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Barriers and facilitators to skin hygiene care and emollient use in residential care homes: Instrument design and survey

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Abstract

Background: The older person care home population is increasing. As skin ages, it becomes vulnerable to dryness, itching, cracks and tears. These are experienced by most older people, they impair quality of life and can lead skin breakdown, increased dependency, hospital stays and greater financial and human costs. Dryness, itching, cracks and tears can be prevented, but despite best practice guidance, concordance is suboptimal.

Objectives: (i) develop and test a theory-based diagnostic instrument to accurately and prospectively assess barriers and facilitators and (ii) survey barriers and facilitators to care home staff in the delivery of skin hygiene care.

Methods: Instrument development and survey. Barriers and facilitators identified from the literature and pilot study were categorised in a Delphi survey of experts ($n = 8$) to the Theoretical Domains Framework. This model was tested in three rounds for face validity ($n = 38$), construct validity ($n = 235$) and test–retest reliability ($n = 11$). Barriers and facilitators were surveyed in Round 2 and reported in accordance with TRIPOD.

Results: A 29-item valid and reliable instrument (SHELL-CH) resulted ($\chi 2/df = 1.539$, RMSEA $= 0.047$, CFA $= 0.872$). Key barriers were delivering skin hygiene care to agitated or confused residents, pressure to rush or engage in other tasks from colleagues, being busy and the unrealistic expectations of relatives. Knowledge of skin hygiene care was a facilitator.

Conclusion: This study has international significance having identified barriers and facilitators to skin hygiene care including barriers previously unreported.

KEYWORDS
barriers and facilitators, care homes, emollient, hygiene, implementation, skin health

1 | INTRODUCTION

The number and proportion of people aged 60 years and older in the population is increasing. In 2019, the number of people aged 60 years and older was one billion. This number will increase to 1.4 billion by 2030 and 2.1 billion by 2050 (World Health Organisation, 2021). In line with this international rise in older people, so will the care home population. In the UK (for example), the care home population is almost 500,000 and projected to rise by 350,000 in the next 30 years (Evans, 2022). As the skin ages, it undergoes multiple intrinsic and extrinsic changes (Cowdell, 2019), which result in greater vulnerability to skin conditions such as xerosis (skin dryness), fissures (cracks), and pruritus (itching) and skin tears (Cowdell et al., 2020). Clinical observation and self-report suggest most older people experience one or more of these; however, research evidence is limited. Available data suggest that in community-dwelling older people without diagnosed skin conditions, 66% have a skin concern rising to 83% for those aged over 80 years, the most common issue being itching (Beauregard & Gilchrist, 1987). Similarly on questioning people aged 64+ years 70% reported itch in the previous week (Fleischer et al., 1996) and in a self-completed survey of 1116 people, when asked about their skin concerns, the most common responses were dry skin and itch with a significant correlation between the two experiences (Cowdell et al., 2020). An international systematic review identifies the care home population prevalence estimates of dry skin range from 5.4% to 85.5%, the extent of variation may be explained by research methodological heterogeneity and weaknesses (Hahnel et al., 2017). The most precise measure available is a result of skin examination using the Overall Dry Skin Score (Serup, 1995) with 1710 people in hospitals and residential care settings where prevalence was found to be 48.8% (Lichterfeld et al., 2016).

These common skin experiences impact on well-being and quality of life but are often considered an inevitable part of ageing and so are not routinely reported or treated (Kirkup, 2014). Damage to skin integrity and resulting skin breakdown can cause significant morbidity (Bonifant & Holloway, 2019), increased dependency levels in residential homes, longer hospital stays and they present challenges both logistical and financial for acute and community healthcare services (Gardiner et al., 2008). Skin hygiene care is a core activity for residential care home staff as most residents are likely to need some assistance (National Health Service, 2017). The aim was to provide dignified care (Šaňáková & Čáp, 2019) and maintain or improve skin integrity and comfort (Cowdell et al., 2020). Although there is a wealth of evidence focussing on measures to prevent and treat incontinence-associated dermatitis in older people, measures predominantly focus on preventing incontinence, absorbent products and protective (barrier) products (Kottner & Beeckman, 2015), and these are generally well-adopted. However, the evidence base for optimal skin hygiene care for dry skin areas (rather than humid areas) is limited, but there is some evidence that use of emollient products (e.g. moisturising soap bar; combinations of water soak, oil soak and lotion) may improve clinical

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Implications for practice

What does this research add to existing knowledge in gerontology?

- Providing information through staff education sessions is often equated with improving care.
- Information alone does not change practice, other barriers to change must be addressed.
- Barriers to changing gerontological practice vary according to context.

What are the implications of this new knowledge for nursing care with older people?

- The SHELL-CH Index allows accurate and prospective assessment of barriers and facilitators to delivering optimal skin hygiene care in the context of individual residential settings.
- Understanding barriers and facilitators to best practice enables development of change interventions tailored according to need.

How could the findings be used to influence policy or practice or research or education?

- This study has identified a comprehensive list of barriers and facilitators to skin hygiene care including barriers previously unreported.
- Context-specific, tailored interventions to improve skin hygiene care in residential settings need to be developed and tested in practice.

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measure of dryness when compared with no intervention or standard care (Cowdell et al., 2020; Lichterfeld et al., 2015; Lichterfeld et al., 2016). There remains a gap in knowledge about best skin care practices for older people, and it is important that we persist in efforts to develop a robust evidence base; however, in the meantime, we must continue to support concordance with currently available best practice guidance.

Despite best practice guidance on skin hygiene care (SHC), data suggest these are not routinely followed. Understanding barriers and facilitators may guide recommendations for interventions to support carers and nurses working in residential settings. However, our systematic search and narrative synthesis of the literature in relation to barriers and facilitators for care staff delivering hygiene care to residents identified 16 papers, only four of which related to SHC, the remainder considered oral hygiene (Heague et al., 2021). Key barriers to SHC included (i) a poor knowledge base, (ii) poor skills in delivering hygiene care, (iii) poor skills in supporting hygiene care in residents who are confused or uncooperative, (iv) a

lack of resources and (v) time, workload and staffing levels. Barriers to oral hygiene care, which may be transferable to skin hygiene, were (vi) resident, family or carer motivation, (vii) carer dislike of hygiene care, (viii) beliefs relating to lack of effectiveness and (ix) social influences.

In the light of this dearth of evidence relating to the barriers to SHC, our aims were to:

(i) develop and test a theory-based diagnostic instrument (the Skin Hygiene and Emollient in Later Life-Care Homes Index (SHELL-CH)) to accurately and prospectively assess the barriers and facilitators to delivering skin hygiene in residential settings; and

(ii) survey barriers and facilitators the delivery of skin hygiene.

The Theoretical Domains Framework (TDF) (Michie et al., 2005) was selected as the theoretical underpinning for the SHELL-CH. The TDF is a synthesis of all published models of behaviour or behaviour change into 11 theoretical domains. These domains offer a comprehensive framework of all potential determinants of behaviour (*knowledge, skills, social/professional role and identity, beliefs about capabilities, beliefs about consequences, motivation and goals, memory attention and decision processes, environmental context and resources, social influences, emotion and action planning*). Thus, the TDF considers individual, environmental, social, cultural and institutional determinants of (barriers and facilitators to) behaviour. The framework has been used extensively to understand health behaviours (Cowdell & Dyson, 2019), practitioner behaviours (Dyson & Cowdell, 2021) and for the specific purpose of instrument development (Aleo et al., 2019; Cowdell & Dyson, 2014; Dyson & Cowdell, 2014). The TDF is pragmatic because once the key determinants to a behaviour are identified, based on empirical evidence, it suggests the behaviour change techniques (BCTs) that are most likely to be effective to support change (Michie et al., 2008).

2 | MATERIALS AND METHODS

There were three stages to instrument development: (i) instrument design; from our review of the literature, we listed known barriers and facilitators to SHC and conducted a pilot study, (ii) this was followed by a Delphi survey to categorise items to the domains of the TDF and (iii) instrument testing. During instrument testing, we took the opportunity to survey barriers and facilitators. Our study is reported according to Transparent reporting of a multivariable prediction model for individual prognosis or diagnosis (TRIPOD): The TRIPOD statement (Collins et al., 2015).

2.1 | Ethics

Ethics approval was granted by the University Research Ethics Committee.

3 | DESIGN

3.1 | Instrument design

It is advised that inclusivity in the early stages of instrument development is wise as poor items will be identified and can be removed in subsequent testing (Oppenheim, 2000; Streiner et al., 2015). We therefore converted all barriers identified in the literature (summarised above) into items (*n* = 55). In our pilot, we asked participants to tell us about any barriers and facilitators they had encountered in addition to those we had listed. At this stage, we added additional items to represent these responses. Items were listed in random order using a 5-point Likert scale as reliability does not increase significantly beyond this (Streiner et al., 2015). Points ranged from strongly agree to strongly disagree. Items were written to be clear to the reader by avoiding jargon, long phrases or technical terms. We sought to prevent acquiescence bias by mixing questions so that indicating 'strongly agree' was sometimes a barrier and sometimes a facilitator. We sought to avoid social desirability by ensuring the instrument was anonymous and participants could not be identified. In addition to items generated from our review of the literature, we added 20 questions that tested knowledge about skin hygiene. These were generated from best practice as identified in the literature and from clinical experts. We asked for participant role (e.g. Registered Nurse and care assistant), years of experience, gender and age to establish variation in barriers according to role and establish population representativeness with the remainder of these questions. The questionnaire was hosted by Bristol Online Survey (BOS).

3.2 | Pilot test

We circulated the first draft to five individual care home staff within our networks and asked them to sense check and feedback on items and add any additional barriers or facilitators to skin hygiene care.

3.3 | Delphi survey

A Delphi survey is typically used to achieve consensus from a group of experts (Adler & Ziglio, 1996). To categorise the barriers identified in the literature to the domains of the TDF, we asked experts in either skin health or health psychology (*n* = 8) to assess the fit of the barriers and facilitators identified in the review of the literature and the pilot study to the domains of the TDF. One of the challenges of a Delphi survey is the need for participants to respond on more than one occasion and the responses are only as strong as the level of expertise within the respondent group. We therefore chose to approach senior experts in the two fields but to circulate the survey in only two rounds to mitigate attrition. These became instrument constructs for subsequent testing. There is no one accepted definition of an acceptable level of consensus in a Delphi (Keeney et al., 2006). A literature review of Delphi surveys identified a range of from 51

to 80% agreement (Hasson et al., 2000). A pragmatic level of 60% or higher was agreed for both rounds for the purpose of this study.

3.4 | Instrument testing

For all stages of testing, participants were expected to work in care homes with and without registered nursing, delivering direct care or working in a managerial role. Care assistants or senior carers in UK residential homes have the necessary training and/or education to deliver skin hygiene (according to a plan of care) independently or with minimal supervision (unless prescribed medication is involved). Managers come from a range of backgrounds; some have had previous care roles; and other come from a mainly administrative background. The instrument was presented as a link or Quick Response (QR) code embedded within recruitment posters and distributed through our networks (e.g. Enabling Research in Care Homes Network [ENRICH] [National Institute for Health and Care Excellence] and the Care Home Network [Royal College of Nursing]) and social media (in particular snowballing/reposting in Twitter and Facebook where authors have many colleagues and interested followers) to achieve the necessary return rates for the statistical tests to be conducted. There were three phases of testing: (1) face validity; (2) construct validity; and (3) test–retest reliability. Each stage is described with full details below.

4 | DATA COLLECTION

4.1 | Face validity, variability of response and skew

In this round, we sought to conduct preliminary tests to identify items most likely to provide valid items according to each of the 11 domains of the TDF in terms of feedback from participants (face validity) and those that demonstrated variability of response with a relatively normal distribution.

4.1.1 | Analysis

Given the nature of these tests, we sought to achieve a response rate of 30 (Tabachnick et al., 2007). Items were clarified or removed according to feedback from participants. Data were transferred to SPSS v25 and items removed according to a standard deviation (representing variability of response) of less than 1.5 and a skew of greater than 3 in either direction (Kline, 2015).

4.2 | Internal consistency, construct validity and survey

In this round, we sought to test internal consistency (correlation within domains), construct validity (extent to which measures reflect the domains of the TDF to which they were allocated) and to conduct a survey of barriers and facilitators to delivering SHC. On this occasion, we distributed the survey until we had a return of >200 responses. Although there are many suggestions of calculating sample size for confirmatory factor analysis/construct validity testing, $n \geq 200$ is considered both large enough and acceptable for most models (Kline, 2015) and there is precedent for this to be used in several previous instruments based on the TDF (Dyson et al., 2013; Dyson & Cowdell, 2014). We asked participants whether they would be prepared to complete the questionnaire on a second occasion and if so to provide us with their email address. This was to facilitate Round 3 of questionnaire development (test–retest—illustrated below).

4.2.1 | Analysis

Internal consistency was assessed using Cronbach's alpha, calculated for each domain, using an alpha of >0.7 to demonstrate good correlation (Ping, 2004); items were removed until this was achieved. Confirmatory Factor Analysis was carried out using AMOS v25 to test the fit of items within allocated domains. Negatively worded items were reversed, and analysis involved: normality tests, items with a skew greater than 3 or kurtosis >10 were removed (Kline, 2015). A model was then specified in AMOS and tested for: (i) absolute fit, defined as chi-squared to degrees of freedom ratio (χ^2/df) of less than 2 (Byrne, 2013), (ii) parsimony of fit, defined as Root Mean Square Error of Approximation (RMSEA) of close to or less than 0.06 (Brown, 2015) and (iii) comparative fit (CFA), seeking an index of close to 0.95. The model was revised and fit retested until these parameters were met. To identify areas of poor fit, two values were examined; modification indices where >3.84 indicates a change may result in improved fit and standardised residuals of greater than 2.58 (Brown, 2015). Survey analysis involved calculating frequencies and means to summarise participants roles, knowledge test items and barriers and facilitators according to individual item and domain.

4.3 | Test–retest reliability

Participants who offered to complete the questionnaire on a second occasion were sent the link by email between 2 and 4 weeks after the first completion. On this occasion, email address was requested again (to allow correlation), and participants were asked whether their job had changed at all and if so how. If the phenomenon is unchanged between time periods and no other variables have significantly changed the instrument is reliable (Streiner et al., 2015).

4.3.1 | Analysis

Data were transferred into SPSS v25 and Pearson's coefficient was used as the test of choice. A medium or large correlation is desirable and defined as 0.3 to 0.49 (medium) and 0.5 to 1 (large) (Cohen, 1988).

5 | RESULTS

5.1 | Pilot test

Five participants responded (two nurses and three care assistants). There were suggestions as how items may be clearer and participants suggested an additional seven barriers or facilitators: (i) replacement of products, (ii) gender preferences for carer from residents, (iii) *managing* time, (iv) prioritising, (v) they offered a list of carer and resident activities that made creating time for skin hygiene care difficult (e.g., visitors) and offered sources of useful information (vi) the Internet and (vii) care plans. These seven barriers were developed into items and added to the 55 identified in the literature resulting in 62 items.

5.2 | Delphi survey

All eight experts responded to both rounds and consensus was achieved for 57 of the 62 barriers and facilitators at 60% agreement or greater. Items where agreement was not achieved at this level were discarded and the remainder included. Items were categorised to 9 of the 11 domains (no items were included in memory attention or decision-making or professional role and responsibility).

5.3 | Instrument testing

Thirty-eight participants responded to Round 1, 235 to Round 2 and 11 to Round 3; characteristics for all three rounds are illustrated in Table 1. Those choosing 'other' when asked about role described themselves as roles such as director, deputy manager or care lead.

5.3.1 | Face validity, variability of response and skew

Face validity: Some suggestions were given to increase the clarity of items which were adopted (e.g. 'peer pressure' was changed to 'pressure from colleagues'). Free-text responses to the question 'are there any other barriers or facilitators to skin hygiene care you would like to tell us about'" resulted in our adding three additional items relating to training, fear of causing harm and an expectation to work quickly. Variability of response: Three items (I forget, it is my responsibility and I intend to engage in skin hygiene care) were removed as a result of having a standard deviation of less than 1.5. Skew: Two items were removed as a result of a skew greater than 3 (I know about, and I know how to deliver skin hygiene care). Fifty-five items were included for second-stage testing.

5.3.2 | Internal consistency, construct validity and survey

Internal consistency using Cronbach's alpha of >0.7 was achieved within all nine domains by removing three items. Construct validity: By the end of the process illustrated above, the final model consisted of 31 items within eight domains (confidence and skills combined improved fit) and the model fit was good: $\chi 2/df = 1.539$, RMSEA $= 0.047$, CFA $= 0.872$. These 31 items were circulated for round 3.

5.4 | Survey

Using only the items that remained after Round 3, Figure 1 presents the % of respondents identifying barriers, facilitators or 'neither' (ranked according to greatest barrier). Figure 2 presents barriers
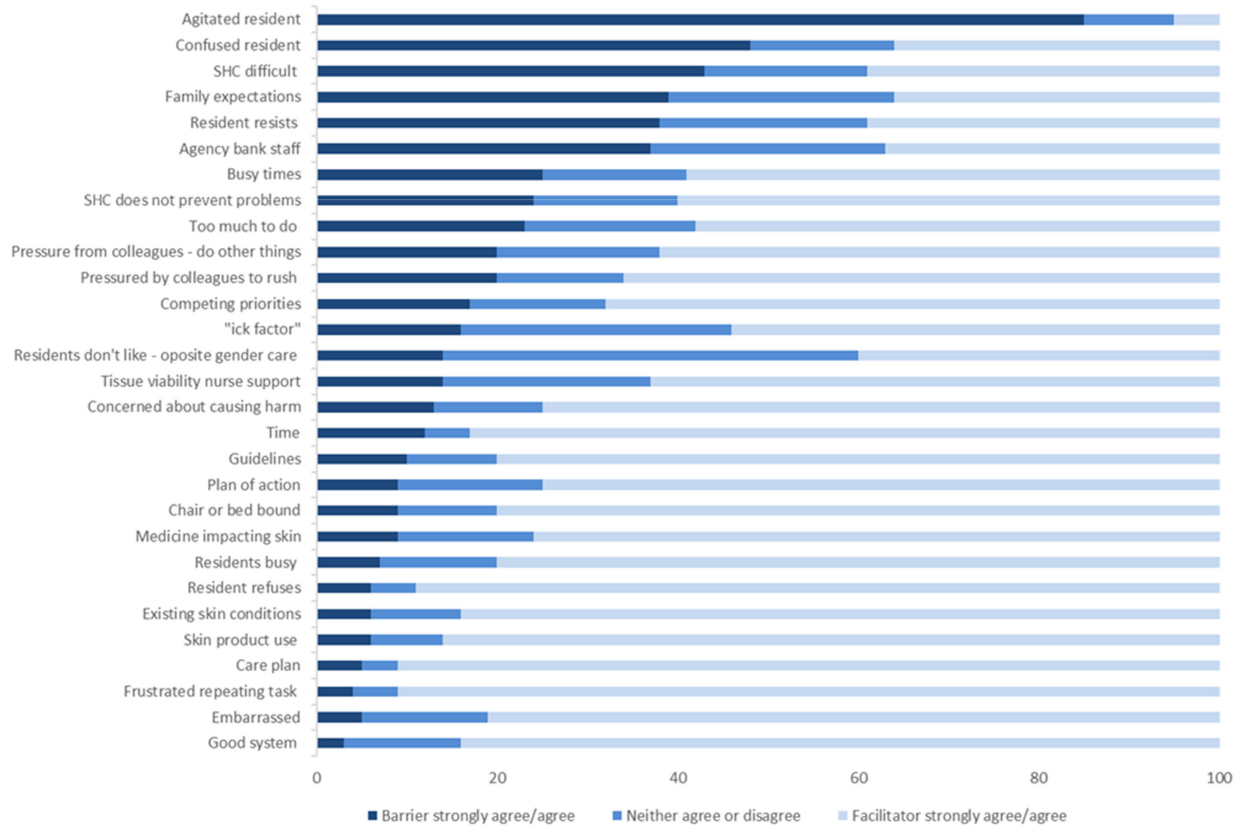
TABLE 1 Participant characteristics all three phases of instrument testing.

Characteristics		Round 1	Round 2	Round 3
Total responses		38	235	11
Residential home characteristics	With nursing (%)	21 (55)	148 (64)	6 (55)
	Without nursing (%)	17 (45)	82 (36)	5 (45)
	Number of residents; mean (range)	53.6 (14–101)	49 (4–350)	47 (12–91)
Role	Nurse (%)	13 (34)	65 (28)	2 (18)
	Years qualified; mean (range)	18.6 (1–43)	26 (2–43)	29.5 (29–30)
	Care assistant (%)	16 (42)	48 (21)	5 (46)
	Years of experience; mean (range)	8.5 (0.5–32)	8.5 (1–30)	2.4 (2–3)
	Manager (%)	5 (13)	62 (27)	4 (36)
	Years of experience; mean (range)	9.4 (0.5–20)	15.5 (1–45)	25 (7–45)
	Senior carer (%)	1 (3)	45 (19)	0
	Years of experience; mean (range)	*13*	8 (0.5–25)	–
	Other (%)	3 (8)	13 (5)	0
Gender	Male (%)	5 (13)	41 (18)	0
	Female (%)	33 (87)	188 (82)	11

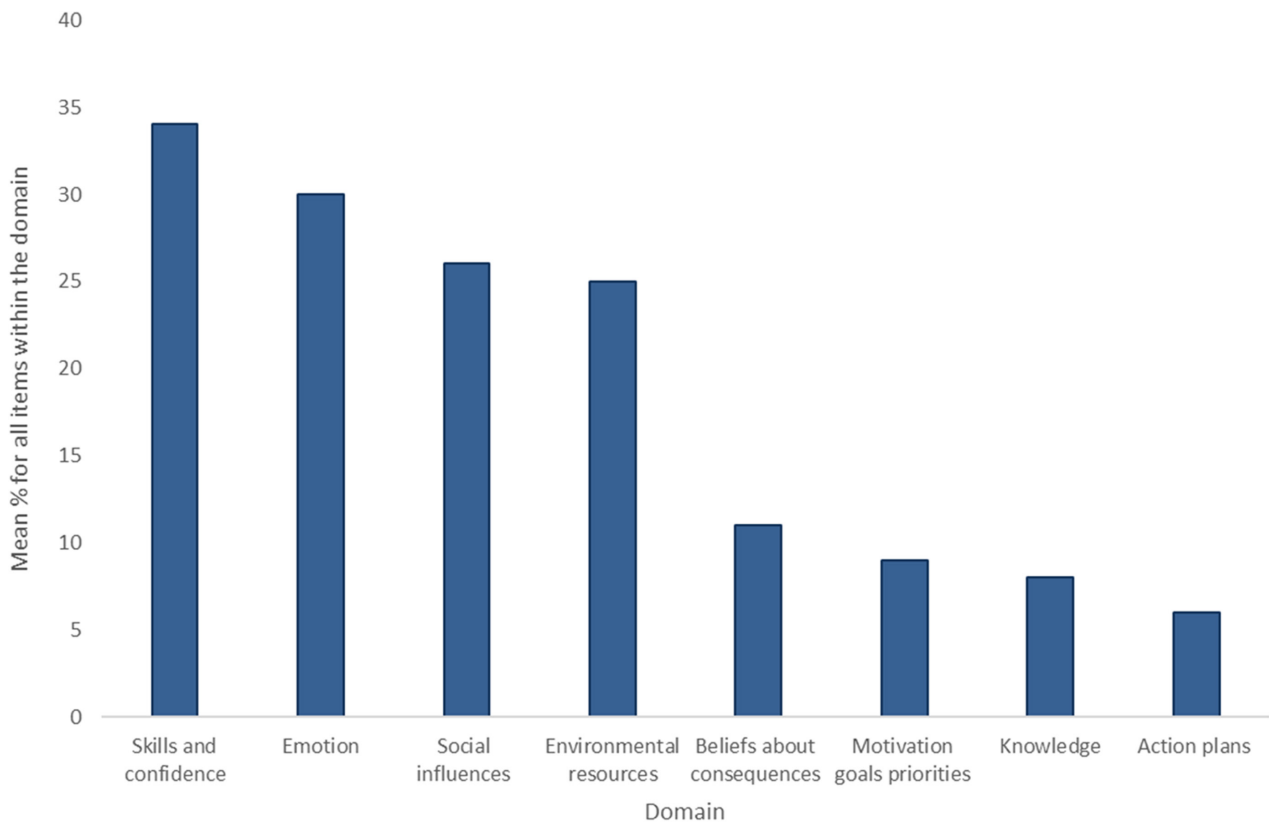**FIGURE 1** Barriers and facilitators to Skin Hygiene Care by item (%).

FIGURE 2 Barriers and facilitators to Skin Hygiene Care by domain (%).

(strongly agree or agree) according to domain. Figure 3 compares the most frequently reported barriers (strongly agree or agree) according to professional role. Table 2 presents the number and % of correct responses to knowledge test questions according to group and overall ranked.

5.4.1 | Test–retest reliability

Forty-five participants offered to complete the questionnaire on a second occasion and were provided with a link. Of these, fifteen responded but only 11 could be matched as others did not include an email address. Twenty-nine of the 31 remaining items tested all achieved Pearson's coefficients of >0.3 at $p < 0.05$ (medium-to-large correlations). Two items did not and were removed. Figure 4 presents the items in the final 29 item instrument and the barrier/facilitator category to which they relate.

6 | DISCUSSION

In response to the dearth of literature on the subject (Heague et al., 2021), our aim was to develop and test a theory-based instrument that would prospectively and accurately assess barriers and

facilitators to staff delivering skin hygiene and emollient care to older people in care homes (the SHELL-CH index). We achieved this through a panel of experts categorising items identified in the literature and a pilot study to the 11 domains of the TDF which formed the first draft of our model structure for testing. Through three rounds of testing on representative samples, we have a model that fulfils the requirements of (i) face validity, (ii) construct validity (across three assessed models of fit (absolute, parsimony and comparative) and tested well in iii) test–retest reliability (medium or large correlation). To our knowledge, this is the only instrument that measures barriers and facilitators to any form of optimal practice (in this case skin hygiene care) in care homes.

There are, however, some limitations to our work. In our third round of testing (test–retest reliability), although 45 participants offered to complete the questionnaire on a second occasion, only 15 did so, and four of these did not include an identical email address so their responses could not be paired. Thirty to 50 participants would have been optimal for this stage of testing (Tabachnick et al., 2007). Another limitation was dearth in initial items garnered through the literature review. However, we mitigated this by asking participants to suggest any additional barriers and facilitators. Items were added after the pilot and round one of testing. Subsequently, there were no additional barriers suggested that were not already included. Although our study was conducted in UK, where health and social
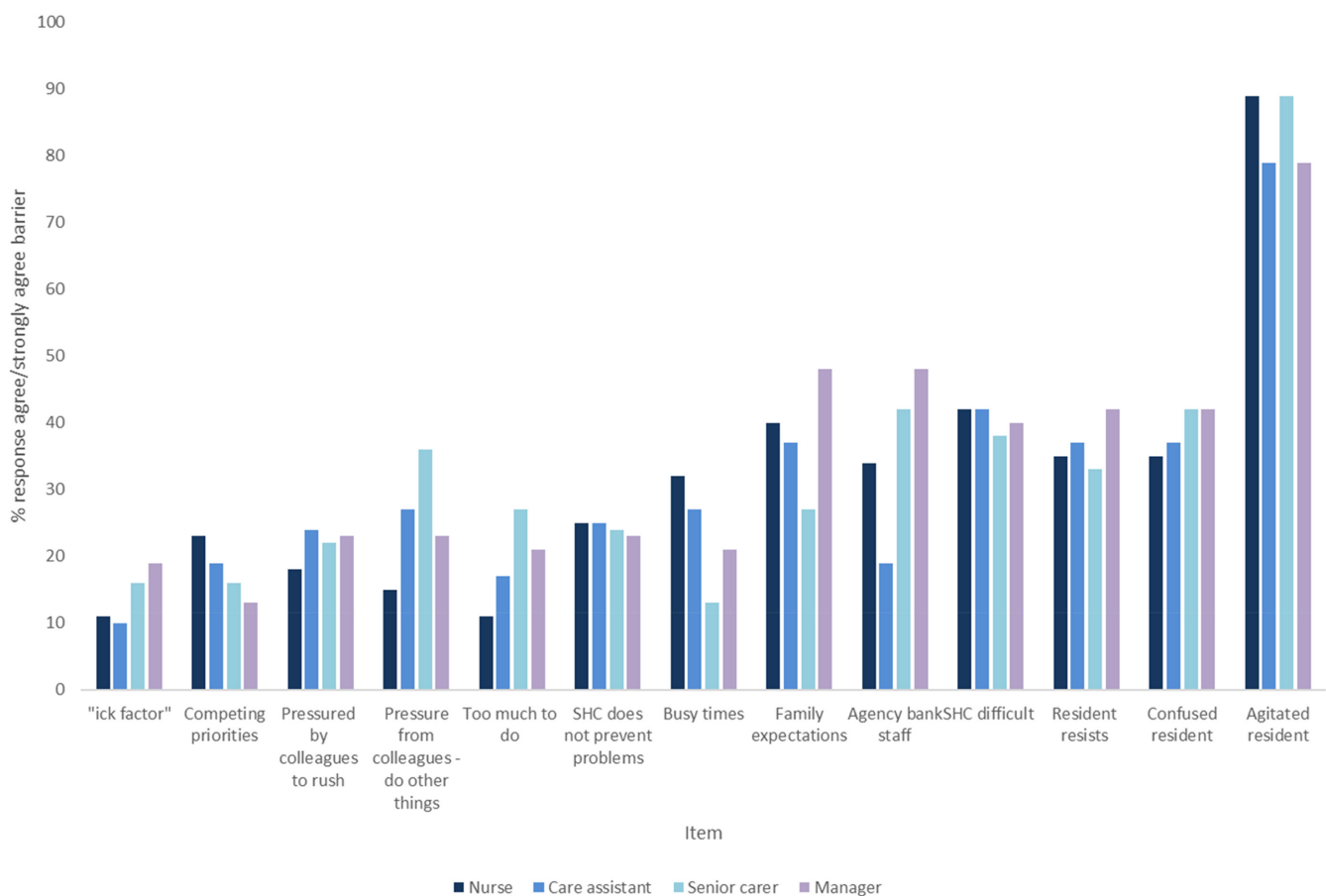

FIGURE 3 Most frequently reported barriers (strongly agree/agree) according to group.

TABLE 2 Knowledge test questions.

Items: 'The following regimes are considered good practice' (tick all that apply) (true/*false*)	Number of correct responses (%)				
	Nurses n = 65	Care assistants n = 48	Senior carers n = 45	Managers n = 62	All participants n = 235 ranked
Clean under breasts and abdominal folds at least daily	63 (97)	47 (98)	43 (96)	61 (98)	227 (96.6)
Clean hands before meals, after the toilet and when dirty	62 (95)	46 (96)	45 (100)	60 (97)	226 (96)
Support a well-balanced diet and good hydration	62 (95)	43 (89)	43 (96)	61 (98)	222 (94)
Keep skin clean and dry	61 (94)	43 (89)	42 (93)	60 (97)	219 (93)
Use talcum powder to help keep skin dry	62 (95)	38 (79)	43 (96)	56 (90)	213 (90)
A resident who is chair bound and incontinent should have their skin assessed once a week	63 (97)	40 (83)	39 (87)	57 (92)	211 (89.7)
Wash with water only	57 (88)	32 (67)	38 (84)	53 (85)	194 (82.5)
When it causes no harm, washing regimens should be according to the preference of the individual	60 (92)	41 (85)	41 (91)	54 (87)	207 (84.7)
A resident who is chair bound and incontinent should have their skin assessed several times a day	57 (88)	34 (70)	40 (89)	50 (81)	192 (81.7)
Wash with a gentle soap substitute	59 (90)	43 (89)	40 (89)	50 (81)	196 (83)
Moisturise daily	57 (87)	36 (75)	34 (75)	52 (84)	191 (81)
Wash with a product that creates a good lather/ foam	52 (80)	33 (69)	34 (75)	51 (82)	181 (77)
Trim finger nails every 5 to 8 days	49 (75)	35 (73)	32 (71)	47 (76)	172 (73%)
A resident who is chair bound and incontinent should have their skin assessed once a day	50 (77)	27 (56)	34 (75)	45 (73)	168 (71.4)
To dry skin, rub thoroughly with a towel	48 (73)	23 (52)	30 (67)	44 (71)	159 (67.6)
Do not over-wash	30 (54)	29 (60)	30 (67)	37 (60)	96 (59)
A resident who is chair bound and incontinent should have their skin if they are scratching/ skin appears to be itchy	33 (51)	30 (63)	17 (38)	26 (42)	113 (48)
Wash with soap and water	26 (40)	5 (10)	14 (31)	20 (32)	72 (30.6)
A resident who is chair bound and incontinent should have their skin assessed if there is a problem	25 (38)	20 (42)	17 (38)	20 (32)	82 (34.9)
Wash whole body at least daily	15 (23)	3 (6)	10 (22)	12 (19)	43 (18.3)

care provision may differ to other countries, from the limited international literature available on barriers and facilitators to skin hygiene care, we anticipate our findings will be transferable to other healthcare systems.

In constructing this instrument, we took the opportunity to survey barriers and facilitators to skin hygiene care. Forty-three per cent of respondents rated skin hygiene care a 'difficult' skill. Unlike published literature where knowledge was identified as a barrier to delivering skin hygiene care (D'Hondt et al., 2012; Tsunemi et al., 2020), our participants generally demonstrated good knowledge. Exceptions were a lack of knowledge about examining problem or itchy skin and their beliefs that skin should be washed with soap and water and at least daily. When asked about knowledge and knowledge sources, they were generally aware of guidelines, had a good knowledge of their residents' skin conditions and medication and how to use skin products.

In line with the published literature (D'Hondt et al., 2012), we found the greatest barriers across all groups (nurses, care assistants, senior carers and managers) was in relation to delivering skin hygiene care to residents exhibiting agitation, confusion or those who resisted care. Our survey identified a lack of value in SHC with over a quarter of participants strongly agreeing or agreeing that this care would not prevent problems. Also, in line with the literature (D'Hondt et al., 2012), our participants identified busy times, having too much to do and competing priorities as barriers. Barriers we identified, not previously identified in the literature, included participants feeling pressured by colleagues to rush skin hygiene or to engage in other tasks, an acknowledgement that residents did not like care from carers of the opposite gender and a concern about causing harm to the resident through SHC.

There were few differences in barriers and facilitators between groups (Registered Nurses, care assistants, senior carers and

FIGURE 4 Structure of the SHELL-CH Index.

managers). Two notable differences were 'residents' family members sometimes have unreasonable expectations of SHC' and 'providing SHC is more difficult when there are agency/bank staff on shift'. In both instances, managers were more concerned than others. This is likely to be because the carer's focus is on the individual resident, whereas the manager needs to consider the collective and be aware of overall quality monitoring and risk of complaints. In the case of 'agency/bank staff on shift' as well as managers, Registered Nurses were more concerned than care assistants. It is possible that this is due to the responsibilities of allocating work and professional accountability. However, we offer this as a potentially logical

explanation. Having captured barriers to skin hygiene, further research is needed to explore the reasons for differences between groups.

The work presented here suggests barriers to the delivery of SHC in residential settings. Addressing these barriers may result in greater concordance with optimal practice. The instrument developed offers the opportunity for nurses and carers to assess and address local barriers. Skin conditions such as xerosis (skin dryness), fissures (cracks), pruritus (itching) and skin tears are a global problem for older people and can be prevented with simple skin hygiene measures. An ageing population suggests the need for preventative care

residential environments to minimise the potential for skin breakdown and associated increased dependency levels, hospital stays and the associated environmental challenges to acute and community healthcare services.

7 | CONCLUSION

This work has international relevance in relation to SHC. The purpose of the SHELL-CH Index is to accurately and prospectively assess barriers to the delivery of SHC. Traditional approaches to improving care tend to focus on provision of information. However, as our work has demonstrated a knowledge deficit is not always the problem. Other barriers are evident. Our participants identified *skills deficit* with regard to SHC for residents who are agitated, confused or refusing care. Additionally, social influences was a barrier with colleagues exerting pressure to rush or engage in other tasks and family having unrealistic expectations. Use of the instrument will assessment of barriers in local contexts to allow the tailoring interventions according to need. Such an approach is more likely to bring about improvements in practice (Baker et al., 2015). The next challenge for research is to co-design, with carers and residents, interventions that address locally assessed barriers to SHC and test the effectiveness of these.

CONFLICT OF INTEREST STATEMENT
None to declare.

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

ETHICS STATEMENT
Ethics approval was granted by the Health, Education and Life Sciences Faculty Research Ethics Committee at Birmingham City University. ID: Cowdell/7675/R(A)/2020/Aug/HELS FAEC.

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