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Social care-related outcomes in Finland. Construct validity and structural characteristics of the Finnish ASCOT measure with older home care users

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Abstract

The Adult Social Care Outcomes Toolkit four response-level interview schedule (ASCOT INT4) for service users was translated into Finnish. The aim of this paper was to investigate the construct validity and structural characteristics of the Finnish ASCOT. We used data from a face-to-face interview survey of older people receiving publicly funded home care services, which was conducted in 2016–2017 ($n = 493$), excluding missing values and proxy respondents ($n = 334$). Chi-square tests, adjusted residuals and analyses of variance were used to examine hypothesised associations between each attribute and a number of relevant variables regarding health and well-being, disabilities, living arrangements, social contact and support, experience of service use, and the nature of the locality and environment. Structural characteristics were explored using exploratory factor analysis and Cronbach's alpha test. The EQ-5D-3L and ASCOT were moderately correlated ($r = 0.429$; $p < 0.001$). The ASCOT attributes were statistically positively related to the overall quality of life. For other tested variables, we found a high number of significant associations with the control over daily life, occupation, social participation, and personal cleanliness attributes, but fewer significant associations with the other attributes. Cronbach's alpha was 0.697 and a single factor was extracted. This assessment provides evidence to support the construct validity of the Finnish ASCOT. The results support the introduction of the Finnish ASCOT into Finland for use in practical applications. Future research on its reliability would be useful.

KEYWORDS
ASCOT, assessment, construct validity, Finland, quality of life, social care outcomes

1 | INTRODUCTION

There is a need for criteria which can provide information to help decision-makers allocate limited resources effectively to and within the health and aged care sector (Bergmark et al., 2000; Bowling & Dieppe, 2005; OECD, 2017) and to identify effective services for successful ageing (Clough et al., 2007; Lipszyc et al., 2012; Milne et al., 2014). In social care interventions, the main concern is not health improvement but the need for support to compensate for the loss in the quality of life (QoL) due to disability or/and reduced

capability. Reflecting the social care concern with QoL rather than health, to facilitate decision-making about the relative cost-effectiveness of social care interventions the National Institute for Health and Care Excellence (NICE) suggests using a 'social care quality-adjusted life year' (NICE, 2014), as described by the Adult Social Care Outcome Toolkit (ASCOT). This decision is informed by the evidence demonstrating that the ASCOT measure is more responsive to the effects of social care interventions (Forder & Caiels, 2011; Malley et al., 2012) than the 5-dimensional EuroQol instrument (EQ-5D) (EuroQol Group, 1990)—the measure traditionally suggested by NICE (2014) for economic evaluation of health technologies. It is recommended that the EQ-5D and ASCOT should be used concurrently to describe the wide-ranging effects of interventions affecting health and non-health elements of QoL (Kaambwa et al., 2015).

The ASCOT draws on Sen's (1979, 1985) capability approach to measure social care-related quality of life (hereafter SCRQoL) (Netten et al., 2012). The ASCOT contains eight attributes: *control over daily life* (control, CONT), *personal cleanliness and comfort* (care, PERC), *food and drink* (food, FOOD), *accommodation cleanliness and comfort* (accommodation, ACCO), *personal safety* (safety, PERS), *social participation and involvement* (participation, SOCI), *occupation* (OCCU) and *dignity* (DIGN) (Netten et al., 2012). Evidence for the construct validity of the ASCOT has been found in assessments performed in England (Malley et al., 2012; Rand, 2017), the Netherlands regarding the Dutch-translated ASCOT (van Leeuwen et al., 2015) and Austria regarding the German ASCOT (Trukeschitz, Litschauer, et al., 2020).

The ASCOT four response-level interview schedule for service users (hereafter ASCOT) was translated into Finnish in response to the call for an appropriate measure to evaluate the value of social care services in Finland (Steffansson et al., 2016; Linnosmaa et al., 2016, 2020). This raises the question of whether the descriptive system of the Finnish version of ASCOT captures aspects of SCRQoL and whether the translated instrument consistently measures the constructs of SCRQoL in the Finnish context. The aim of this paper was to assess the validity of the Finnish ASCOT, by focusing on establishing the construct validity. We also explore the structural characteristics of the Finnish ASCOT to inform comparisons between the Finish and other translated versions of ASCOT.

Approaches to the assessment of validity include content, construct, and criterion validity (Mokkink et al., 2019). Content validity refers to the extent to which the ASCOT attributes in a test are properly representative of the concept the test seeks to measure, whereas criterion validity refers to the strength of the relationship between two measures: that is how well the performance of a given measure can predict the performance of another measure of interest (Streiner et al., 2015). As it often happens in QoL research, no appropriate 'gold-standard measure of capability' exists, in relation to which we can judge the performance of a new measure (Coast et al., 2008). Notwithstanding, the main reason why a criterion validation of the ASCOT cannot be done is the widely-recognised issue that there is no other valid measure of SCRQoL that can be used

What is known about this topic?

- The ASCOT for service users only captures partial effects of health dimensions represented by the EQ-5D measure.
- Social care should reflect relevant aspects of overall quality of life (QoL).
- Relationships between the ASCOT attributes and disabilities, and those between the ASCOT attributes and the nature of the locality and environment are not clear.

What does this paper add?

- The EQ-5D and ASCOT measures were found to be statistically moderately correlated (r = 0.429; p < .001), suggesting that both measures could be jointly used, depending on targeted outcomes of interventions.
- The ASCOT attributes except the dignity attribute were statistically positively related to the overall QoL. For older people who are sick, frail, or disabled or with functional limitations, it is more important and relevant to enhance social care-related quality of life with appropriate services rather than health-related quality of life.
- The verified relationships between the attributes and the disabilities and the nature of the locality and environment could result from differences in cultural diversity in terms of the needs and service use, country-specific and individual preferences, and the way or mechanism by which the different care systems had allocated resources for the different disability needs.

as a criterion. There is some overlap with the health-related EQ-5D measure and measures like capability-based ICECAP, but they fall short. The ICECAP comprises five 4-level attributes associated with QoL: attachment, security, enjoyment, role and control (Coast et al., 2008). This issue—the deficiency of each measure such as EQ-5D, ICECAP or ASCOT to comprehensively describe QoL of older people—was indicated in systematic reviews of QoL instruments for aged care (Bulamu et al., 2015; Makai et al., 2014). However, one method used is to assess the construct validity, which describes the extent to which the measure and other relevant factors are related in a way that could be anticipated beforehand (Mokkink et al., 2019; Streiner et al., 2015).

In our assessment, we focused on the construct validity of each of the attributes, using the instrument's descriptive system (Coast et al., 2008; Malley et al., 2012; Milte et al., 2017). We studied whether the Finnish ASCOT attributes described expected associations with the chosen variables. The extent to which the attributes have expected associations with the relevant variables will help to better understand the functioning of the translated ASCOT and provide information on the suitable use of the instrument in research conducted on the older population. Following

previous studies of the measurement properties of ASCOT (Malley et al., 2012; Netten et al., 2012; Rand et al., 2017), the structural characteristics of ASCOT were evaluated by examining the factor structure of the translated instrument and the average of the correlations between all the items in the measure (Mokkink et al., 2019; Streiner et al., 2015) using the Cronbach's alpha (Cronbach, 1951). These analyses of the structural characteristics of ASCOT provide information that is useful for comparing the Finnish and English versions of ASCOT.

2 | METHODS

2.1 | Study design and data

Ethical approval for this study was obtained from the Finnish Institute for Health and Welfare (THL) in January 2016. The ASCOT measure was translated into Finnish in 2015–2016, using forward and backward translations, following international guidelines (Mokkink et al., 2010; Wild et al., 2005). We conducted cognitive interviews (Willis, 2015) to test the pre-final Finnish-translated ASCOT with five service users in a pilot study in January–February 2016. The findings and feedback from the translation and cognitive interview processes as well as changes in the phrasing and wording were reported earlier (Linnosmaa et al., 2016, 2020). The final Finnish-translated version of the ASCOT included in the survey questionnaire was used in the fieldwork for data collection (see further below). A full face-to-face interview questionnaire was adapted from the questionnaire used for the Identifying the Impact of Adult Social Care (IIASC) project in England (Forder et al., 2016; 2018).

In Finland, public social and health care services are provided by independent or joint municipal authorities. Based on the size of the population, we invited the 21 largest Finnish regions to participate in the study. Twelve regions accepted our invitation: Helsinki, Espoo, Vantaa, Tampere, Lahti, Hämeenlinna, Vaasa, Kuopio, Joensuu and Mikkeli, the health and social care region 'Kainuu', and the South Karelia District of Social Affairs and Health Care 'Eksote'. Kainuu and Eksote are joint municipal authorities and the rest of the regions are independent municipal authorities. In April–July 2016, the local authorities had affirmed with written consent that we could interview home care clients. They conveyed our written invitations to randomly chosen regular home care users aged 55 years or above, who then sent their written consent back to us, agreeing to partake in our research. In Finnish legislation, the age of entitlement to an old-age pension is 65 and the older population refers to those aged 65 or older. The lowest age, 55, was chosen because many people aged 55 and older have to use regular home care due to functional impairments or weakened health conditions. In 2016, 57% of retirees on disability pensions were aged 55 and older (Finnish Centre for Pensions www.etk.fi). In August 2016–September 2017, we recruited and trained six research assistants, who conducted computer-assisted face-to-face interviews at the participants' homes, using the Qualtrics software programme (www.qualtrics.com/uk/).

In total, we contacted and interviewed 5.6% of the invited home care clients ($n = 493$). Regarding the age and gender distribution, our collected data closely represented the population of older regular home care service users in Finland. For those aged at least 65, the gender distribution of our sample was similar to that of the nationwide dataset. The sample had a slightly greater proportion of those aged 75–84 compared to that of the nationwide dataset (3%-points), but the difference between two proportions of this age group in the two datasets was not statistically significant ($p > .05$). (Linnosmaa et al., 2020). After excluding missing values from the analysis variables ($n = 155$) and proxy responses ($n = 4$), there were 334 participants with non-proxy responses (Tables 1 and 3).

Each ASCOT attribute indicates four SCRQoL states: 1 = the ideal state (level_1; top level); 2 = no needs (level_2); 3 = some needs (level_3); and 4 = high needs (level_4; bottom level) (Netten et al., 2012). Each dimension of the EQ-5D indicates different states of health: 1 = no problems, 2 = some problems, and 3 = extreme problems (EuroQol Group, 1990). The total EQ-5D score associated with the five dimensions was computed based on the Finnish visual analogue scale (VAS) values (Ohinmaa & Sintonen, 1998). The two endpoints of the VAS measure of health outcomes are usually scaled between 0 and 1, indicating the 'worst imaginable health state' (lowest value) and the 'best imaginable health state' (highest value). Hence, a higher VAS-scored EQ-5D suggests a better health-related QoL. Because the proportion of proxy responses was small (1.2% of the cleaned sample; 0.08% of the survey data), the distributions of the non-proxy responses in the current situation are described (Table 1, Figure 1).

2.2 | Analytical framework

We used the instrument's descriptive system (Malley et al., 2012; Netten et al., 2012) to validate the construct validity of the ASCOT. The rationale for this fits with the intention to develop a set of preference weights for the measure, with each item serving as an attribute to be traded against others in a preference study (for further reading see Brazier et al. (2016)). We therefore aim to check that each item measures the construct it is intended to measure (Mokkink et al., 2019). This approach to construct validity is by hypothesis testing to investigate the relationships between each attribute and the chosen items (Mokkink et al., 2019). Therefore, we formulated a number of hypotheses of likely associations (Tables 2 and 4), which we then tested. We acknowledge that the formulated hypotheses relate to the direction and significance of the associations only. This approach is similar to that applied by, for example, Coast et al. (2008); Malley et al. (2012) and Rand et al. (2017).

To carry out the construct validation by hypothesis testing the expected relationships, we used Fisher's exact tests, a one-way analysis of variance (ANOVA) (McDonald, 2014), and Kendall's (*tau-b* or *tau-c*) correlations that describe overall ordinal associations (Kendall, 1938; Stuart, 1953). To describe the directions of the associations between two levels of two given variables, as a post-hoc

TABLE 1 Responses of older people receiving home care ($n = 493$) and descriptive statistics of the variables used in the analysis ($n = 334$)

Variable	Abbreviation	Analysis sample ($n = 334$)		All participants ($n = 493$)	
		Mean	Std. dev.	Missing cases[a] n (%)	Proxy cases n (%)
ASCOT attributes					
Control over daily life	CONT			23 (4.7%)	6 (1.2%)
Ideal state		0.275	0.447		
No needs		0.413	0.493		
Some needs/high needs		0.311	0.464		
Personal cleanliness and comfort	PERC			21 (4.3%)	2 (0.4%)
Ideal state		0.326	0.470		
No needs		0.536	0.499		
Some needs/high needs		0.138	0.345		
Accommodation cleanliness and comfort	ACCO			18 (3.7%)	4 (0.8%)
Ideal state		0.392	0.489		
No needs		0.491	0.501		
Some needs/high needs 0.117		0.322			
Food and drink	FOOD			15 (3%)	2 (0.4%)
Ideal state		0.557	0.497		
No needs		0.404	0.491		
Some needs/high needs		0.039	0.194		
No needs/some needs/high needs[b]		0.443	0.497		
Personal safety	PERS			16 (3.2%)	2 (0.4%)
Ideal state		0.512	0.501		
No needs		0.377	0.485		
Some needs/high needs		0.111	0.314		
Social participation and involvement	SOCI			19 (3.9%)[c]	6 (1.2%)
Ideal state		0.213	0.410		
No needs		0.428	0.496		
Some needs/high needs		0.359	0.481		
Occupation	OCCU			25 (5.1%)	6 (1.2%)
Ideal state		0.284	0.452		
No needs		0.311	0.464		
Some needs/high needs		0.404	0.491		
Dignity	DIGN			41 (8.3%)[d]	2 (0.4%)
Ideal state		0.449	0.498		
No needs		0.398	0.490		
Some needs/high needs		0.153	0.360		
Living arrangement				3 (0.6%)	
Live alone		0.772	0.420		
Nature of locality and environment					
Design of home				6 (1.2%)	
Meets my needs very well		0.569	0.496		
Meets most of my needs		0.365	0.482		
Meets some of my needs; or totally inappropriate for my needs		0.066	0.248		

(Continues)

TABLE 1 (Continued)

Variable	Abbreviation	Mean	Std. dev.	Missing cases[a] n (%)	Proxy cases n (%)
Get around local area				10 (2.0%)	
Get to all the places		0.356	0.480		
At times difficult to get to		0.290	0.455		
Unable to get to; or not leave home		0.353	0.479		
Care users' experience					
Satisfaction with services[e]				12 (2.4%)	
Extremely, very or quite satisfied		0.922	0.268		
Neither satisfied nor unsatisfied, or		0.078	0.268		
Overall treatment by care workers				0 (0%)	
Always happy		0.589	0.493		
Usually happy		0.344	0.476		
Sometimes or never happy		0.057	0.232		
Social contact and support					
Speak to relatives/friends				8 (1.6%)	
On most days [often]		0.431	0.496		
1–2 times/week [sometimes]		0.356	0.480		
1–2 times/month [occasionally]		0.126	0.332		
< 1 time/month [rarely]		0.087	0.282		
Speak to neighbours				19 (3.9%)	
On most days		0.210	0.408		
1–2 times/week		0.204	0.403		
1–2 times/month		0.171	0.377		
< 1 time/month		0.416	0.494		
Meet up with relatives/friends				10 (2.0%)	
On most days		0.269	0.444		
1–2 times/week		0.446	0.498		
1–2 times/month		0.165	0.371		
< 1 time/month		0.120	0.325		
Text/email relatives/friends				7 (1.4%)	
On most days		0.069	0.254		
1–2 times/week		0.078	0.268		
1–2 times/month		0.090	0.286		
< 1 time/month		0.763	0.426		
Health and well-being					
EQ–5D score		0.511	0.200	3 (0.6%)	
Overall quality of life (QoL)				18 (3.7%)	
Very good		0.096	0.295		
Good	0.437	0.497			
Alright	0.374	0.485			
Bad or very bad		0.093	0.291		
Self-assessed health (SAH)				18 (3.7%)	
Very good or good	0.308	0.463			
Fair		0.380	0.486		
Bad or very bad		0.311	0.464		

(Continues)

TABLE 1 (Continued)

Variable	Abbreviation	Analysis sample (n = 334)		All participants (n = 493)	
		Mean	Std. dev.	Missing cases[a] n (%)	Proxy cases n (%)
Disability (ADLs and IADLs)					
Get up/down the stairs				20 (4.1%)	
Manage on their own		0.183	0.387		
Difficulty, can do it without help		0.246	0.431		
Manage with help/can't do it		0.572	0.496		
Get out of the house				2 (0.4%)	
Manage on their own		0.536	0.499		
Difficulty, can do it without help		0.383	0.487		
Manage with help/can't do it		0.081	0.273		
Get in/out of bed				0 (0.0%)	
Manage on their own		0.656	0.476		
Difficulty, can do it without help		0.228	0.420		
Manage with help/can't do it		0.117	0.322		
Use the toilet/WC				2 (0.4%)	
Manage on their own		0.605	0.490		
Difficulty, can do it without help		0.246	0.431		
Manage with help/can't do it		0.150	0.357		
Wash hands/face				0 (0.0%)	
Manage on their own		0.722	0.449		
Difficulty, can do it without help		0.171	0.377		
Manage with help/can't do it		0.108	0.311		
Bath/shower				2 (0.4%)	
Manage on their own		0.284	0.452		
Difficulty, can do it without help		0.117	0.322		
Manage with help/can't do it		0.599	0.491		
Dressed/undressed				2 (0.4%)	
Manage on their own		0.413	0.493		
Difficulty, can do it without help		0.278	0.449		
Manage with help/can't do it		0.308	0.463		
Eat/feed self				3 (0.6%)	
Manage on their own		0.835	0.371		
Difficulty, can do it without help		0.093	0.291		
Manage with help/can't do it		0.072	0.259		
Do paperwork/pay bills				1 (0.2%)	
Manage on their own		0.249	0.433		
Difficulty, can do it without help		0.051	0.220		
Manage with help/can't do it		0.701	0.459		
Household shopping				2 (0.4%)	
Manage on their own		0.144	0.351		
Difficulty, can do it without help		0.135	0.342		
Manage with help/can't do it		0.722	0.449		
Do routine housework				2 (0.4%)	
Manage on their own		0.072	0.259		

(Continues)

TABLE 1 (Continued)

Variable	Abbreviation	Analysis sample (*n* = 334)		All participants (*n* = 493)	
		Mean	Std. dev.	Missing cases[a] *n* (%)	Proxy cases *n* (%)
Difficulty, can do it without help		0.087	0.282		
Manage with help/can't do it		0.841	0.366		
Take medications				2 (0.4%)	
Manage on their own		0.222	0.416		
Difficulty, can do it without help		0.015	0.122		
Manage with help/can't do it		0.763	0.426		

[a]The number of missing cases also included response options 'Prefer not to say' and 'Do not know'.
[b]Three lowest levels (no/some/high needs) were collapsed.
[c]Inclusive of two cases with the response 'Prefer not to say'.
[d]Inclusive of one case with the response 'Prefer not to say'.
[e]Highest three levels or lowest four levels were collapsed.
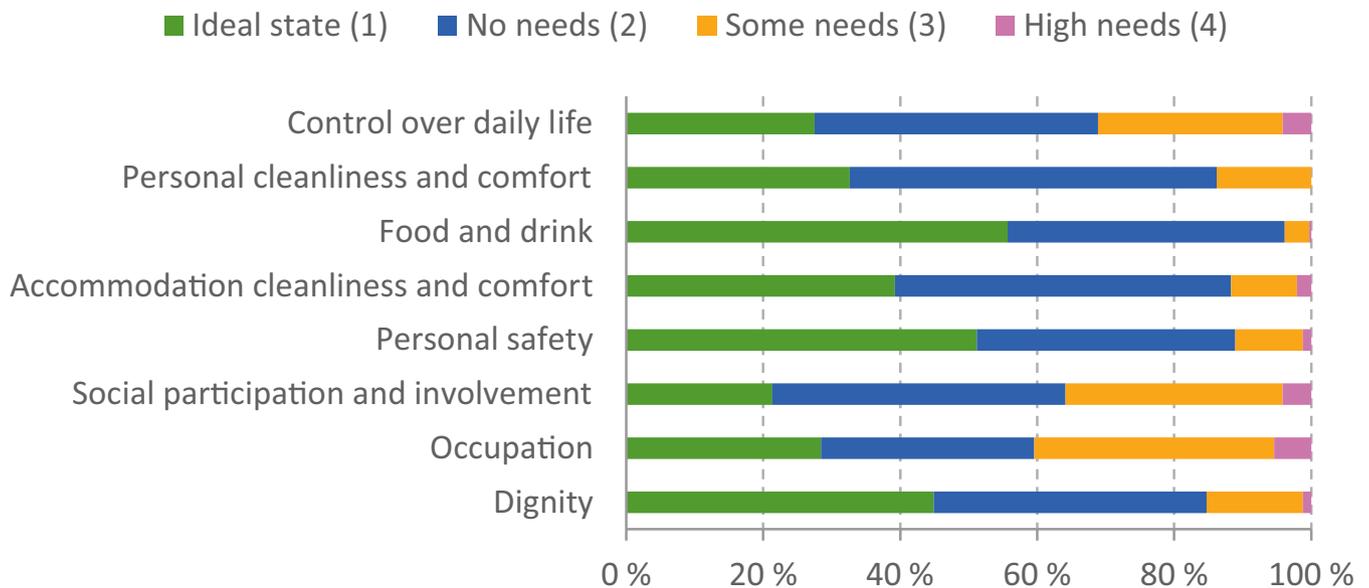

FIGURE 1 Responses of older Finnish people receiving home care to the ASCOT attributes in their current situation (*n* = 334) [Colour figure can be viewed at wileyonlinelibrary.com]

analysis we computed adjusted residuals (Sharpe, 2015). They are the raw residuals (the difference between the observed counts and expected counts) divided by an estimate of the standard error and are used to account for the variation due to the sample size.

To assess the structural characteristics of the Finnish version of ASCOT so we could see how it compared to the English version, we conducted a factor analysis. We used an exploratory factor analysis (EFA) followed by a varimax rotation (Kaiser, 1958). We selected factors on the basis of eigenvalues (>1), as well as scree test results and values from Kaiser-Meyer-Olkin tests (greater than 0.60). The tests were conducted in Stata version 15.1 (StataCorp, 2017). We only considered results with a statistical significance of *p* <.05 (Bross, 1971) and the adjusted residuals with absolute values 2 or greater (Sharpe, 2015). We also calculated Cronbach's alpha (Cronbach, 1951). The generally accepted rule is that a Cronbach's

alpha of 0.6–0.7 is acceptable and that of 0.8 or higher is very good (Tab er, 2018).

3 | RESULTS

3.1 | Construct validity: the ASCOT and EQ-5D

The EQ-5D was significantly and positively associated with each attribute (Table 3). The association between the EQ-5D and the DIGN-attribute was significantly positive, suggesting that a better health-related QoL was associated with a better ASCOT dignity state. Furthermore, differences between the mean EQ-5D score for level_1 and level_2 for the ACCO, SOCI and DIGN attributes were not statistically significant. The four level states of each attribute

TABLE 2 Variables analysed and hypothetical associations

Variable	Hypothetical association
Dignity	The ASCOT measure includes a dignity attribute to describe the impact of the care provided on an individual's feeling of self-worth (Malley et al., 2012). No associations between this attribute and the chosen variables were hypothesised.
Living arrangement Living alone	Feelings of safety and motivation for participating in social activities with other people are generally enhanced if living with others (Malley et al., 2012). We expected a positive association with the control over daily life attribute and negative associations with the accommodation cleanliness and comfort, personal safety and social participation and involvement attributes.
Health and well-being EQ–5D Overall self-rated quality of life (QoL) Self-assessed health (SAH)	We expected positive associations between the EQ–5D and the ASCOT attributes (except dignity). Since social care reflects relevant aspects of QoL, we expected positive associations of the ASCOT attributes except the dignity attribute with the overall QoL (Netten et al., 2012). The most often utilised health measure in social science research is SAH (Hsu, 2007; Torrington, 2009). Better SAH was expected to be related to better ASCOT outcomes in the attributes except the dignity attribute.
ADLs and IADLs (disability variables)	Disability variables typically reflect limitations in functional disability (James et al., 2011). For the attributes: control over daily life, personal cleanliness and comfort, and food and drink, we expected that those reporting that they can manage on their own would be more likely to select the top level (ideal state) (Malley et al., 2012). The social participation and involvement attribute and the occupation attribute were expected to be positively related to getting out of the house and to the IADL items: doing paperwork, household shopping, doing routine housework and taking medication. Reviews have indicated that social participation and engagement in late life are related to improved activities of daily living (James et al., 2011; Shah et al., 2012; Mendes de Leon & Rajan, 2014) and survival (Hsu, 2007; Ishibashi et al., 2013; Lennartsson & Silverstein, 2001) as well as to motivation and activation for older people to leave the house (Szanton et al., 2015). The occupation attribute was expected to be positively related to the ADL items: getting around indoors, getting in/out of bed, using the toilet, washing hands/face, and bathing (Malley et al., 2012).
Nature of locality and environment Getting around local area Design of home	The physical environment can play an important role in supporting activity and enhancing people's well-being (Torrington, 2009). We expected better accessibility of (getting around) the local area to be related to improved outcomes in the control over daily life, occupation and social participation attributes. Suitable design of private homes better enables the provision of care at home (Rand et al., 2017). We expected positive relationships between the design of the home with the control over daily life, personal cleanliness and comfort, food and drink, accommodation cleanliness and comfort and personal safety attributes.
Social contact and support Speak to relatives/friends Speak to neighbours Meet up with relatives/friends Text/email relatives/friends	People may find their time better occupied, feel more safety and less loneliness and experience better overall QoL through social contacts made with others outside home (Malley et al., 2012). A positive association was expected between each social contact/support item and each of the attributes: personal safety, social participation and involvement, and occupation.
Care users' experience Satisfaction with social care services Overall treatment by care workers	Satisfaction with services and overall treatment by care workers were expected to be positively associated with all the attributes except the dignity attribute (Malley et al., 2012; Rand et al., 2017).

were shortly specified as the four levels of the attribute. Using the Finnish preference-weighted estimates of the attribute-levels (from our work in progress) to compute the ASCOT score, we obtained a positive, moderate correlation between the preference-weighted ASCOT and the VAS-scored EQ-5D (r = 0.429; p <.001).

3.2 | Construct validity: the ASCOT attributes and chosen items

3.2.1 | Control over daily life

The CONT-attribute was statistically significantly related to the hypothesised variables in the expected directions (Table 4). The adjusted residuals indicate that those living alone were less likely to report a CONT-level_3 and more likely to report a CONT-level_1. As expected, for the majority of the disabilities, when significant associations were found, better outcome levels were reported by those managing by themselves and poorer outcome levels by those who managed with help or who could not do the activity. Unexpectedly, the CONT-attribute was significantly related to speaking with neighbours and meeting up with relatives/friends.

3.2.2 | Personal cleanliness and comfort

The PERC-attribute was positively associated with getting around the local area, speaking to neighbours, getting up/down the stairs

TABLE 3 Associations between the EQ-5D and the ASCOT attributes ($n = 334$)

Attribute (abbreviation)[a] and attribute-level	Sample ($n = 334$)				ANOVA and post hoc test		
	n	EQ–5D Mean	Std. Dev.		Coeff.[b]	F-stat. or t-value[c]	p-value
Control over daily life (CONT)	334	0.511	0.200			21.54	0.000
I have as much control over my daily life as I want	92	0.604	0.222		Base		
I have adequate control over my daily life	138	0.511	0.157		−0.093	−3.67	0.000
I have some control over my daily life, but not enough; or I have no control over my daily life	104	0.427	0.194		−0.177	−6.56	0.000
Personal cleanliness and comfort (PERC)[d]	334	0.511	0.200			14.44	0.000
I feel clean and am able to present myself the way I like	109	0.563	0.207		Base		
I feel adequately clean and presentable	179	0.512	0.190		−0.051	−2.19	0.029
I feel less than adequately clean or presentable	46	0.382	0.157		−0.181	−5.37	0.000
Food and drink (FOOD)						6.24	0.013
I get all the food and drink I like when I want	186	0.535	0.201		Base		
I get adequate food and drink at OK times; or I don't always get adequate or timely food and drink; or I don't always get adequate or timely, and I think there is a risk to my health	148	0.480	0.195		−0.054	−2.50	0.013
Accommodation cleanliness and comfort (ACCO)	334	0.511	0.200			3.92	0.021
My home is as clean and comfortable as I want	131	0.521	0.212		Base		
My home is adequately clean and comfortable	164	0.522	0.198		0.001	0.04	0.968
My home is not quite or not at all clean or comfortable enough	39	0.427	0.133		−0.094	−2.60	0.010
Personal safety (PERS)	334	0.511	0.200			7.73	0.001
I feel as safe as I want	171	0.545	0.203		Base		
Generally I feel adequately safe, but not as safe as I would like	126	0.493	0.191		−0.052	−2.28	0.023
I feel less than adequately safe or I don't feel at all safe	37	0.414	0.176		−0.131	−3.71	0.000
Social participation and involvement (SOCI)	334	0.511	0.200			11.46	0.000
I have as much social contact as I want with people I like	71	0.548	0.206		Base		
I have adequate social contact with people	143	0.549	0.199		0.001	0.05	0.961
I have some social contact with people, but not enough or I have little social contact with people and feel socially isolated	120	0.443	0.180		−0.105	−3.61	0.000
Occupation (OCCU)	334	0.511	0.200			21.73	0.000
I'm able to spend my time as I want, doing things I value or enjoy	95	0.600	0.204		Base		
I'm able to do enough of the things I value or enjoy with my time	104	0.527	0.186		−0.073	−2.75	0.006
I do some of the things I value or enjoy with my time, but not enough or I don't do anything I value or enjoy with my time	135	0.436	0.178		−0.164	−6.51	0.000

TABLE 3 (Continued)

Attribute (abbreviation)[a] and attribute-level	Sample (n = 334)				ANOVA and post hoc test		
	n	EQ–5D Mean	Std. Dev.		Coeff.[b]	F-stat. or t-value[c]	p-value
Dignity (DIGN)	334	0.511	0.200			5.81	0.003
The way I'm helped and treated makes me think and feel better about myself	150	0.529	0.203		Base		
The way I'm helped and treated does not affect the way I think or feel about myself	133	0.524	0.189		−0.005	−0.20	0.843
The way I'm helped and treated sometimes/ completely undermines the way I think and feel about myself	51	0.424	0.198		−0.104	−3.26	0.001

Note.: The ASCOT measure is reproduced with permission from the University of Kent. All rights reserved.

[a]The lowest two levels of the attribute were collapsed. For the food and drink attribute, the three lowest levels were collapsed.

[b]The reference level was the highest level of the attribute. The estimated coefficient was the mean difference with respect to the base level.

[c]F-statistics for the estimated models; t-values for estimated coefficients

[d]There was no lowest level for the attribute.

or out of the house, or getting around indoors and household shopping, which we did not hypothesise (Table 4). The positive associations with personal-care items (using the WC; washing hands/face) were not statistically confirmed. The adjusted residuals indicate that those who only managed with help or could not carry out an activity chose PERC-level_3 more often.

3.2.3 | Food and drink

The FOOD-attribute had positive but insignificant associations with the self-assessed health (SAH) status, eating/feeding oneself and satisfaction with services. Unexpectedly, it was positively associated with the accessibility of the local area, getting out of the house and household shopping items (Table 4). Regarding these significant relationships, those doing an activity by themselves were more likely to report a FOOD-level_1 and less likely to report a FOOD-level_2, while those managing with help or who could not do an activity were more likely to report a FOOD-level_2 and less likely to report a FOOD-level_1. Hence, the computed Kendall's correlations matched our expectations. However, a significantly positive association with the personal-care item (bathing/showering) was unexpected.

3.2.4 | Accommodation cleanliness and comfort

The ACCO-attribute was positively correlated with the bathing/showering item and negatively correlated with getting in/out of bed and toileting, which we did not anticipate. Thus, while the positive association between the PERC-attribute and toileting item was insignificant, the ACCO-attribute was also involved in the PERC-attribute (via toileting and bathing items). Unexpectedly, a positive direction of the association with SAH was not statistically supported. As expected, those living alone were less likely

to report an ACCO-level_1. For getting in/out of bed and toileting, those managing by themselves were less likely to report an ACCO-level_1 and more likely to report an ACCO-level_2. Those doing the activity with some difficulty were more likely to report an ACCO-level_3.

3.2.5 | Personal safety

The PERS-attribute was unexpectedly but positively related to the accessibility of the local area and negatively related to doing paperwork. The association with living alone was not statistically confirmed. The adjusted residuals indicate that those who could manage to get around the local area all of the time [or with difficulty at times] reported a PERS-level_1 [or level_3] more often, while those who could not were less likely to report a PERS-level_1 and were more likely to report a PERS-level_2. Those who managed to complete paperwork with some difficulty were more likely to report a PERS-level_3.

3.2.6 | Social participation and involvement

The SOCI-attribute was positively and unexpectedly associated with the design of the home (Table 4). The adjusted residuals show that people living alone were less likely to report a SOCI-level_3. The positive connection between the respondents' SOCI-values and living alone was unexpected. The positive relationship between the SOCI-attribute and the design of the home was also unexpected. However, the positive relationships between the reported SOCI-attribute and 'meeting up with' ($p = 0.563$) or 'texting/emailing' ($p = 0.085$) relatives/friends were not statistically supported. Our computed Kendall's correlation coefficient indicates a strong correlation between 'speaking to' and 'meeting up with' relatives/friends, suggesting that the former partially

TABLE 4 Results for the relationships between each ASCOT attribute and the analysis variables (n = 334)

Variable	CONT Control over daily life Exp.[a]	Tau[b]	p[c]	PERC Personal cleanliness Exp.[a]	Tau[b]	p[c]	FOOD Food and drink Exp.[a]	Tau[b]	p[c]	ACCO Accom. Cleanliness Exp.[a]	Tau[b]	p[c]	PERS Personal safety Exp.[a]	Tau[b]	p[c]	SOCI Social participation Exp.[a]	Tau[b]	p[c]	OCCU Occupation Exp.[a]	Tau[b]	p[c]	DIGN Dignity Tau[b]	p[c]
Live alone	+		0.013			0.436			0.513	−		0.026	−		0.470	−		0.049			0.053		0.191
Design of home	+	0.188	0.001	+	0.278	0.000	+	0.132	0.036	+	0.126	0.008	+	0.204	0.001		0.165	0.011		0.184	0.001	0.111	0.001
Get around local area	+	0.284	0.000		0.143	0.049		0.165	0.006		−0.006	0.124		0.116	0.033		0.171	0.008	+	0.254	0.000	0.041	0.725
Speak to relatives/friends[#]		0.105	0.061		0.100	0.082		0.143	0.071		−0.016	0.957	+	0.016	0.666	+	0.240	0.000	+	0.080	0.177	0.093	0.002
Speak to neighbours[#]		0.121	0.033		0.083	0.040		0.070	0.292		−0.041	0.850	+	0.067	0.827	+	0.148	0.017	+	0.141	0.008	0.078	0.481
Meet up with relatives/friends[#]		0.007	0.014		0.065	0.700		0.032	0.772		0.024	0.534	+	0.018	0.175	+	0.077	0.563	+	0.123	0.112	0.080	0.058
Text/email relatives/friends[#]		0.038	0.388		−0.004	0.343		−0.024	0.701		−0.037	0.200	+	−0.077	0.069	+	0.064	0.085	+	0.029	0.505	−0.027	0.793
Overall quality of life (QoL)[#]	+	0.231	0.000	+	0.316	0.000	+	0.150	0.043	+	0.193	0.001	+	0.210	0.000	+	0.223	0.000	+	0.324	0.000	0.114	0.069
Self-assessed health (SAH)	+	0.159	0.004	+	0.230	0.000	+	0.033	0.396	+	0.102	0.299	+	0.235	0.000	+	0.150	0.000	+	0.239	0.000	0.087	0.304
Get up/down the stairs	+	0.208	0.001	+	0.081	0.004		0.068	0.416		0.037	0.744		0.043	0.930		0.081	0.460		0.106	0.176	−0.025	0.436
Get out of the house	+	0.288	0.000	+	0.171	0.003		0.165	0.004		0.022	0.552	+	0.059	0.709	+	0.125	0.040	+	0.141	0.055	0.097	0.282
Get around indoors	+	0.233	0.000	+	0.147	0.011		0.098	0.179		−0.001	0.307		0.076	0.620		0.090	0.130	+	0.152	0.000	−0.019	0.370
Get in/out of bed	+	0.220	0.000		0.032	0.528		0.061	0.506		−0.088	0.033		0.036	0.780		0.116	0.065	+	0.210	0.000	−0.019	0.231
Use the toilet/WC	+	0.200	0.000	+	0.082	0.142		0.124	0.052		−0.114	0.005		0.031	0.881		0.092	0.270	+	0.163	0.010	−0.013	0.413
Wash hands/face	+	0.235	0.000	+	0.140	0.078		0.111	0.067		−0.044	0.870		0.088	0.496		0.142	0.085	+	0.198	0.002	0.046	0.866
Bath/shower	+	0.235	0.000	+	0.182	0.003		0.165	0.006		0.012	0.010		0.096	0.432		0.135	0.104	+	0.161	0.025	−0.004	0.593
Dressed/undressed	+	0.213	0.000	+	0.141	0.029		0.082	0.139		−0.058	0.079		0.109	0.125		0.102	0.295	+	0.151	0.003	0.055	0.676
Eat/feed self	+	0.157	0.011		0.060	0.585	+	0.050	0.165		0.007	0.709		0.056	0.054		0.109	0.120		0.121	0.138	0.039	0.588
Do paperwork/pay bills	+	0.197	0.001		0.095	0.272		0.075	0.255		−0.011	0.936	+	−0.045	0.014	+	0.156	0.008	+	0.156	0.026	−0.006	0.877
Household shopping	+	0.299	0.000	+	0.145	0.008		0.175	0.004		0.043	0.133	+	0.020	0.224	+	0.155	0.039	+	0.216	0.000	0.084	0.525
Do routine housework	+	0.207	0.000		0.119	0.055		0.121	0.087		−0.057	0.153	+	0.051	0.716	+	0.137	0.043	+	0.151	0.017	0.030	0.855
Take medications	+	0.197	0.002		0.095	0.342		0.128	0.055		0.035	0.910		−0.030	0.884	+	0.102	0.039	+	0.165	0.002	0.033	0.233
Satisfaction with services[#]	+	0.078	0.002	+	0.119	0.000	+	0.054	0.098	+	0.059	0.017	+	0.049	0.048	+	0.065	0.071	+	0.103	0.005	0.114	0.000
Overall treatment by workers	+	0.196	0.002	+	0.193	0.003	+	0.058	0.583	+	0.166	0.005	+	0.177	0.008	+	0.146	0.006	+	0.147	0.083	0.292	0.000

[a]The overall expected directions of the relationships between the attribute and the analysis variables: positive (+) or negative (−). For Food and drink, the three lowest outcomes were collapsed.

[b]Kendall's tau-c correlation coefficients were computed for the associations between each attribute and variables (#). Otherwise, Kendall's tau-b correlation coefficients were used.

[c]p-values obtained from the Fisher's exact tests for the relationships between the attribute and the analysis variables. The highlighted results had p-values of <0.05.

[d]Because living alone was a nominal variable but each attribute was an ordered variable, Kendall's tau coefficient could not be used to measure the ordinal association between these two variables and thus we did not compute Kendall's tau coefficients for their associations.

captured the effects of the latter on the respondents' reported SOCI-values.

3.2.7 | Occupation

The OCCU-attribute was unexpectedly associated with the design of the home and getting dressed/undressed (Table 4). According to the adjusted residuals, an OCCU-level_1 was more likely to be reported by those managing by themselves and less likely to be reported by those who managed with help or who could not do the activity. Those who were generally satisfied with services were more likely to report an OCCU-level_1 and less likely to report an OCCU-level_3. Similar results were also found among those who were always happy with their carers' overall treatment. While the association with living alone was insignificant ($p = 0.053$), the adjusted residuals suggest that those living alone were more likely to report an OCCU-level_1.

3.2.8 | Dignity

The DIGN-attribute was strongly associated with the user-reported variables capturing service quality (Table 4). The adjusted residuals suggest that those who were generally satisfied with the services they had were more likely to report a DIGN-level_2 and less likely to report a DIGN-level_3. Those who were always happy with their care workers' treatment were more likely to report a DIGN-level_1 and less likely to report a DIGN-level_3, but those who were usually happy reported a DIGN-level_3 more often. Those who were sometimes or never happy with their care workers' treatment reported a DIGN-level_1 less often but a DIGN-level_3 more often. The top level of the design of the home was positively related to the DIGN-level_1. Those who thought that the design of the home met

most of their needs tended to report a DIGN-level_1 less often but a DIGN-level_2 more often, while those who felt that the design of the home was inappropriate tended to report a DIGN-level_2 less often but a DIGN-level_3 more often. Those who spoke to their relatives/friends 1–2 times monthly reported a DIGN-level_1 less often and a DIGN-level_3 more often, but those who occasionally did that were less likely to report a DIGN-level_2.

3.3 | Structural characteristics of the Finnish ASCOT

The computed Cronbach's alpha was 0.69.

We only observed one eigenvalue greater than one (1.783) (Table 5). Hence, the Finnish ASCOT had a one-factor structure. The single factor explained 22.3% of the total variance. The Kaiser-Meyer-Olkin test measure of sampling adequacy (0.789) was found to be quite good for the explanatory factor analysis (EFA). The factor loading for 'DIGN' was 0.281 and the other factor loadings varied between 0.368 and 0.592. In the one-factor model, the uniqueness values indicated that 69.6% of the variance in the SOCI-attribute was not explained by the other attributes, and the corresponding figure for the DIGN-attribute was 92.1% (Table 5).

Because the obtained uniqueness of the DIGN-attribute was very high, we conducted another FA by forcing it to provide two factors with a varimax rotation. Again, we only found one eigenvalue greater than one (1.362). However, the larger loading of "DIGN" (0.391) was in the second factor, while two rather similar loadings for 'SOCI' were in both factors (0.402 and 0.403). The first and second factors explained 17% and 7.9% of the total variance respectively. Furthermore, when using the maximum likelihood method to fit our model, the resulting chi-square test for more than two factors (statistic 12.50; $df = 13$; $p = 0.488$) suggested that there was no second factor.

TABLE 5 Factor analysis of the Finnish ASCOT ($n = 334$)

Attribute	Attribute abbreviation	Eigenvalue	Factor loading Factor1	Uniqueness
1. Control over daily life	CONT	1.783	0.539	0.710
2. Personal cleanliness and comfort	PERC	0.209	0.547	0.701
3. Food and drink	FOOD	0.075	0.394	0.844
4. Accommodation cleanliness and comfort	ACCO	−0.049	0.410	0.832
5. Personal safety	PERS	−0.077	0.368	0.864
6. Social participation and involvement	SOCI	−0.109	0.552	0.696
7. Occupation	OCCU	−0.155	0.592	0.649
8. Dignity	DIGN	−0.229	0.281	0.921
Eigenvalue			1.783	
Explained variance (%)			22.29	

Note.: Note. The 4-level attributes were used in the analysis.

4 | DISCUSSION

In this study, we examined the construct validity of the Finnish ASCOT through its descriptive system, and investigated the structural characteristics of the measure. Our findings are generally supportive of the construct validity of the Finnish ASCOT. For the EQ-5D and ASCOT relationships, the confirmed significant associations between two measures (Table 3) and the significant correlation between the EQ-5D and the preference-weighted ASCOT ($r = 0.429$) were in line with the findings from previous English (Malley et al., 2012; Rand et al., 2017), Dutch (van Leeuwen et al., 2015) and Austrian (Trukeschitz, et al., 2020) studies. The positive correlation ($r = 0.429$) seems to reflect that the ASCOT captures partial effects of the health dimensions represented by the EQ-5D. This finding is consistent with the conclusion of previous reviews (Bulamu et al., 2015; Makai et al., 2014) and that the ASCOT was more responsive to the effect of social care intervention than the EQ-5D (Forder & Caiels, 2011; Kaambwa et al., 2015; Malley et al., 2012; van Leeuwen et al., 2015). Hence, it also supports the use of ASCOT alongside the EQ-5D, depending on the nature of the interventions and the targeted outcomes to be measured.

We found evidence of the construct validity of the control, occupation, participation, and care (CONT, OCCU, SOCI and PERC) attributes and less evidence of it for the rest of the attributes. The latter result may arise from the lack of appropriate variables that could have been used to test for the construct validity of these attributes within the Finnish ASCOT. For example, due to limits on the length of the questionnaire, our dataset did not include an indicator of the respondents' participation in groups and voluntary work, which was included in previous studies (Malley et al., 2012; Rand et al., 2017; van Leeuwen et al., 2015). Nevertheless, the directions of the significant associations with the clearly specified hypotheses were found to be as expected (Table 4). Moreover the associations between the overall QoL and ASCOT attributes were confirmed, and were all aligned with previous findings (Malley et al., 2012; Rand et al., 2017; van Leeuwen et al., 2015).

The dignity attribute had the expected relationships with the variables capturing service quality, and the associations were strong. 84.7% of the respondents reported a DIGN-level_1 or DIGN-level_2, but they had been satisfied with the services (92.2%) and always or usually happy with the overall treatment by their care workers (93.3%). These results suggest that users were already being appropriately helped, which probably enhanced service users' attitudes towards their care workers. Moreover these results essentially point out the important role of the dignity attribute in the ASCOT.

We can compare our significant relationships with those found in earlier studies and by examining the similar items. Regarding the English studies (Malley et al., 2012; Rand et al., 2017), we obtained slightly more significant associations with the occupation and participation attributes, an equivalent number of significant associations with the control and dignity attributes, and slightly fewer significant associations with the rest of the attributes. We also observed a higher number of significant associations of the tested disability-items with

the control attribute and similar associations with the personal cleanliness attribute compared to results from the Dutch study (van Leeuwen et al., 2015). Concerning the assessment of the German version of ASCOT (Trukeschitz, Litschauer, et al., 2020), we found very similar associations with the occupation and participation attributes, a higher number of associations with the personal cleanliness, accommodation, and participation attributes and a smaller number of associations with the food and safety attributes. Our verified relationships between the attributes and the chosen items (especially the disabilities and the nature of the locality and environment) compared to the findings from the above-mentioned studies might be due to differences in the cultural diversity of needs and service use, country-specific and individual preferences, and the way or mechanisms by which the different care systems allocate resources for the different disability needs.

We found weak evidence for the construct validity of the food and dignity attributes. It is not easy to validate the food attribute because no self-assessed measures of nutritional intake are available (Malley et al., 2012). The low number of significant associations with the dignity attribute was largely in line with earlier studies (Malley et al., 2012; Rand et al., 2017; van Leeuwen et al., 2015). Although unanticipated, the negative association between the safety PERS-attribute and 'doing paperwork' ($p = 0.014$) suggests the decline in cognitive ability due to age. Quite the contrary, the safety attribute was unexpectedly not significantly associated with any social contact items. Personal safety can be perceived as a broader social support network with a connection to the neighbourhood and mutual relationships with neighbours, which helps people feel safe (Walker & Hiller, 2007). Our findings have implications for social care support because regularly speaking with or meeting up with friends and relatives/neighbours was unable to affect people's sense of mobility, and, for example, their fear of falling. We did not analyse the associations with the variable describing the global rating of the way the individuals felt they were treated by their care workers because of the high number of missing values. However, using the available values of the 'global rating', both this variable and the satisfaction-with-services variable had similar significant associations with the ASCOT attributes. This study also provides evidence supporting the feasibility of the application of the Finnish ASCOT for older people who often experience cognitive decline because our pre-analysis sample only had four proxy responses.

Our approach to validation in this paper has been deliberately agnostic as to whether the 'correct' measurement model for ASCOT is formative or reflective, reflecting different views among scholars as to the appropriate measurement model for QoL instruments (Kossakowski et al., 2016). While more recent papers exploring the measurement properties of ASCOT have veered towards a formative model (Trukeschitz, Hajji, et al., 2020; Trukeschitz, Litschauer, et al., 2020), previously published papers imply a reflective model through their investigation of structural validity and internal consistency (Netten et al., 2012; Rand et al., 2015). We included an assessment of structural characteristics to allow comparison of the Finnish version of ASCOT with these articles. Our findings broadly accord with previous studies

in that a single factor was extracted (Netten et al., 2012). As previous analyses of ASCOT have found, the single factor explains a relatively small proportion of the variance (here 22.3% of the total variance). This can be compared to a meta-analysis of variance and factor loadings on published exploratory FAs, where the average percentage of variance explained was 56.6% (Peterson, 2000). Many things can influence the percentage of variance explained (Peterson, 2000), but it likely reflects the low to moderate correlations between the items. Our view, however, as some of the authors have stated elsewhere (Netten et al., 2012; Trukeschitz, et al., 2020) is that given the ASCOT is designed for use as a preference-weighted measure in economic evaluation the low correlations and variance explained are not problematic. They mean that the items are dissimilar enough to be traded against each other in a preference study to generate weights for the items that reflect their relative value. A larger variance explained would imply greater conceptual overlap between the items making it more difficult to trade them (imagine being asked whether you preferred being less socially isolated to feeling less alone).

We recognise that our agnostic approach introduces an inconsistency around the measurement model, but in absence of clarity within the field, we feel this approach is helpful: it provides all the information that might be expected in a study of the validity of a translated instrument, but is transparent about the need to proceed with caution when interpreting the results of analysis of structural characteristics.

This study has some limitations. First, we could not test the ASCOT for criterion validity. The fundamental cause why we could not do the criterion validation of the ASCOT measure is that there is no other measure of SCRQoL that can be used as a criterion, let alone a gold-standard measure. Capability-based measures like ICECAP fail to capture ASCOT-QoL and the health-related EQ-5D only has some overlap with the ASCOT (Bulamu et al., 2015; Makai et al., 2014). As described above, the overlap between the ASCOT and EQ-5D was moderate (r = 0.429). Since we had no valid measure of SCRQoL that can be used to predict the performance of the new [ASCOT] measure (Mokkink et al., 2019; Streiner et al., 2015), we used the traditional assessment of construct validity via hypothesis testing to investigate the relationships between each attribute and the chosen items. Second, many of the valued disability-items probably reflected functioning rather than capability, which could be influenced by respondents through their choices. However, functioning could only happen with some existing capability (Coast et al., 2008). While we observed many anticipated associations, we do not know why those associations that were anticipated but not found. In any case, the disability-items chosen for testing were those that people would be capable of carrying out to improve their well-being and QoL. Conceptually, the ASCOT attributes capture what people's QoL is like given all the sources of support they may receive. For this reason, if someone with very severe disabilities is receiving adequate and appropriate support, there is no reason that they should have a poorer QoL than someone with very few or no disabilities. In turn, assuming that the services are effective, we would not expect a strong relationship or indeed any relationship with disability,

especially as measured by activities of daily living. Third, survey process outcomes including the quality of our final data may also be influenced by interviewer effects (West & Blom, 2017) regardless of the interviewer training that we provided (Linnosmaa et al., 2020) to minimise such effects on the survey data collection process.

To aid future investigation of the validity of not only ASCOT but other QoL instruments, more investigation into the appropriate measurement model and the best methods for establishing validity are warranted. A further area for future exploration is the reliability of the measure and future studies should examine the test-retest reliability of the Finnish ASCOT. Furthermore, the validation of the preference-weighted ASCOT should be investigated. Indeed, to enable the use of the Finnish ASCOT measure in an economic evaluation framework, a necessary stage of the research will be to develop preference weights, which we are currently working on. The Finnish preference weights will not only reflect country-specific values for the different ASCOT-QoL states but also disclose possible country-specific differences in the attribute-levels for the English and Finnish populations.

5 | CONCLUSIONS

In sum, the Finnish ASCOT seems mostly to measure what the English ASCOT was anticipated to measure. Through this assessment of the descriptive system, we found sound evidence to support the construct validity of the Finnish ASCOT. The hypothesised relationships between the ASCOT and EQ-5D measures and those between the ASCOT attributes and overall QoL were confirmed. The Finnish ASCOT had similar structural characteristics to the English ASCOT. Future work investigating other properties of the Finnish ASCOT, especially the measure's reliability, would be useful. Nevertheless, the significantly confirmed associations of the tested items with the Finnish ASCOT attributes encourage the introduction of the ASCOT into Finland to evaluate the effects of social care interventions for older adults.

AUTHORS' CONTRIBUTIONS
Lien Nguyen contributed to translating parts of the online survey questionnaire into Finnish (supporting); conceptualisation (lead); methodology (lead); software (lead); validation (lead); formal analysis (lead); investigation (lead); data curation (lead); writing—original draft preparation (lead); writing—reviewing and

editing (lead); visualisation (lead). Ismo Linnosmaa contributed to translating parts of the online survey questionnaire into Finnish (lead); conceptualisation (supporting); resources (lead); writing—reviewing and editing (supporting); supervision (lead); funding acquisition (equal); project administration (equal). Hanna Jokimäki contributed to translating parts of the online survey questionnaire into Finnish (supporting); software (supporting). Stacey Rand contributed to conceptualisation (supporting); writing—reviewing and editing (supporting). Juliette Malley contributed to conceptualisation (supporting); resources (supporting); writing—reviewing and editing (supporting); funding acquisition (equal), project administration (equal). Kamilla Razik contributed to translating parts of the online survey questionnaire into Finnish (supporting). Birgit Trukeschitz contributed to conceptualisation (supporting); resources (supporting); writing—reviewing and editing (supporting); funding acquisition (equal), project administration (equal). Julien Forder contributed to conceptualisation (supporting); supervision (supporting); funding acquisition (lead); project administration (lead). Social care-related outcomes in Finland. Construct validity and structural characteristics of the Finnish ASCOT measure with older home care users.

DATA AVAILABILITY STATEMENT

The data used in this study are not publicly available. The Finnish Institute for Health and Welfare is committed to ensuring safe and secure use of the data.

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