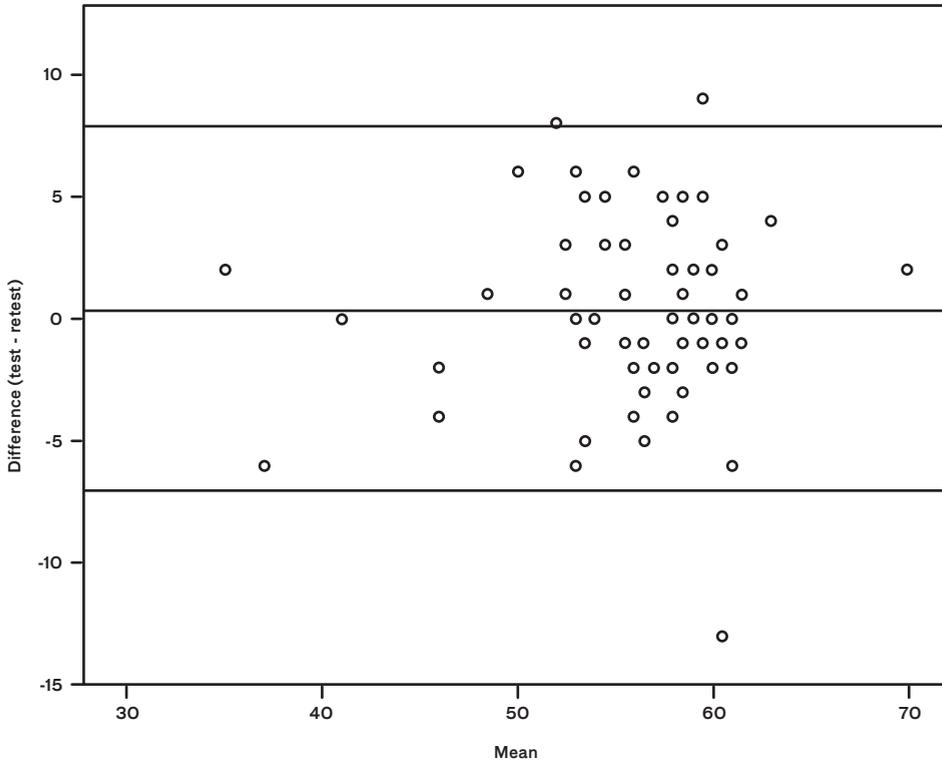
Score Items (range)	Mean (range)	SD	Omeegas
General factor client-centeredness Item 1-15 (15-75)	53.5 (27- 73)	6.3	wt = .88 wh = .77
Factor treatment by caregiver Item 1-3 (3-15)	11.7 (4-15)	2.0	ω = .86 ω-s = .06
Factor autonomy Item 11-15 (5-25)	17.1 (6-25)	3.3	ω = .78 ω-s = .32

SD=standard deviation; wt=omega total; wh=omega hierarchical; ω=omega; ω-s=omega-s.

Reliability and measurement error

The ECV value of bifactor model B was .74, which indicates that little variance remains unexplained by the general factor. In addition, the model yielded omega total and omega hierarchical values of .88 and .77, respectively, which indicates that $.77/.88=88\%$ of the reliable variance in the total test scores can be accounted for by the general factor. Furthermore, omega-s values of both subscales of the group factors *conduct by caregiver* and *autonomy* were low (.06 and .32). The low omega-s values indicate that the group factors do not contribute additional information to the information provided by omega total. The above findings suggest that the interpretation of the total test score was hardly confounded by the group factors *conduct by caregiver* and *autonomy*, which points towards essential unidimensionality of the scale. Finally, we found that omega values of the two subscales of the group were high (.86 and .78, respectively), which suggest appropriate model-based reliability of the group factors. Omega values and means, medians and SD's and of the general factor and group factors are shown in Table 3. The test-retest data yielded an ICC value of the total test scores of .81. This is considered acceptable. On a scale range of 15-75, the SEM-value was 2.61 (4.3 % of the total scale range), and the limits of agreement were -7.03 and 7.86. Figure 2 shows the Bland-Altman plot.

Figure 2
Bland-Altman plot of agreement between test and retest scores of the CCCQ (N=67).



Construct validity

Results of testing the four hypotheses for construct validity were as follows: the correlation between the total CCCQ scores and the 1-item construct question was lower than .5, we found no significant difference in distributions of CCCQ scores between sexes, people who were 80 or older had no significantly higher CCCQ scores than people under 80, and we found that CCCQ scores of people with a higher education were significantly lower than scores of people with primary or secondary education (see Table 3). Three out of four hypotheses were therefore rejected.

Table 3
Hypotheses for construct validity.

Hypothesis	Result	P-value	Conclusion
1. Correlation between CCCQ and one-item construct question > 0.5	Spearman's correlation = .195	1.000	Rejected
2. Mean CCCQ score is higher in women	Mean scores men: 54.57 Mean scores women: 54.72	.241**	Rejected
3. Mean CCCQ score is higher in people who are 80 years or older.	Mean scores < 80: 55.40 Mean scores ≥80: 54.37	.977**	Rejected
4. Mean CCCQ score is lower in people with higher education.	Mean scores primary education: 55.07 Mean score secondary education: 54.90 Mean score higher education: 52.87 Overall difference between groups Higher education – primary education Higher education – secondary education	0.045* 0.035*,** 0.025*,**	Not rejected Not rejected

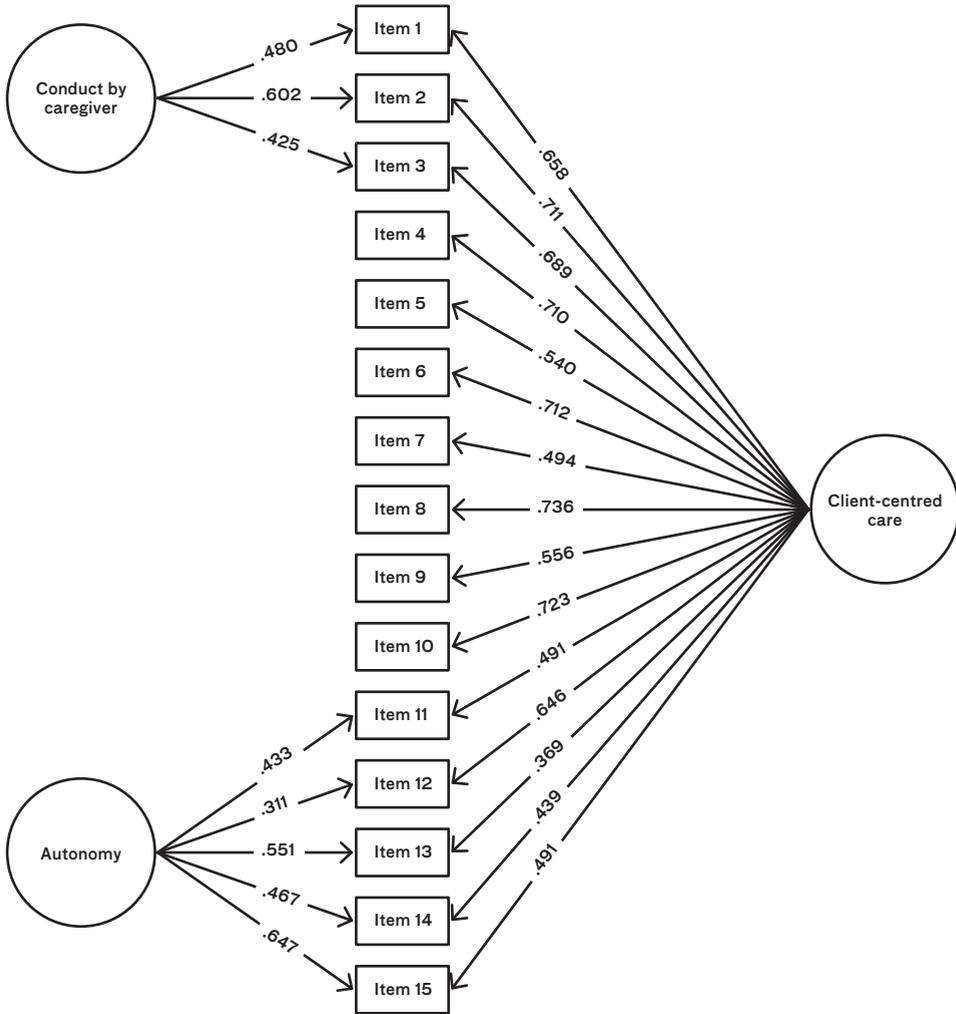
* Significant difference; $p \leq 0.05$

** one-sided p-value

Acceptability

At both baseline measurements and 24-month measurements, item 5 showed the highest percentage of ‘don’t know/no opinion’ responses (37.8% and 27.2%). The items with the lowest percentage of ‘don’t know/no opinion’ responses were item 1 (5.0% at baseline) and item 2 (1.3% at 24 months). We found no floor or ceiling effects.

Figure 1
 Bifactor Model B (general factor *client-centredness* and group factor *conduct by caregiver* and *autonomy*) and the factor loadings. Item 7 is reverse scored.



DISCUSSION

This study investigated the measurement properties of the CCCQ, a questionnaire evaluating the client-centeredness of home care from the client's perspective, in a population of frail older people. The population of frail home care clients that we tested the CCCQ in differed from the population that the CCCQ was originally developed in [16]. People in our population were almost 10 years older, were less often married and were more often living alone. Furthermore, people who answered the CCCQ questions often suffered from chronic conditions and almost always experienced one or more limitations in Activities of Daily Living (ADL); in addition, more than half of the people indicated that they did not consider their health to be good.

Factor structure

As opposed to the 1-factor solution proposed by the developers, we found that a bifactor model best fit the CCCQ data. It is possible that this difference is due to differences in population characteristics, or to the original study's small sample size, which may have caused instability of the data. Although our bifactor model A showed an appropriate model fit, the fact that several items showed low loadings on the group factors indicates that these items contribute little to the information derived from the group factors, and that removing them is preferable in order to avoid unnecessary complication of the model. While bifactor model B showed sufficient, but less adequate fit indices than bifactor model A, we preferred it based on its simpler structure.

We concluded that a unidimensional application of the CCCQ (i.e., aggregating multidimensional information in one measure and calculating a total test score) should be preferred over calculating sub scores. We based our conclusion that the CCCQ is sufficiently unidimensional on three criteria: (1) a high ECV, (2) a high omega total and omega hierarchical (indicating that the general factor accounts for a large share of the reliable variance), and (3) low omega-s values. Other authors have reported unidimensionality of instruments based on similar criteria [32;36;37]. However, since so far there is no standard approach to determine whether a scale is sufficiently unidimensional, this conclusion is tentative [29;38].

In bifactor model B, CCCQ items 13-15 show higher loadings on the group factor *autonomy* than on the general factor *client-centeredness*, which indicates that, although we considered omega-s of the factor *autonomy* low (.32),

the factor may still contribute some information to the construct client-centeredness. It could therefore be argued that calculating a total test score would mean a loss of information on the factor *autonomy*. A practical implication of this finding is that users who are particularly interested in the autonomy domain of client-centeredness may choose to calculate separate subscores for the factor *autonomy*.

Reliability and validity

Taking into account the total scale range of 15-75, we considered the SEM to be relatively small compared to the total range of the scale (4.3%). The limits of agreement values indicate that, when using the CCCQ to measure change over time, change scores that fall between – 7.03 and 7.86 are likely to be due to measurement error [22]. In other words, only outside this range is the CCCQ able to detect change free of measurement error. Since we did not investigate what change scores indicate a relevant change, we cannot say whether the values of the limits of agreement affect the CCCQ's ability to measure relevant change beyond measurement error.

The weak correlation between our one-item construct question and the total test scores and the fact that we rejected two out of three hypotheses about group differences suggests poor construct validity. However, our assessment of construct validity has a few limitations. First, due to a lack of viable alternatives, we used a self-composed one-item question as a standard for client-centeredness. Although we composed the question in consultation with a panel of older people, the well-known fact that one-item questions are prone to poor reliability and validity may explain the weak correlation we found between the one-item construct question and the total test scores. In addition, since a literature search did not yield information about known group differences in perceived client-centeredness between frail older home care clients, we based hypotheses 2, 3 and 4 on results of a study investigating a population different from ours [35]. These two limitations indicate that it would be preliminary to conclude that the CCCQ does not properly measure the construct 'client-centeredness' in our population.

Acceptability

Investigation of project interviewers' experience with administrating the CCCQ indicates that a high degree of respondent burden might explain why respondents often answered 'don't know/no opinion'. Respondent burden is reflective of the effort required to complete a questionnaire, and is influenced by instrument characteristics such as length, comprehensibility and readability. Interviewers reported that most older people had different experiences with various caregivers, and therefore struggled to say something general about the client-centeredness of their home care. In addition, interviewers reported that the abstract CCCQ items made it challenging for older people to understand or differentiate between questions, and that respondents tended to lose focus after the first couple of questions. The latter is suggested by our finding that item 1 and item 2 showed the lowest percentages of don't know/no opinion' responses. The problems older people had with answering the CCCQ questions might influence the instrument's measurement properties: several authors have reported that the level of respondent burden largely determines the acceptability and feasibility of a measurement instrument among older people [39-41].

Validity of study samples

We believe that our findings can be generalized to the total population of frail older people in the Netherlands: respondents for the ACT study were recruited in two areas of the Netherlands representative for the rest of the country; moreover, baseline characteristics of our population show that participants were of old age and suffered from multiple chronic conditions.

CONCLUSION

In order to enhance and maintain the quality of home care services, it is important to evaluate the client-centeredness of these services from the perspective of clients. When carrying out such an evaluation, having access to an adequate measurement instrument is pivotal. Our study concludes that the CCCQ's reliability parameters are acceptable. However, we want to be cautious to make a definite statement regarding the instrument's construct valid-

ity. The fact that respondents often answered ‘don’t know’/‘no opinion’ to the CCCQ questions might be indicative of a high respondent burden, caused by the theoretical nature of the construct client-centeredness (which causes items to be abstract) and by the fact that in everyday home care practice, older home care clients – especially those suffering from chronic conditions or with complex care needs – often deal with multiple care givers. Based on these findings, we conclude that the CCCQ, although reliable, may not be the most feasible instrument to use when measuring client-centeredness from the perspective of frail older people. Future researchers who wish to measure client-centeredness from the perspective of frail older people should therefore look into developing an instrument that is tailored to the experiences, circumstances and abilities of this specific group. Before taking on such a challenge, however, it may be useful to bear in mind that evaluating the client’s perspective gives us information about only one component of client-centered care, and that outcomes of such evaluations only partly contribute to a comprehensive understanding of the client-centeredness of home care services.

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