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Validation of the Basel Extent of Rationing of Nursing Care for Nursing Homes and Home Care, a Swedish version

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Abstract

Aim: The aim of the study was to translate, adapt and validate the instrument Basel Extent of Rationing of Nursing Care for Nursing Homes and Home Care for use in the Swedish community health care context.

Design: A cross-sectional study. Data were collected from October 2019 to January 2020, and the questionnaire was sent to Registered Nurses, Enrolled Nurses and assistant nurses.

Methods: The study was performed in four phases: (1) translation, (2) adaptation of the Basel Extent of Rationing of Nursing Care for Nursing Homes and Home Care to the Swedish context, (3) content validity testing, and (4) evaluation of psychometric properties. The collected data resulted in 611 responses. Explorative factor analysis was performed to explore the interrelationship, and Cronbach's alpha was used to evaluate the internal consistency.

Results: Explorative factor analysis presented six factors/subscales: (1) fundamental care, (2) timely needed-based care, (3) dignity and support, (4) ensuring respectful treatment, (5) social activities, and (6) documentation, planning and reporting. The Cronbach's alpha for the components showed values between 0.7 and 0.9.

Conclusion: The analyses indicate an instrument to be usable for Enrolled Nurses and nurse assistants in community health care. Additional tests, can contribute to refining the content of the items and further test reliability and validity of the instrument.

No patient or public contribution: As this is a study of translation and validation of the instrument Basel Extent of Rationing of Nursing Care for Nursing Homes and Home Care.

KEYWORDS
aged, BERNCA-NH/HC, community health care, instrument development, psychometrics, validation

1 | INTRODUCTION

The world population is ageing, which implies an increasing need for care. It is a challenge to establish health and social care systems that can meet the growing need for care (World Health Organization, 2022). The lack of competence among health care workers in municipal health care leads to adverse events, sometimes caused by missed nursing care (Andersson et al., 2018). The

phenomenon missed nursing care was first studied in acute care hospitals in the United States (Kalisch, 2006). When applying the concept 'missed nursing care' Kalisch et al. (2009) referred to omitted or delayed care. Schubert et al. (2007) define the concept 'implicit rationing care' as nursing tasks that are not done due to of insufficient resources. In a review study Ludlow, Churruca, Mumford, et al. (2021) found that the phenomenon missed nursing care is studied with 24 different but almost synonymous concepts, where three major definitions and concepts are mainly used: (1) 'missed care', (2) 'rationing/implicit rationing', and (3) 'prioritization'. Other concepts are, for example, 'unmet needs' and 'care left undone'. Jones et al. (2015) showed that there are three different traditions in research on missed nursing care; it is conceptualized as 'tasks undone', 'implicit rationing' or 'missed care', but the underlying phenomenon is the same. Kalánková et al. (2020) concluded that it is essential to be pragmatic and consider the concepts as a whole for clinical use. The present study uses the concept 'missed nursing care' as interchangeable for the above concepts.

Instruments measuring missed nursing care are developed mainly with a focus on hospital care (Palese et al., 2021), but in Switzerland the Basel Extent of Rationing of Nursing Care for Nursing Homes (BERNCA-NH) instrument was developed for use in nursing homes (Zúñiga et al., 2016). The BERNCA-NH instrument has also been translated, adapted, modified and psychometrically tested for the Norwegian context (Norman & Sjetne, 2019). This study is a translation, adaptation and validation of the Swedish version of the Basel Extent of Rationing of Nursing Care for Nursing Homes and Home Care (BERNCA-NH/HC).

2 | BACKGROUND

2.1 | The Swedish context

In Sweden, community health care is regulated by two laws: (1) Health and Medical Services Act (SFS 2017:30, n.d.), which states municipalities to offer health services to care recipients, and (2) the Social Services Act (SFS 2001:453, n.d.), which states an obligation to give care and support to older people. The community health care includes both home care and nursing homes. While Registered Nurses are responsible for the care, it is often carried out by Enrolled Nurses or nurse assistants (National Board of Health and Welfare, 2016). In 2021, there were nearly 10 times as many Enrolled Nurses and assistant nurses as Registered Nurses working in municipal health care (Swedish Association of Local Authorities and Regions, 2002). Enrolled Nurses have a high school level of formal education in health care (SOSFS 2011:12, n.d.), with the same content all over the country. While nurse assistants may have a less formal education, which is shorter and flexible for content, or none education at all. Today, retention, recruitment, assurance of competence and skill mix are huge challenges for municipalities (National Board of Health and Welfare, 2022). This is not unique to Sweden as more countries face the same challenge in preparing health care systems for the increasing needs of caring for older people (World Health Organization, 2022). Older people need increasingly complex care, and if staffing and skill mix are not consistent with these growing needs (National Board of Health and Welfare, 2022; Schubert et al., 2021), then there is a risk for missed nursing care (Schubert et al., 2021).

2.2 | The instrument

The Basel Extent of Rationing of Nursing Care instrument for nursing homes (BERNCA-NH) comprises 19 items relevant for all health care staff working with residents in nursing homes in Switzerland, to find out about rationed nursing care. It was developed in the German, Italian and French languages, and the starting point for the questionnaire was care that was rationed due to lack of time or high workload. The items are answered from the condition: '*How often in your last seven working days did it happen that…*' after that the items are listed as activities that have not been carried out. The answer options are: *never*, *seldom*, *sometimes* or *often*. There is also a possibility to answer: *activity not necessary* for all items and *not within my responsibility* for one item. The items are sorted into four subscales: 'about activities of daily living' (five items), 'about caring, rehabilitation, and monitoring' (eight items), 'documentation' (three items) and 'social care' (three items). The validity and reliability for the BERNCA-NH instrument were tested with a good result (e.g. Cronbach's alpha 0.77–0.89). Analyses for validation were separately done with exploratory factor analyses (EFA), for each language. The conclusion of the psychometric test was that the instrument is a useful tool to measure implicit rationing nursing care, but some refinements on single items are needed (Zúñiga et al., 2016). The BERNCA-NH also showed good psychometric properties in a Norwegian context (Norman & Sjetne, 2019).

2.3 | Reasons for and consequences of missed nursing care

Staff shortages are one reason for missed nursing care (Henderson et al., 2017; Ludlow, Churruca, Ellis, et al., 2021). In many cases the staffing in home care is inadequate and unable to give the required care due to a growing number of older people in home care. Furthermore, many of the staff are reaching retirement age (Gruber et al., 2021). Staff's workloads becomes higher as the number of residents increases and having residents with more complex comorbidities further increase the need for care (Henderson et al., 2017), which forces Registered Nurses to prioritize care due to lack of time. Prioritization means that residents´ needs of care are set against one another (Ludlow, Churruca, Ellis, et al., 2021), which becomes a way to plan missed nursing care. Missed nursing care is related to ethical dilemmas that need to be discussed when staff allocation decisions are made (Kalankova et al., 2021). Both staff and managers need to consider the existence of missed nursing care, which enables them to assess predictors and how to work with preventive processes

(Kalánková et al., 2020). Implementing interventions can decrease the occurrence of missed nursing (Schubert et al., 2021).

It is known that missed nursing care jeopardies quality of care (Zhao et al., 2020; Zúñiga et al., 2015), and patient safety (Ogletree et al., 2020), as it is a cause for adverse events (Andersson et al., 2018; Ogletree et al., 2020). Missed nursing care is associated with negative consequences for older people (Sworn & Booth, 2020; Tønnessen et al., 2020), their relatives (Tønnessen et al., 2020), nurses (Jones et al., 2015; Tønnessen et al., 2020) and organizations (Jones et al., 2015). Missed nursing care is a phenomenon that needs to be further examined, and it is important that it can be accurately measured (Andersson et al., 2018; Ogletree et al., 2020). No instrument to measure missed nursing care in the Swedish community health care context was found. To ensure more reliable measurement in relation to quality of care and patient safety, an instrument is needed. This study presents a translation, adaptation and validation of the BERNCA-NH into the context of nursing homes and home care in Sweden.

2.4 | The study

2.4.1 | Aim

The aim of the study was to translate, adapt and validate the instrument Basel Extent of Rationing of Nursing Care for Nursing Homes and Home Care for use in the Swedish community health care context.

2.4.2 | Design

A four phased explorative and descriptive study design, with a cross-sectional data collection.

2.4.3 | Methods

The study was conducted in four phases: (1) translation, (2) adaptation of the Swedish version of Basel Extent of Rationing of Nursing Care—Nursing Homes and Home Care [BERNCA-NH/HC] instrument, (3) content validity testing, and (4) testing the psychometric properties of the instrument. The relevant items in the RANCARE guidelines (Blatter et al., 2021) are followed throughout the study.

2.4.4 | Phase 1: Translation

The original instrument Basel Extent of Rationing of Nursing Care—Nursing Homes version (BERNCA-NH) from Zúñiga et al. (2016), was translated to Swedish, after obtaining permission from the author. The translation process followed Brislin's (1970) steps two to five, which includes a translation with back-translation.

The translators were instructed not only to perform a literal translation but to also consider the context. The two translators, who had knowledge of both English and Swedish and the context translated into their respective native language, one in each direction. The individual who translated back had not seen the original questionnaire. Next, the authors compared and discussed the translations until a consensus was reached. The aim was to reach operational similarity to the Swedish cultural context.

2.4.5 | Phase 2: Development and adaptation of the BERNCA-NH instrument into the Swedish community health care context

Some adaptations of the BERNCHA-NH were conducted to fit the Swedish context. The item 'Necessary conversation with care recipient or family', was split into two items, one about the care recipient and one about the family.

To ensure the instrument was relevant to a Swedish community health care context, for both nursing homes and home care, and all health care staff, an additional adaptation of the BERNCA-NH was conducted. Nine items about missed nursing care were developed and added to the instrument. These items were based on empirical knowledge, earlier research in the area and by experts from community health care, which reviewed the instrument. The additional items were related to common nursing tasks in Swedish community health care, both nursing homes and home care, but which were not asked in the BERNCA-NH. All new items had the same structure as those in the BERNCA-NH and should be answered from the condition: '*How often in your last seven working days did it happen that…*' after which the items were listed as activities that have not been carried out. The answer options were *never*, *seldom*, *sometimes* and *often*. For all items there was also a possibility to answer *activity not necessary* or *not within my responsibility*.

The authors, who have good research and clinical knowledge and experience of the community health care context in Sweden, discussed all items until a consensus was reached. Altogether, after splitting one item from the original BERNCA-NH and adding nine new items, the Swedish version of Basel Extent of Rationing of Nursing Care—Nursing Homes and Home Care [BERNCA-NH/HC] ended up with a total of 29 items.

2.4.6 | Phase 3: Content validation

One way to estimate the content validation of an instrument is to assess the relevance and comprehensiveness of the included items (Polit & Yang, 2016; Streiner et al., 2015). In this study, four Registered Nurses and four nurse assistants with experiences working in community health care read and commented on the questionnaire. They were instructed to consider the relevance in relation to content, semantics, criteria and conceptual nature of the items. The authors discussed the comments, and a few minor

revisions in wording were made to clarify the meaning of the items´ content.

2.4.7 | Phase 4: Evaluation of the psychometric properties

This initial Swedish version of the BERNCA-NH/HC, had a total of 29 items. Exploratory factor analysis was conducted to investigate whether there were any interrelationships between the items, which would inform whether the instrument is a unidimensional scale or consist of several dimensions/subscales (Polit & Yang, 2016). To assess the factorability, the Kaiser–Meyer–Olkin Measure of Sampling Adequacy was reviewed, which is recommended to be as close to one as possible and at least over 0.6 to enable factor analysis (Tabachnick & Fidell, 2014). Most of the values in the correlation matrix should be over 0.3 to indicate that an oblique rotation method can be used. The psychometric evaluation was conducted with explorative factor analysis (EFA) using the rotation technique Oblimin with Kaiser normalization. The EFA was based on extracting factors with eigenvalues of at least one and where explained variance presented more than 60 percent. Principal component analysis was applied to condense items into dimensions/subscales (Polit & Yang, 2016). The internal consistency was checked with Cronbach's alpha, and values over 0.7 are interpreted as good for scales with seven or fewer items, otherwise, Cronbach's alpha values greater than 0.9 are desirable (Streiner et al., 2015). All analyses used IBM SPSS Statistics 27.

Sample

It was a purposeful selection of eight medium-sized municipalities, in order to differentiate geographical location in a county in Sweden. After that, all Registered Nurses, Enrolled Nurses and nurse assistants working in nursing homes and home care in community health care for older people were invited to participate in the study. The inclusion criteria were health care staff working as Registered Nurses, Enrolled Nurses or nurse assistants with or without formal education. They should work in direct care, and held permanent or temporary (for a limited period of time) employment. The exclusion criteria were long-term leave for any reason, for example, parental leave, or sick leave.

Data collection

Contact was made with the manager of the community health care for older people in eight medium-sized municipalities in Sweden, to obtain permission to conduct the study. Then, an informational letter describing the purpose of the study was sent to the managers of the different units of the nursing homes and home care. Finally, the questionnaire and written information about the study were sent to all health care staff working as Registered Nurses, Enrolled Nurses or nurse assistants. Oral information was given to groups or individuals upon request. The questionnaire was distributed either as a link in an email or delivered as a hard copy based on the agreement with the manager. If they chose to participate in the research project, they followed the link or they sent the questionnaire back in a self-addressed envelope. Written information, and oral information when possible, about the study was provided with the questionnaire.

The questionnaire was part of a larger survey with a total of 47 items. In this study, demographic information and the BERNCA-NH/HC, Swedish version, were used. The data were collected from October 2019 to January 2020. Two reminders were sent out; if the questionnaire was distributed as a link in an email, then the reminders were sent out the same way. If the questionnaire was sent out as a hard copy, then the reminder was sent as a general reminder from their employer's intranet. The questionnaire was sent out to 3293 participants, of whom 671 responded (response rate 20.4%). The response rate for Registered Nurses (n = 56) showed frequencies lower than 80 percent for the options: *never*, *seldom*, *sometimes* and *often*, in 19 of the 29 items, indicating that many items were not relevant for this profession, therefore, they were excluded from further analysis, and answers from 611 Enrolled Nurses and nurse assistants were analysed. Four participants failed to respond to the item about profession so they were excluded from the analysis. A sample size of at least 300 (Tabachnick & Fidell, 2014), or 10 answers per item is recommended for factor analysis (Polit & Beck, 2021), indicating that at least 290 answers are needed.

3 | RESULTS

The results from the testing of the 29 items of the Swedish version of the BERNCA-NH/HC, were based on the answers from 611 Enrolled Nurses and nurse assistants, hereafter referred to as nurses. The nurses were 19 to 67 years old (mean 47.9, SD 12.1), and most were females. They had worked an average of 17.2 years (SD 12.0). There was a slight majority of nurses working in nursing homes compared to those working in home care. The demographic data of the participants are presented in Table 1. The nurses' perceptions of never missed nursing care activities, where 'Give prescribed medications' (86.4%) were least missed, and the most often missed nursing care were 'Study care plans at the beginning of shift' (19.4%). See Table 2 for responses, means and standard deviations per item.

3.1 | Psychometric properties of the Swedish version of the BERNCA-NH/HC

Factor analysis was performed on the valid responses: *never*, *seldom*, *sometimes* and *often*. The instrument also gave the participants the option to answer *activity not necessary* or *not within my responsibility*, which were considered as nonvalid responses in these analyses. No responses at all ranged between 0.5 and 2.8 percent per item, including the other nonvalid responses for these analyses, the ranged is between 1.9 and 40.4 percent, but still all items reach the level that is needed to conduct a factor analysis. See Table 2 for the response variations.

TABLE 1 Demographics of the participants.

Total $n = 611$	n	%	Mean	SD
Profession				
Enrolled Nurse	539	88.2		
Nurse assistant	72	11.8		
Work place				
Nursing homes	339	55.5		
Home Care	239	39.1		
Missing responses	33	5.4		
Gender				
Female	572	93.8		
Male	37	6.0		
Other	1	0.2		
Missing response	1	0.2		
Age				
19–29 year	59	9.7	47.9	12.1
30–39 year	101	16.5		
40–49 year	115	18.9		
50–59 year	200	32.7		
60–67 year	112	18.3		
Missing responses	24	3.9		
Numbers of years in profession in municipality				
<1 year	10	1.7	17.2	12.0
1–2 years	28	4.7		
>2–5 years	92	15.5		
>5 years	465	78.2		
Missing responses	16	2.6		

An inspection of the Kaiser–Meyer–Olkin measure of sampling adequacy which estimated a value of 0.925, supported further analysis for factorability. Explorative factor analysis with the rotation method Oblimin with Kaiser normalization was performed. Principal component analysis set the factor loadings over 0.4; two exceptions were made, for the items 'Culturally activity for care recipient with contact outside of home/nursing home' (loading 0.38) and 'Attend to meeting about care recipient's care' (loading 0.34). Two items, 'Attend to meeting about care recipient's care', and 'Report on to other staff' were moved from the subscale with their highest loadings (0.34 and 0.53 respectively) into subscales with loadings of 0.31 and 0.21, respectively, based on their content. These exceptions were thoroughly discussed by the authors. Pett et al. (2003) recommend for cross-loading items to be put in the factor/subscale where they conceptually are closest. The analysis further showed six factors/subscales with eigenvalues exceeding 1.0, explaining 38.4%, 7.6%, 5.8%, 4.7%, 3.7% and 3.6%, of the variance, respectively, and in total 63.8% of the variance. The Cronbach's alpha for the six subscales were ranged between 0.70 and 0.90, with an overall Cronbach's alpha of 0.95. For factor loadings, names of items and subscales, see Tables 3 and 4.

The first subscale is named 'Fundamental care' (five items) with a focus on essential physical needs. 'Timely need-based care' (four items), is the name for the second subscale, where timely care is not only an important aspect but also with focus on essential needs. The third subscale named 'Dignity and support' (nine items) is where the care recipients´ feelings of dignity and the need for comfort and support are the focus. The fourth subscale named 'Ensuring respectful treatment' (three items), focused on safeguarding the care recipients´ rights and need for care. The fifth subscale named 'Social activities' (three items) included the importance of a stimulating environment and togetherness. The last and sixth subscale, named 'Documentation, planning and reporting' (five items), focused on the administrative duties that must be done to give safe and high-quality care. Conclusively, the Swedish version of the BERNCA-NH/HC consists of 29 items in 6 subscales.

4 | DISCUSSION

This study presents a translation, adaptation and validation of a Swedish version of BERNCA-NH/HC, henceforth, named BERNCA-NH/HC, SWE. The psychometric properties indicate that this version of the instrument has acceptable values for reliability and validity and can be used in both nursing homes and home care, but further tests are needed.

Phase 3, the content validation, gave no indications of items not suitable for Registered Nurses, however, for many items, there was a high percentage of responses *activity not necessary* or *not within my responsibility*. The BERNCA-NH/HC, SWE is not suitable for Registered Nurses without further adaptation, where some items are excluded, and further consideration of whether other items should be included must be made. There is a shortage of Registered Nurses in community health care in Sweden, and they are working in an organization where their role is more akin to counselling, as opposed to delivering the direct care, which can be a reason for this pattern in the responses.

To adapt the BERNCA-NH to a Swedish community health care context nine items were added. Zúñiga et al. (2016) discussed the need to further explore BERNCA-NH, where cultural context and gaps in relevant tasks must be taken into consideration and enables the addition of more items, for example, item about the administration of medication, which was added as two items in this study. Norman and Sjetne's (2019) study where they translated, adapted and modificated of the BERNCA-NH into a Norwegian version included several changes to ensure that the instrument fit into a different health care system than that of Switzerland, although there are similarities between the two as high-income European countries. They also concluded that the differences between the original BERNCA-NH and the Norwegian version only allowed comparisons at the item level.

The translation and adaptation of the BERNCA-NH to the Swedish context, was executed with consideration, to be close to the content of the original instrument. Although, since nine items were added

TABLE 2 Enrolled nurses' and nurse assistants' descriptive and response variations in percent ($n = 611$).

Missed nursing care activities reported for the last seven days	Mean	Standard deviation	Median	Never[a]	Seldom	Sometimes	Often	Activity not necessary	Not within my responsibility	No responses
Sponge bath/partial sponge bath/skin care[b]	1.74	0.94	1.0	53.2	22.7	16.4	5.6	1.0	1.0	1.3
Oral hygiene[b]	2.03	1.06	2.0	40.5	21.2	22.0	10.7	2.8	2.8	1.8
Assist drinking[b]	1.43	0.74	1.0	64.0	18.2	7.5	2.2	5.8	2.3	1.3
Assist eating[b]	1.52	0.81	1.0	57.5	19.6	8.3	3.2	7.0	4.3	2.1
Mobilization/change of position[b]	1.45	0.73	1.0	64.5	20.4	8.8	1.5	3.0	1.8	1.3
Serve food while it is still hot	1.28	0.60	1.0	70.9	13.7	4.8	0.7	2.6	7.3	1.1
Assist eating while food is still hot	1.41	0.69	1.0	59.9	16.8	7.7	0.8	6.7	8.2	1.6
Give prescribed medication	1.16	0.47	1.0	86.4	8.6	2.6	0.5	1.0	0.8	1.1
Give prescribed medication as needed within 30 min	1.31	0.62	1.0	71.1	16.9	4.8	1.0	5.5	0.7	1.3
Keep care recipient who rung waiting[b]	2.07	0.97	2.0	33.1	30.9	22.8	8.4	2.0	2.8	1.0
Leave care recipient in urine/stool longer than 30 min[b]	1.50	0.79	1.0	64.3	20.4	10.3	2.5	1.5	1.0	1.5
Toileting/continence training[b]	1.88	0.95	2.0	42.2	29.9	15.7	7.5	3.3	1.3	2.0
Promote care recipient's autonomy[b]	1.88	0.97	2.0	42.5	29.4	14.5	8.4	3.0	2.2	2.1
Monitor care recipient as care workers felt necessary[b]	1.97	1.03	2.0	40.5	22.8	18.8	9.5	7.1	1.3	1.5
Monitor confused/cognitively impaired care recipient and use of restraints/sedatives[b]	2.01	1.01	2.0	38.1	24.4	21.1	8.9	5.4	2.2	2.1
Emotional support[b]	2.04	1.02	2.0	37.7	29.8	19.5	11.2	1.0	0.8	1.8
Necessary conversation with care recipient[b]	2.31	1.08	2.0	28.9	28.1	24.1	17.6	0.8	0.5	1.5
Necessary conversation with relatives[b]	1.68	0.84	1.0	46.4	23.5	14.2	2.2	9.3	4.3	2.0
Act in the event of abuse	1.11	0.41	1.0	67.5	4.9	1.0	0.5	25.1	1.0	2.8
Advocacy for care recipient	1.28	0.58	1.0	68.1	14.5	4.2	0.5	9.7	3.2	1.6
Assessment of needed care	1.37	0.62	1.0	62.5	21.2	5.2	0.5	5.5	5.2	1.8
Scheduled single activity with a care recipient[b]	2.24	1.07	2.0	28.3	20.7	23.3	12.9	5.6	9.1	1.1

(Continues)

TABLE 2 (Continued)

Missed nursing care activities reported for the last seven days	Mean	Standard deviation	Median	Never[a]	Seldom	Sometimes	Often	Activity not necessary	Not within my responsibility	No responses
Scheduled group activity with several care recipients[b]	2.29	1.14	2.0	20.8	14.3	13.6	12.5	16.1	22.8	1.5
Cultural activity for care recipient with contact outside of home/nursing home[b]	1.80	0.92	2.0	30.6	20.6	9.0	4.5	14.1	21.1	1.6
Documentation of care[b]	2.19	1.03	2.0	31.8	29.2	25.2	12.6	0.7	0.5	1.3
Set up or update care recipient's care plans[b]	2.38	1.08	2.0	25.0	22.5	26.4	16.5	3.0	6.6	1.0
Study care plans at the beginning of shift[b]	2.36	1.09	2.0	28.1	27.0	24.7	19.4	0.5	0.3	1.1
Report to other staff	1.32	0.59	1.0	72.6	20.6	4.5	0.7	0.8	1.2	0.5
Attend meeting about care recipient's care	1.55	0.86	1.0	44.9	15.8	5.9	3.7	16.2	13.5	2.8

[a]Range 1 "never" to 4 "often", lower mean indicates less missed nursing care.
[b]Items from BERNCA-NH original.

TABLE 3 Overview of subscales, number of items, Cronbach's alpha and factor loadings.

Subscales	Number of items	Cronbach's alpha	Factor loadings
Fundamental care	5	0.86	−0.56 to −0.81
Timely need-based care	4	0.77	0.61 to 0.78
Dignity and support	9	0.90	0.40 to 0.83
Ensuring respectful treatment	3	0.70	0.41 to 0.84
Social activities	3	0.85	0.38 to 0.57
Documentation, planning and reporting	5	0.78	0.21 to 0.82

comparisons are possible only on item level, as with the Norwegian version (Norman & Sjetne, 2019). When also considering the different cultural and health organizational contexts, comparisons should be made with caution. Even if a uniform instrument would make comparisons easier, considerations always must be done. It is consistent with Palese et al. (2021) which state that because research is conducted with different instruments to measure missed nursing care, comparisons of results must be made with thought, as it is unknown whether eventual differences or similarities were caused by the instrument.

The item 'Necessary conversations with care recipient or family' was written in the original version as one item, but since conversations with the care recipient and their relatives can be done separately, we decided to split it into two items. The items about eating and drinking were recommended to be collapsed into one (Zúñiga et al., 2016), but this was not were done in the Swedish version. An item with double content can be difficult to answer (Streiner et al., 2015). Furthermore, sometimes the nurses in nursing homes and home care, should give older people something to drink in between meals, which provided justification to keep the items separated.

The three items about social activities were all kept but adapted to the Swedish context, since these are activities often performed by Enrolled Nurses or nurse assistants. The Italian version of the BERNCA-NH showed that the items about social care had a low content validity, and a reason could be that the respondents were not the persons providing these activities (Zúñiga et al., 2016). The Norwegian version of BERNCA-NH claimed the same reasons, and only one of the three items remained (Norman & Sjetne, 2019). It is of importance to measure social activities as older people also consider psychosocial and social needs to be important and these needs are often not met by caregivers (Olsen et al., 2022; Van Aerschot et al., 2022).

The sample size is in accordance with both the desired amounts, with more than 300 responses (Tabachnick & Fidell, 2014) and at least 10 answer per item, which is recommended for factor analysis (Polit & Beck, 2021). The internal structure was examined using an explorative factor analysis that showed six subscales, where all loadings were estimated to be 0.34 or higher. Two of the items, which cross-loaded in several subscales, moved from their highest loadings (0.34 and 0.53). This was done after thorough discussions between the authors about the content of the items and their theoretical connection to another subscale. These items should be consider in wording to try to clarify if the informants interpreted them differently, which might be a reason for them to cross-load.

TABLE 4 Pattern Matrix with factor loadings; BERNCA-NH/HC, Swedish version.

Subscales and items	I	II	III	IV	V	VI
Fundamental Care						
Sponge bath/partial sponge bath/skin care	−0.66					
Oral hygiene	−0.61					
Assist drinking	−0.81					
Assist eating	−0.79					
Mobilization/change of position	−0.56					
Timely need-based care						
Serve food while it is still hot		0.78				
Assist eating while food is still hot		0.70				
Give prescribed medication		0.61				
Give prescribed medication as needed within 30 min		0.61				
Dignity and support						
Keep care recipient who rung waiting			0.44			
Leave care recipient in urine/stool longer than 30 min			0.54			
Toileting/continence training			0.58			
Promote care recipient's autonomy			0.48			
Monitor care recipient as care workers felt necessary			0.83			
Monitor confused/cognitively impaired care recipient and use of restraints/sedatives			0.72			
Emotional support			0.59			
Necessary conversation with care recipient			0.55			
Necessary conversation with relatives			0.40			
Ensuring respectful treatment						
Act in the event of abuse				0.84		
Advocacy for care recipient				0.60		
Assessment of needed care				0.41		
Social activities						
Scheduled singl activity with a care recipient					0.52	
Scheduled group activity with several care recipients					0.57	
Cultural activity for care recipient with contact outside of home/nursing home					0.38	
Documentation, planning and reporting						
Documentation of care						0.82
Set up or update care recipient's care plans						0.77
Study care plans at the beginning of shift						0.77
Report to other staff		0.25		0.53		0.21
Attend meeting about care recipient's care		0.34		0.33		0.31

Note: Extraction Method: Principal Component Analysis (PCA), Rotation Method: Oblimin with Kaiser Normalization.

Thereafter, further tests must be done before a decision is made if the items should be removed from the BERNCA-NH/HC, SWE. The constructors of BERNCA-NH had to make the same considerations with items that cross-loaded (Zúñiga et al., 2016).

It was also tested and examined to have four components, as the validation studies of the BERNCA-NH performed by Zúñiga et al. (2016) and Norman and Sjetne (2019) had. The results estimated loadings higher than 0.3, but several items cross-loaded into more than one subscale based on high loadings, and the content of the items resulted in very broad subscales. The Swedish version, which included nine more items, ended up with six components, three subscales the same as in the original instrument, two subscales with new items and one subscale where the new items were mixed into the suitable subscales of the original instrument. The six subscales all had Cronbach's alpha values between 0.70 and 0.90, indicating good internal consistency. The instrument containing 29 items had over 600 responses needed a Cronbach's alpha at lowest 0.90 (Streiner et al., 2015), which is consistent with this study, where

an overall Cronbach's alpha was estimated at 0.95. The possibility to group the items into subscales gives information to managers, at different levels of the organization, on what nursing activities are often or rarely missed and creates a basis for discussions, improvements, and an opportunity to reconsider the allocation of staff resources. The subscales and their content are care activities that are common and well-known in nursing homes and home care in Sweden.

The internal response rate was good, with only a maximum of 2.8 percent of no responses for any item. The instrument with four answer options indicates which nursing activities are done and which are not where 'give prescribed medicine' was least missed, and 'scheduled group activity with several care recipients' was most often missed. At the same time 'scheduled group activity with several care recipients' has a high proportion of responses *activity not necessary* or *not within my responsibility* (38.9 percent). An explanation can be that this activity is not common in home care or for nurses working night shift. A refinement of the instrument can include different items depending on the type of shift worked, on the other hand there are nurses working in both context and all kinds of shifts.

In total the possibility to answer *activity not necessary* or *not within my responsibility* probable is a good reason for the high responses rate on the single items. These responses could also interest the managers as they can reveal care activities where the nurses are in need of education, or where to put effort in improvement work. In the present study nearly a third of the nurses claimed that it was not necessary or in their responsibility to 'attend meeting about care recipient's care', and one out of ten answered the same about 'assessment of needed care'. In addition to getting information about the prevalence of missed nursing care at item and subscale levels, the instrument also gives information in the responses *activity not necessary* or *not within my responsibility* that could interest the managers and give light to where improvement work is needed.

The concept missed nursing care is complex, and described by several studies (Ludlow, Churruca, Mumford, et al., 2021; Willis et al., 2021). However, how the nurses and manager in the health care perceive the content of the different concepts is unknown, but probably the perceptions are influenced by the contextual differences that cultural, political and social affiliations constitutes (Willis et al., 2021). There are a number of different instruments that measure missed care, in different contexts and countries. The influence of the health care organization, the work environment, staffing in both skill mix and nurse ratio per care recipient should be taken into account when conclusions are drawn. This contributes to the difficulty of comparing findings, even if the comparison is at item level. Palese et al. (2021) concludes that reliability test of the different instrument measuring missed nursing care is lacking.

4.1 | Limitations

While the response rate may be considered low, a low response rate does not automatically mean that the findings are not reliable, especially if the examined phenomenon is previously unexplored (Rogelberg & Stanton, 2007). Nevertheless, the number of valid responses was sufficiently high, for the first testing of the psychometric properties of an instrument. In the demographic questions, the informants could not report what shifts they had worked. This is a limitation and a probable explanation for some of the nonvalid responses, as some tasks are not performed during night shifts.

In the present study, both home care and nursing homes were included. The care activities are largely the same, but there are contextual differences that can affect and must be taken into account. The possibility of answering *activity not necessary* or *not within my responsibility* is one way to handle the occurred differences, and the gain of being able to use the same instrument outweighs the flaws.

Answers that are self-reported always pose the risk of social desirability bias (Streiner et al., 2015). The survey was sent in anonymously so even if some informants found that it was hard to be honest in answering what had not been done, there was no possibility of tracking down single responses to a specific informant. Another difficulty with self-reporting missed nursing care is that the nurses must be aware that they did not do a required activity, to know that it was missed. Missed nursing care is mostly studied with self-reported questionnaires, but both observations studies and patient experiences of missed nursing care will complement the research, considering the shortcomings of the chosen method. This was the first study of missed nursing care in community health care in Sweden, to our knowledge, generalizing the results must be done with caution, pending further research.

5 | CONCLUSION

The analyses indicate that the Swedish version of BERNCA-NH/HC is usable for Enrolled Nurses and nurse assistants in community health care for older people in Swedish municipalities. Additional tests can contribute to refining the content of the items and further test reliability and validity of the instrument. Other tests performed separately in nursing homes and home care and with a focus on the influence of work shifts can contribute to refining the content of the items. Measurement of missed nursing care can provide health care staff and managers with knowledge about areas in need of improvement.

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CONFLICT OF INTEREST STATEMENT

The authors declare that they have no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

RESEARCH ETHICS COMMITTEE APPROVAL

The Swedish Ethical Review Authority approved the study (Dnr: 2019-04109). All participants were informed that their participation was voluntary and anonymous, and their informed consent was provided by submitting the questionnaire.

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