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A training intervention for home care nurses in cross-cultural communication: An evaluation study of changes in attitudes, knowledge and behaviour

Tobias Filmer MPH, B.Ed., Research associate  | Britta Herbig PD Dr. phil. Dr. habil. med.,
Dipl.-Psych., Senior Researcher 

Institute and Clinic for Occupational, Social and Environmental Medicine, University Hospital, LMU Munich, Munich, Germany

Correspondence

Tobias Filmer, Institute and Clinic for Occupational, Social and Environmental Medicine, University Hospital, LMU Munich, Munich, Germany.
Email: tobias.filmer@med.uni-muenchen.de

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Abstract

Aims: To assess whether a training intervention in cross-cultural communication can positively impact attitudes, knowledge and behaviour and to investigate possible dependencies between these components.

Design: (Controlled) longitudinal multimethod evaluation.

Methods: A training based on theoretical considerations and informed by semi-standardized interviews with home care nurses was developed and evaluated. Participants rated their cross-cultural attitudes, knowledge and behaviour and answered case vignettes assessing their knowledge before and after this training. Shift observations assessed behavioural aspects at t1 and t2. Data were collected between June 2016–March 2017 and between April 2017–November 2017. Analyses of variance and multiple linear regression models were employed.

Results: The training showed promising tendencies with cross-cultural attitudes, knowledge and behaviour with diverging results for initially quite high self-reports showing positive but mostly not significant developments and objective assessments mostly showing significant positive changes. There were significant associations between self-reported cross-cultural behaviour at t1 and objective cross-cultural knowledge at t2, whereas self-rated and objectively assessed knowledge showed no significant associations. Shift observations showed significant positive developments in participants' communication behaviour.

Conclusion: Our study shows the importance of using different methods and targeting different outcomes areas to rate impacts of (cross-cultural) training interventions. Future studies should consider challenging conditions in home care nursing affecting the success of interventions and investigate mechanisms of skill acquisition in nursing.

Impact: This is one of very few studies using multi-method approach to evaluate a cross-cultural competency intervention and simultaneously assess cross-cultural attitudes, knowledge and behaviour including possible dependencies between these aspects.

KEYWORDS

cultural competency, health professionals home care nursing, multi-method approach, skill acquisition, training intervention

1 | INTRODUCTION

Increasing cultural diversity in health care has a huge impact on the health sector, not only for recipients but also for providers of health care (Beach et al., 2005; Filmer & Herbig, 2018; Horvat, Horey, Romios, & Kis-Rigo, 2014; Truong, Paradies, & Priest, 2014). Although there are many cultural competency interventions for health professionals aiming to avoid culture-based disparities, the underlying concept of culture is defined rather differently in various cultural competency interventions (Alizadeh & Chavan, 2016; Henderson, Horne, Hills, & Kendall, 2018; Kleinman & Benson, 2006; Seelman, Suurmond, & Stronks, 2009; Shen, 2015; Truong et al., 2014). According to American anthropologist Marvin Harris, culture refers to a repertoire of actions and thoughts which are learned and exhibited by the members of social groups (Harris, 1979). These patterns of thinking, feeling and acting are often rather implicit and subconscious, only express themselves in communication with others and enable members of a social community to act in a meaningful and plausible manner (Betancourt, 2004). In many interventions, cultural competency is imparted as a set of 'dos and don'ts' (Betancourt, 2004) on how to care for particular cultural groups oneself is not part of. However, this might not be sufficient to communicate with all individual patients and adapt the care to their needs, especially if one is not aware of one's own cultural patterns of thinking and communicating and how these might appear to members of other cultural groups. Instead, authors increasingly demand the teaching of 'cross-cultural' competencies. That is competencies that do not focus on specific ethnic or social groups but on skills to communicate with all patients regardless of their ethnic or cultural background and to be sensitive and empathic for their individual norms, beliefs, thought patterns and values, since all these aspects can be seen as inherent parts of a culture (e.g. Altshuler, Sussman, & Kachur, 2003; Betancourt, 2004; Kleinman & Benson, 2006; Owiti et al., 2014).

There are many concepts related to (cross-)cultural competency like (cross-)cultural knowledge (i.e. a holistic and contextual understanding of cultures beyond the conventional surface-level), attitudes (i.e. respect, curiosity and openness towards other cultures) and behaviour (i.e. effective and appropriate communication behaviour in intercultural situations) that are linked to each other (Deardorff, 2011; Shen, 2015). For the presented study we use the definition posed by Campinha-Bacote (2002) that cultural competency is a continuous process of healthcare providers striving to work effectively within their clients' cultural context and relate to dependencies posed by Campinha-Bacote (2002) and Taylor-Ritzler et al. (2008) who both describe a process including knowledge and awareness of attitudes leading to a development of skills to effectively adapt one's behaviour in cross-cultural encounters.

1.1 | Background

Systematic reviews (Filmer & Herbig, 2018; Truong et al., 2014) have shown that many cultural competency interventions can result in significant increases of (cross-)cultural attitudes and

declarative cultural knowledge—that is the knowledge of facts—whereas the procedural knowledge—that is the knowledge of how to do something—assessed in behaviour and performance ratings rarely showed significant increases (Harmsen et al., 2005; Prescott-Clements et al., 2013; Schouten, Meeuwesen, & Harmsen, 2005; Xu, Shen, Bolstad, Covelli, & Torpey, 2010). Moreover, whereas several studies assessed self-rated knowledge and attitudes, (Carnevale, Macdonald, Razack, & Steinert, 2015; Harris, McQuery, Raab, & Elmore, 2008; Horky, Andreola, Black, & Lossius, 2017; McDougale, Ukockis, & Adamshick, 2010; Taylor-Ritzler et al., 2008) only a few simultaneously evaluated self-rated components of cultural competency and objectively assessed knowledge (Moleiro, Marques, & Pacheco, 2011; Smith, 2001). Moleiro et al. (2011) showed a tendency to over-estimate cultural competency when self-assessments were compared with the results of a qualitative analysis with case vignettes. Stereotypes can be reinforced instead of being reduced, when knowledge and notions about cultural groups are imparted without sufficient reflection of attitudes and problems of generalization (Harris et al., 2008). The knowledge, attitudes and practice (KAP) survey model (Médicins du Monde, 2012) describes that health behaviour is influenced by knowledge but also by attitudes. Therefore, attitudes have an important influence on whether individuals behave as expected in practice (Crawford-Williams, Fielder, Mikocka-Walus, Esterman, & Steen, 2016). Comparable to the KAP model that describes how knowledge increases influence attitudes and can result in behaviour changes (Launiala, 2009), cross-cultural knowledge could influence cross-cultural attitudes and lead to behaviour changes in cross-cultural encounters. As outlined, a few studies assessed cross-cultural attitudes and knowledge at the same time, but none of them simultaneously assessed cross-cultural attitudes, knowledge and behaviour or evaluated whether any of these aspects influenced each other (for an overview see Filmer & Herbig, 2018).

One area in health care where cross-cultural competency becomes specifically relevant is home care nursing. Although nurses in hospitals have some kind of 'domiciliary right' in their institutions which leads to them (unconsciously) defining the 'rules', nurses that care for patients in their homes are guests in their privacy and therefore must try to understand and adapt to patients' individual values, needs and demands (Kolleck, 2007). Different understandings of values, nursing care, health and diseases, language barriers, role and gender conflicts can lead to misunderstandings and even arguments (Renzaho, Romios, Crock, & Sønderslund, 2013). To be able to adjust their individual care, home care nurses need to consider their own cross-cultural attitudes and knowledge.

2 | STUDY

2.1 | Aims

Against this background, our hypotheses were that a training intervention in cross-cultural communication: a) changes cross-cultural attitudes towards a more positive attitude and affect; b) increases

self-rated and objective cross-cultural knowledge and c) in turn— influences self-rated and observed cross-cultural behaviour. Moreover, we wanted to explore whether the acquisition of objective cross-cultural knowledge depends on prior cross-cultural attitudes, knowledge and behaviour.

2.2 | Design

A (controlled) evaluation study.

2.3 | Participants

Home care nurses were recruited by addressing potential home care nursing facilities in Southern Germany. All employees that performed nursing activities were eligible to participate. There were no exclusion criteria. Written informed consent was obtained from all participants. They could decide whether they would like to participate in general and, if so, in the training sessions (training group) or not (non-training group). Self-reported data via questionnaires were gathered from both groups and enabled a comparison of results between intervention group (i.e. training group) and control group (i.e. non-training group). Objective knowledge could only be assessed from the intervention group since the participating nursing services only agreed that nurses who participated in the training could use their working hours to answer the extensive knowledge test. Since nurses decided whether they wanted to participate in the training, blinding was not possible. Due to data protection regulations, participants that were lost to follow-up could not be contacted.

2.4 | Intervention

To assess typical problem constellations in daily routines and adapt the training contents to actual needs, semi-standardized interviews were conducted after the first data collection and prior to the training sessions with 19 nurses from eight participating nursing services. Nurses were asked to describe their experiences with conflicts and misunderstandings. We deliberately did not mention 'other cultures' but instead asked nurses to describe conflicts with all patients regardless of their cultural background. Interviews were recorded, analysed and rated by an interviewer with a nursing background after a consensus about the rating criteria. Although most nurses did not mention cross-cultural conflicts, the situations they described showed that 163 of the 199 conflicts and misunderstandings were caused by differences in thought patterns, values and perception on, for example punctuality, hygiene or cleanliness. We differentiated between 'actual conflicts' between nurses and opposite parties with confrontation and addressing of the problem and 'difficulties' that were only perceived by the nurses without a hint that the opposite parties also perceived the situation to be problematic. Only 50 of 199 described situations were actual conflicts, whereas 114 examples described nurses' difficulties in handling and understanding

specific situations. The interview results led to the conclusion that communication theories and the ability to change perspective had to be necessary contents of the interventions. For a detailed description of the situations see Table A1.

Based on the demands formulated in literature and the results of the preceding interviews, participatory training sessions were planned in three units of 2–3 hr with 8–12 participants. Contents were delivered by experienced lecturers with backgrounds in nursing and psychology. As communication is necessary to get in contact with and understand other cultures, participants were educated in communication theory basics like the Shannon–Weaver model (Shannon & Weaver, 1949), Watzlawick's basic communication axioms (Watzlawick, Beavin, & Jackson, 1967), or Schulz von Thun's four-sides communication model (Schulz von Thun, 1981) (sessions 1). The participants were also educated in constructivism theory that implies that people do not react to an objective reality but create subjective images of reality to which they respond accordingly (sessions 2) (Simon, 2006). Thus, to be able to understand their patients' culture, nurses should not only be able to take their perspective and develop sensitivity for their values but also must understand their own cross-cultural attitudes and should be able to reflect how their own perspective and values might appear to others (Betancourt, 2004). Participants should learn to think about the subjectivity of their own 'reality' to better understand their own and their patients' perspectives. Furthermore, they were educated to become aware of possible stereotypes and reduce possible prejudices to adapt this knowledge in cross-cultural communication (session 3). We used various curricular methods like lectures, role-plays, experiential exercises and activities, discussions and reflection exercises. Lectures with the described contents were restricted to short 'input' parts, whereas all activity parts preceded. Wherever possible, activities were based on real situations either imparted by participants during the training, when they described conflict situations they experienced with patients and relatives or stemming from the prior interviews described above. The trainings were conducted between September 2016–March 2017.

2.5 | Data collection

2.5.1 | Participants' cross-cultural attitudes

Employee questionnaires were distributed via the organizations to training and non-training participants before (t_1) and approximately six months after (t_2) the training intervention, to assess differences in cross-cultural attitudes. The questionnaires were identical at t_1 and t_2 .

Attitudes were assessed with subscales 'sensitivity for other cultures' (e.g. 'It is important for me to get in contact with people from different cultural backgrounds', 5 items, Cronbach's $\alpha = .89$), 'inter-cultural teamwork' (e.g. 'Collaboration with colleagues from other backgrounds is important to me', 2 items, Cronbach's $\alpha = .83$) and 'reflection of other cultures' (e.g. 'When interacting with patients from different cultural backgrounds, it is important to reflect on personal

experiences with other cultures', 7 items, Cronbach's $\alpha = .93$) from an adapted questionnaire on cultural competency (Köck & Mayer, 2012) on a 4-point scale from 1 ('does not apply')- 4 ('does apply').

2.5.2 | Participants' self-reported positive affect in (cross-cultural) encounters

Self-reported positive affect in cross-cultural encounters was assessed with the culture-specific subscale 'cultural anxiety' (e.g. 'I feel nervous when I talk with patients from other cultures', 10 items, Cronbach's $\alpha = .88$) from an adapted questionnaire on cultural anxiety (Ulrey & Amason, 2001) with a 5-point Likert scale from 1 ('no, not at all') to 5 ('yes, exactly'). For comparison with other affective measures, this scale was recoded to reflect 'cultural non-anxiety or calmness'. For an assessment of general affect in encounters subscales 'directed concern' (e.g. 'Seeing people crying disconcerts me', 4 items, Cronbach's $\alpha = .68$) and 'undirected concern' (e.g. 'I am often very moved by things happening before my eyes', 7 items, Cronbach's $\alpha = .77$) from the Empathy Scale (Leibetseder, Laireiter, Riepler, & Köller, 2001) with a 5-point scale from 1 ('does not apply') to 5 ('does apply') were used. To form a uniform scale of positive affect in (cross-cultural) encounters the cultural anxiety scale was recoded, with high values showing low anxiety.

2.5.3 | Participants' self-rated cross-cultural knowledge

Additionally, self-rated cross-cultural knowledge was assessed in the employee questionnaires with the subscale 'cultural knowledge' (e.g. 'I know a lot about my patients' culture', 9 items, Cronbach's $\alpha = .90$) from the above-mentioned questionnaire (Ulrey & Amason, 2001), with a 5-point Likert scale from 1 ('no, not at all') to 5 ('yes, exactly').

2.5.4 | Participants' self-reported behaviour in cross-cultural encounters

The self-reported behaviour in cross-cultural encounters was assessed with the subscale 'cultural communication' (e.g. 'I ask relatives for help when having language problems', 5 items, Cronbach's $\alpha = .88$) from the above-mentioned questionnaire (Köck & Mayer, 2012) and the subscale 'perspective taking' (e.g. 'I try to look at everybody's side of a disagreement before I make a decision', 4 items, Cronbach's $\alpha = .85$) from the Interpersonal Reactivity Index (Davis, 1983) with a 5-point Likert scale from 1 ('never') to 5 ('always').

2.5.5 | Participants' tested cross-cultural knowledge

A knowledge test using case vignettes was developed specifically to get an objective assessment of participants' cross-cultural competency at t1 and t2. Four different case examples were developed

describing typical conflict situations in the daily work of home care nurses. Participants were asked to identify possible conflict triggers and causes and to outline how they would solve the conflict. Furthermore, we assessed whether a systemic approach was distinguishable when more than one cause or solution strategy was described, that is when participants were able to take on different perspectives from the various actors in the cases. A coding frame was developed to rate answers in 27 binary categories for each case example. The one-way random single measure intraclass correlation coefficient (ICC[1,1]) from two independent raters who assessed about 16% of the tests was .89 with 860 of 972 decisions (88.5%) being consistent, indicating a quite high interrater reliability. Participants also had to answer one multiple-choice question about their rating of the solution strategy that was used in the case examples.

2.5.6 | Participants' observed (cross-cultural) communication behaviour

To assess the communication behaviour with patients from various cultures, we conducted opportunistic shift observations in participating nursing services at t1 and t2. Since established schemes for differentiated observations of communications, that mostly need videotaping, (e.g. Roter & Larson, 2002), could not be realized without disturbing the real situations with patients, a specific rating sheet was developed according to existing rating schemes (Weigl, Müller, Angerer, & Hoffmann, 2014) which assessed the number of work interruptions caused by other persons, missing or malfunctioning assistive devices, or information deficits and the frequency of initiated communications. Furthermore, the observer rated patients' mood (4 items), cooperation with the patient (1 item), delays caused by the patient (1 item), attentiveness towards the patient (1 item), language barriers (1 item) and misunderstandings (1 item). As the observations were purely opportunistic during the nurses' usual shifts and the measurement should be as 'non-reactive' as possible, no attempt was made to assess the patients' culture. The shift observations were conducted by one trained observer with a nursing background when written or oral consent was given by the respective nurses and patients.

2.6 | Ethical considerations

This study was approved by the responsible ethics committee (ID: 134-16, March 3, 2016) and was carried out between April 2016–December 2017.

2.7 | Data analysis

We used employee questionnaires, knowledge tests and shift observations at t1 and t2 for the training evaluation. To assess training effects on self-rated attitudes, positive affect, knowledge and

behaviour, a controlled design was used, that is participants and non-participants (controls) filled in the questionnaires. Knowledge tests were only conducted with training participants in a pre-postdesign. Shift observations were conducted opportunistically with nurses from participating nursing services.

To analyse and match data on the individual level and ensure data protection, participants were asked to create personal codes only known to themselves. Thus, data from employee questionnaires and knowledge tests could be matched on an individual level from t1 and t2. Due to data protection regulations, data from shift observations could not be matched with other data.

2 (training vs. non-training) $\times$ 2 (times of measurement) repeated measures analyses of variance (ANOVA) were used to analyse differences in the controlled design (questionnaires) between t1 and t2. For the pre-post knowledge measures, we used paired sample t tests to analyse changes. The opportunistic shift observations were analysed with one-way analyses of variance.

To explore dependencies across different types of measures, we first assessed associations between the variables of self-rated cross-cultural attitudes, positive affect, knowledge and behaviour as well as objective cross-cultural knowledge at t1 and t2 with Pearson product-moment correlation coefficients. Second, we assigned components we assumed to influence other components as independent (in this case explanatory) variables and components that we assumed to be influenced by other components as dependent (in this case outcome) variables and used hierarchical multiple linear regression models for the influence of self-rated cross-cultural attitudes, positive affect, knowledge and behaviour at t1 as explanatory variables on objectively assessed cross-cultural knowledge at t2. All models were controlled for age, sex and the respective outcome variable at t1 in steps 1 and 2 and all explanatory variables at t1 in step 3. To summarize scales for regression analyses, responses were rescaled by the percent of maximum possible procedure suggested by Cohen, Cohen, Aiken, & West, 1999. To test for reversed causality (Spearing, Connelly, Nghiem, & Pobereskin, 2012), we also conducted hierarchical multiple linear regression models on the influence of objective cross-cultural knowledge (t1) on self-rated cross-cultural attitudes, positive affect, knowledge and behaviour at t2. Since several variables showed high correlations, variance inflation factors (VIF) were used to assess the severity of multicollinearity. In none of the analyses the VIF surpassed 5 which is the commonly acknowledge rule of thumb for multicollinearity problems (Kutner, Nachtsheim, & Neter, 2004). All analyses were made by the intention-to-treat principle and carried out with SPSS Version 25.

2.8 | Validity and reliability

To ensure the validity and reliability of this study, we employed valid and tested tools whenever possible. When no valid tools were available, reliability was assessed by independent raters using ICCs as mentioned above.

3 | RESULTS

3.1 | Sample characteristics

In total, 165 out of 463 eligible nurses (35.6%, 145 female) with a mean age of 48.5 years (range: 19–63, standard deviation = 9.6) from ten nursing services participated in the survey at t1. According to the German Federal Statistical Office, sex and age of participants are approximately representative for the target population in German home care nursing; 58 of 88 nurses who participated in the trainings returned the questionnaires at t1, 38 of 88 nurses at t2. 57 nurses returned the knowledge tests at t1, 38 at t2. The training group was comparable to the non-training group in all aspects but the weekly working time which is because trainings were done during working time and therefore nurses with fewer working hours were less likely to participate. Table 1 gives a detailed sample description. Figure 1 shows a flow diagram of participation.

3.2 | Training effects on participants' self-rated cross-cultural attitudes, positive affect, knowledge and behaviour

Table 2 shows ANOVA results for self-rated cross-cultural attitudes, positive affect, knowledge and behaviour. In general, all aspects were already rated quite high at t1 with training participants descriptively showing slightly higher levels than non-participants. The results show a significant interaction for the reflection of other cultures: Training participants show significantly higher values than non-participants and an increase from t1- t2, whereas non-participants show a slight decrease. A similar but not significant trend is found for perspective taking. This pattern is also recognizable in other variables though not significant.

3.3 | Training effects on participants' tested cross-cultural knowledge

The results of the knowledge test shown in Table 3 indicate a significantly increased awareness of conflict triggers, causes and solution strategies from t1 to t2, whereas the systemic thinking scores—which were rather low at both times—show no significant increase. The correct answers in the multiple-choice questions—which were already very high at t1—also show no significant change.

3.4 | Training effects on participants' observed (cross-cultural) communication behaviour

In total, we observed 153 patient contacts with 279 nursing activities at t1 (total contact time 21.82 hr) and 135 patient contacts with 298 nursing activities (total contact time 21.48 hr) at t2 in 9 of 10 participating nursing services. Due to organizational difficulties, it

TABLE 1 Sample characteristics at t1

Characteristic	Training group, N = 58	Non-training group, N = 107	t/χ^2	p
Age in years			0.55	.579
	Mean = 48.2 SD 9.24	Mean = 49.1 SD 9.61		
Sex			1.05	.423
Female	50	95		
Male	8	9		
Working time			1.82	.234
Full time	16	20		
Part time	41	86		
...working hours	Mean = 27.85 SD 7.33	Mean = 22.28 SD 8.92	-3.55	.001***
Migration background ^a			0.13	.957
Yes	15	26		
No	42	80		
Current position in nursing service			5.36	.248
Registered nurses in leadership role	7	15		
Registered nurses	41	68		
Nursing assistants	10	13		
Nursing students	0	4		
Other	0	4		
Years in nursing			-0.31	.755
In total	Mean = 21.20 SD 10.32	Mean = 20.65 SD 10.51		
Number of patients			1.90	.059
Per shift	Mean = 14.22 SD 4.62	Mean = 15.94 SD 6.58		
Patients with migration background ^a			0.78	.438
	Mean = 2.03 SD 2.82	Mean = 2.47 SD 3.29		
Care for children or relatives			0.17	.742
Yes	32	62		
No	26	44		

Note: t/χ^2 , test value; M, mean; SD, standard deviation.

^aSelf-declared migration background.

* $p \leq .05$.

** $p \leq .01$.

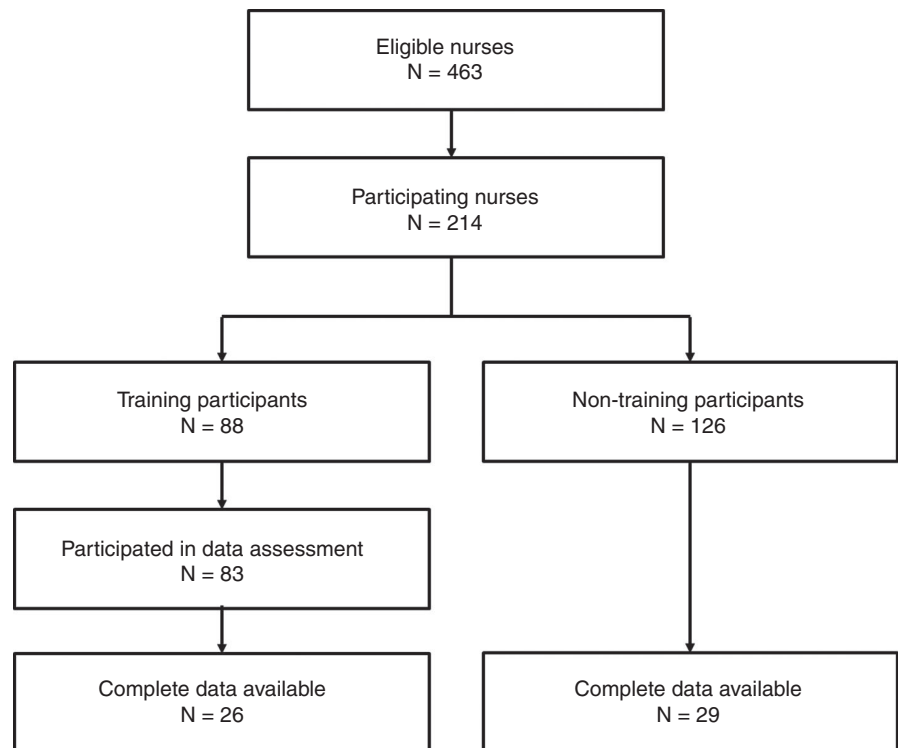
*** $p \leq .001$.

was not possible to conduct shift observations in one participating nursing service. Except for work interruptions by persons and language barriers which show no significant changes but were already very rare at t1, all behavioural data like attentiveness towards the patients show significant positive developments indicating that participants became more aware of their communication behaviour (see Table 4). Additionally, we assessed opportunistic patient ratings of the nurses' communication behaviour at t1 and t2 with questionnaires sent to and distributed by the participating nursing services. Since these questionnaires showed very high baseline values, no significant changes and might indicate a positive selection

of patients and possible ceiling/floor effects, the results will not be reported in the paper but in Table A2.

3.5 | Exploration of the dependencies between self-rated cross-cultural attitudes, positive affect, knowledge and behaviour and objective cross-cultural knowledge

As to be expected, there are various significant cross-sectional and longitudinal correlations between variables of self-rated cross-cultural attitudes, positive affect, knowledge and behaviour

FIGURE 1 Flow diagram of study participation

as well as variables of the case vignettes across both waves which can be seen in Table A3.

Table 5 presents the results of the regression models. Apart from solution strategies at t_2 where male participants show higher scores, no demographic variables show any significant associations with the respective dependent variables. Except for self-rated cross-cultural knowledge and systemic thinking in the case vignettes, all dependent variables show significant autocorrelations. The stepwise regressions show that self-reported cross-cultural behaviour at t_1 (e.g. observing non-verbal communication of non-native speakers to avoid misunderstandings and ensure that patients understand the planned activities) has a significant positive impact on all scores of the tested knowledge at t_2 except for triggers and causes when the respective scores are controlled for at t_1 . The regression models calculating the impact of tested cross-cultural knowledge (reversed causality) show no effect on any variable of self-rated cross-cultural attitudes, positive affect, knowledge or behaviour, when the respective dependent variable is controlled for at t_1 (Table A4).

4 | DISCUSSION

The results show that a training intervention focusing on cross-cultural communication had a positive impact on self-rated cross-cultural attitudes, positive affect, knowledge and behaviour in cross-cultural encounters as well as on participants' objectively assessed cross-cultural knowledge and communication behaviour. Although the changes in self-rated attitudes, positive affect,

knowledge and behaviour—which were already initially very high—were not significant apart from the reflection of other cultures and perspective taking, there were significant positive developments in tested cross-cultural knowledge and observed communication behaviour.

Moreover, as explorative analyses showed, self-reported cross-cultural behaviour at t_1 had a significant effect on objective cross-cultural knowledge at t_2 but not vice versa. Neither attitudes, positive affect nor self-reported knowledge played an important role in this relation. The latter results highlight two different aspects. First, they might hint at the presence of a social desirability bias (Edwards, 1957) in nowadays research in cultural competency. That is the difference between actual knowledge and self-reported knowledge and the different relations with attitudes, affect and behaviour might 'just' be an expression of participants' awareness of this topic's relevance. Second, results do not confirm the previously mentioned assumption of the KAP model (see also Launiala, 2009) that knowledge increases influence attitudes within the context of cross-cultural competencies. In fact, significant positive associations between self-reported cross-cultural behaviour at t_1 and objective cross-cultural knowledge at t_2 indicate that nurses who already include aspects of cross-cultural adequate behaviour in their work might be more susceptible to acquire cross-cultural knowledge. These results are in accordance with Campinha-Bacote's model of cultural competency (Campinha-Bacote, 2002) which includes the component of cultural desire, that is the intrinsic motivation of healthcare providers to provide culturally responsive care. Thus, nurses who show that they 'want to'—rather than merely think they 'have to'—understand their patients, for example by ensuring that

TABLE 2 Training effects on participants' self-rated cross-cultural attitudes, positive affect, knowledge and behaviour

	Training participants				Non-participants				Time effect		Training effect		Interaction Time X Training	
	t1 (N ≤ 33)		t2 (N ≤ 33)		t1 (N ≤ 29)		t2 (N ≤ 29)							
	M	SD	M	SD	M	SD	M	SD	F	p	F	p	F	p
Cross-cultural attitudes														
Sensibility for other cultures ^a	3.34	0.64	3.40	0.54	3.32	0.71	3.25	0.76	0.61	.439	0.38	.538	0.80	.374
Intercultural teamwork ^a	3.48	0.64	3.45	0.64	3.19	0.96	3.41	0.71	0.10	.757	2.00	.163	1.55	.218
Reflection of other cultures ^a	3.47	0.55	3.64	0.45	3.33	0.65	3.22	0.61	4.26	.044*	4.18	.045*	4.98	.029*
Self-reported positive affect in cross-cultural encounters														
Cultural anxiety (recoded) ^b	3.77	0.55	3.85	0.57	3.71	0.61	3.71	0.77	0.41	.526	0.41	.525	0.23	.637
Directed concern ^b	3.24	0.80	3.22	0.78	2.98	0.74	3.06	0.69	2.84	.097	2.16	.147	1.01	.319
Undirected concern ^b	3.71	0.64	3.60	0.69	3.50	0.76	3.51	0.66	0.26	.612	1.19	.280	1.27	.265
Self-rated cross-cultural knowledge														
Cultural knowledge ^b	3.73	0.44	3.79	0.57	3.73	0.47	3.74	0.54	0.00	.966	0.09	.762	0.44	.509
Self-reported cross-cultural behaviour														
Cultural communication ^a	3.58	0.61	3.66	0.45	3.50	0.72	3.43	0.66	0.03	.859	1.30	.259	1.01	.319
Perspective taking ^b	4.02	0.62	4.08	0.51	3.89	0.57	3.77	0.54	0.03	.856	2.51	.119	3.08	.084

Note: 2 × 2 factorial repeated measures analysis of variance (ANOVA) (controlled for age and sex); M, mean; SD, standard deviation; t1, pre-test; t2, posttest; F, test value of the ANOVA.

^aRange 1–4.

^bRange 1–5.

* $p \leq .05$.

** $p \leq .01$.

*** $p \leq .001$.

patients from other cultures understand nursing activities, by paying attention to their own and the patients' non-verbal communication, or by including relatives to avoid misunderstandings (see Campinha-Bacote, 2002), are more likely to be motivated to acquire cross-cultural knowledge to adapt this in cross-cultural encounters. A similar model on the 'desire to engage' (Taylor-Ritzler et al., 2008) refers to both the individual's willingness to participate in cultural diversity (behaviour in our context) and to learn about it (knowledge in our context).

Although data from shift observations could not be matched with employee questionnaires or knowledge tests, the observed nurses' communication behaviour shows a positive development that can be found in the knowledge increase as well and is therefore in accordance with the assumption that cross-cultural trainings encouraging the examination of one's own cross-cultural attitudes can also have a positive influence on cross-cultural communication behaviour.

There is still a lack of clarity in the literature of how exactly cultural competency is defined, of which components it consists (see Alizadeh & Chavan, 2016, Henderson et al., 2018, Kleinman & Benson, 2006, Seelman et al., 2009, Shen, 2015, Truong et al., 2014) and whether

there are dependencies between these components. Also, various papers about (cross-)cultural competency models neither confirmed nor denied whether the dependencies between the individual components posed by the models they were referring to were supported by their data (e.g. Shen, 2015). The intention to address this in this paper by examining possible dependencies was encouraged by the fact that most cultural competency models were neither empirically tested nor developed model-based instruments (Shen, 2015) and authors who posed that most papers evaluated (cross-)cultural competency trainings with pre-post comparisons of participants' (cross-)cultural knowledge, attitudes and skills (e.g. Taylor-Ritzler et al., 2008) without examining how the individual components influence each other. Our analyses show that such a differentiation might pose a promising start for a better understanding and a starting point for planning (cross-)cultural competency interventions.

4.1 | Limitations

Our study has several limitations. Firstly and probably most importantly, the sample that filled in all questionnaires was rather

TABLE 3 Training effects on participants' cross-cultural knowledge

Knowledge aspects	Pre-test (N ≤ 26)		Posttest (N ≤ 26)		t	p
	Mean	SD	Mean	SD		
Knowledge about triggers and causes [0–16]	6.72	2.28	7.50	2.23	–2.748	.012*
Knowledge about solution strategies [0–10]	4.80	2.42	6.00	2.60	–2.979	.007**
Systemic thinking [0–18]	3.00	1.91	3.50	3.66	–0.804	.430
Differentiation between triggers and causes [0–2]	0.76	0.66	1.60	0.76	–5.629	<.001***
Consistency between answers [0–4]	1.60	1.53	3.40	1.15	–5.196	<.001***
Raters' assessment of participant's ability to change perspective [0–4]	1.36	1.35	2.24	1.76	–2.462	.021*
Multiple-choice score [0–2]	1.39	0.66	1.45	0.86	–1.000	.331
Total score ^a [0–56]	19.23	8.58	24.04	11.93	–2.099	.046*

Note: M, mean; SD, standard deviation; t, t-value (paired samples).

^aCalculated from all 27 categories of both case vignettes and multiple-choice questions.

* $p \leq .05$.

** $p \leq .01$.

*** $p \leq .001$.

TABLE 4 Observed (cross-cultural) communication behaviour at t1 and t2

Scale	t1 (N ≤ 153)		t2 (N ≤ 135)		F	p
	Mean	SD	Mean	SD		
Work interruptions by persons (per minute)	0.04	0.12	0.03	0.11	0.472	.493
Problems with missing or malfunctioning assistive devices (per minute)	0.04	0.09	0.01	0.04	12.185	.001***
Missing information (per minute)	0.01	0.06	0.00	0.01	5.051	.025*
Initiated communications (per minute)	0.11	0.18	0.17	0.17	8.94	.003**
Atmosphere ^{a,b}	4.27	0.68	4.41	0.41	4.29	.039*
Cooperation with patients ^b	4.67	0.74	4.86	0.39	6.83	.009**
Delays caused by patients ^b	1.08	0.30	1.03	0.21	3.13	.078
Attentiveness towards the patients ^b	4.71	0.73	4.93	0.26	10.3	.001***
Language barriers ^b	1.05	0.35	1.00	0.00	2.31	.129
Misunderstandings ^b	1.11	0.50	1.01	0.09	5.84	.016*
Nurse's mood ^c	7.87	1.86	9.01	0.33	49.1	<.001***
Influence of patient contact on nurse's mood ^b	3.12	0.58	3.38	0.67	12.0	.001***
Overall estimation of patient contact ^b	4.75	0.65	4.93	0.29	8.22	.004**

Note: Annotations: one-way analyses of variance (ANOVA); t1, pre-test; t2, posttest; M, mean; SD, standard deviation; F, test value of the ANOVA.

^aScale summarized from tenseness/relaxation and positive/negative patients' mood: Cronbach's alpha = 0.801.

^bRange from 1 = not at all/very bad to 5 = very much/very good.

^cRange from 0 = not good at all to 10 = very good.

* $p \leq .05$.

** $p \leq .01$.

*** $p \leq .001$.

TABLE 5 Regression models of longitudinal associations between self-rated cross-cultural attitudes, positive affect, knowledge and behaviour at t1 and tested knowledge at t2

	Triggers and causes at t2				Solution strategies at t2			
	R ²	ΔR ²	β	95% CI	R ²	ΔR ²	β	95% CI
Step 1	.064	.064			.198	.198		
Age			0.086	−0.305 0.444			0.065	−0.316 0.430
Sex ^a			0.242	−0.178 0.566			0.443*	0.011 0.752
Step 2	.438*	.374**			.396*	.198*		
OV t1 ^b			0.620**	0.218 0.889			0.488*	0.061 0.849
Step 3	No variables included				.585**	.189*		
Self-reported cross-cultural attitudes t1			[0.203]				[0.217]	
Positive affect in cross-cultural encounters t1			[−0.234]				[0.032]	
Self-rated cross-cultural knowledge t1			[−0.202]				[0.019]	
Self-reported cross-cultural behaviour t1			[0.245]				0.500*	0.143 1.032
	Systemic thinking at t2				Total score of case vignettes at t2			
	R ²	ΔR ²	β	95% CI	R ²	ΔR ²	β	95% CI
Step 1	.214	.214			.138	.138		
Age			0.247	−0.170 0.641			0.096	−0.383 0.541
Sex ^a			0.402	−0.023 0.783			0.371	−0.177 1.053
Step 2	.262	.048			.396	.258*		
OV t1 ^b			0.222	−0.217 0.680			0.523*	0.018 0.930
Step 3	.486*	.224*			.733**	.338**		
Self-reported cross-cultural attitudes t1			[0.236]				[0.104]	
Positive affect in cross-cultural encounters t1			[0.037]				[−0.167]	
Self-rated cross-cultural knowledge t1			[0.005]				[−0.074]	
Self-reported cross-cultural behaviour t1			0.514*	0.149 1.176			0.765**	0.314 1.218

Note: N ≤ 26.

ΔR², R square change; β, standardized coefficient (coefficients in brackets not included in the stepwise regression model); t1, first measurement time; t2, second measurement time.

^aFemale = 1, male = 2.

^bOV, respective outcome variable at t1 (triggers and causes, solution strategies, total score).

*p ≤ .05.

**p ≤ .01.

***p ≤ .001.

small. There is a general difficulty of conducting interventions in health care with large sample sizes (Fok, Henry, & Allen, 2015) which also becomes apparent in this study. Unlike other studies assessing cultural competency immediately after training interventions, we intended to evaluate the changes after a longer time period which impeded an assessment of the same nurses at t1 and t2, which, among other reasons, is influenced by large fluctuations of home care nurses in Germany (Neumann & Klewer, 2008). Also,

long-term changes are considerably more difficult to assess than short-term changes and intervention effects are often prone to counterintuitive developments and temporal delays (Butler, Scott, & Edwards, 2003). Home care nursing shows specific conditions such as the above-mentioned particular constellations between nurses and patients or large fluctuations. This must be considered when interpreting the results and comparing them to research in other nursing areas (e.g. inpatient care). While we were able to

assess training participants' knowledge, we could not compare these developments to non-participants as the participating nursing services did not agree that non-participating nurses used their working hours to answer the extensive knowledge test. Since we could not find another study that investigated the above-mentioned relationships with a multi-method approach, we wanted to explore these dependencies to get a better understanding of the concept of cultural competency. The explorative results of the regression models could provide ideas for the 'direction' of future trainings suggesting that nurses' (cross-)cultural behaviour should be analysed before providing (cross-)cultural contents to adapt this specifically to the knowledge individual participants actually need to improve their (cross-)cultural communication behaviour. To conduct an in-depth analysis of dependencies, a different study type would have been needed and would have gone beyond the scope of this paper.

Since shift observations were only conducted opportunistically, results could not be matched with other data. Moreover, patient ratings on individual encounters in addition to shift observations would have been interesting to be able to compare how patients would have rated the situation themselves rather than only include ratings from an independent observer. However, this was not possible for pragmatic reasons—the duration to question patients regarding the encounter while nurses wait 'outside' was impossible to impose on the nurses and nursing services where each nursing activity is only allotted a few minutes at best. Therefore, we could not rate the same communication situations from different perspectives and only evaluated patients' general satisfaction with their nurses' communication. Nevertheless, our study is one of very few (Harmsen et al., 2005; Prescott-Clements et al., 2013; Schouten et al., 2005; Xu et al., 2010) in the context of cross-cultural competency that in fact uses observational data to substantiate training effects on the (probably most important) behavioural level.

A final potential limitation is that the study sample might not be fully representative for the target population since a positive selection might have occurred. This is in accordance with the inverse prevention law (von dem Knesebeck, Bauer, Geyer, & Mielck, 2009) that states that people, in this case employees, who would benefit the most from such interventions often cannot be reached. Nevertheless, the changes can still be interpreted to a certain extent since this positive selection occurred at both times.

5 | CONCLUSIONS

As one of the first cross-cultural communication training interventions for home care nurses that simultaneously assessed cross-cultural attitudes, knowledge and behaviour and adapted its contents to actual needs, the results indicate promising tendencies in the desired direction. Our results also indicate that a mere conveying of theoretical knowledge might not be enough for nurses to understand their

patients' cultures. In comparison to interventions that teach culture-specific knowledge, our results show that cultural competency is not only relevant for 'other' cultural groups but also for members of the 'own' cultural group who can demonstrate different understandings of values and beliefs. Therefore, although culture-specific facts are important to provide a solid knowledge base about different cultures, cross-cultural competencies that allow participants to understand how cultural thought patterns are formed and enable a perspective change to adapt their own behaviour in cross-cultural encounters should also be crucial parts of cultural interventions.

Future research should consider the challenging conditions in home care nursing like the above-mentioned large fluctuations of nurses that affect the success of training interventions and attach more importance to mechanisms of skill acquisition regarding the relation between (cross-)cultural attitudes, knowledge and behaviour.

ETHICS APPROVAL

This study was approved by the Ethics Committee of the Faculty of Medicine, Munich University (ID: 134-16, March 3, 2016).

CONFLICT OF INTEREST

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

AUTHOR CONTRIBUTIONS

TF, BH made substantial contributions to conception and design, or acquisition of data or analysis and interpretation of data; involved in drafting the manuscript or revising it critically for important intellectual content; given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content; agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

ORCID

Tobias Filmer  <https://orcid.org/0000-0002-9519-1035>

Britta Herbig  <https://orcid.org/0000-0002-6772-5255>

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APPENDIX

TABLE A1 Contents of semi-standardized interviews about typical problem constellations in nurses' daily routines

Described situations: 199	Total number	%
Types of conflict		
<i>Conflict</i> : obvious conflict between nurse and opposite party with confrontation and addressing of the problem	50	25
<i>Disagreements</i> : subliminal conflict between nurse and opposite party without confrontation or addressing of the problem	20	10
<i>Difficulties</i> : only perceived by the nurse, no hint that opposite party also perceived situation to be problematic	114	57
<i>Other mentions</i> (e.g. positive examples of successful collaboration)	15	8
Persons involved in conflicts		
<i>Patients</i> : Situation mainly concerns nurses and patients	114	57
<i>Relatives</i> : Situation mainly concerns nurses and patients' relatives	41	21
<i>Internal colleagues</i> : Situation mainly concerns nurses and their colleagues or supervisors within their nursing services	19	10
<i>External colleagues</i> : Situation mainly concerns nurses and other professions (e.g. physicians)	10	5
<i>Themselves</i> : exclusively intrapsychic conflicts of nurses	2	1
<i>Several</i> : opposite parties cannot be clearly identified or narrowed down	13	7
Attribution		
<i>Attributed to person/personality</i> : Situation could not have happened to anyone, can be influenced, can be attributed to specific personality traits of involved persons, were not caused by specific nursing activity	160	80
<i>Attributed to activity</i> : Situation could have happened to anyone, cannot be influenced, cannot be attributed to specific personality traits of involved persons, were caused by specific actions	39	20
Basic topics		
Difference in perception	163	82
Professional assessment differs from patient's wishes	152	76
Habits and preferences	110	55
Communication habits	70	35
Attentiveness/empathy	40	20
Directness/straightforwardness	25	13
Respect	16	8
Tolerance	14	7
Sense of community within the nursing service	13	7
Emotional distress	12	6
Courtesies and favours	11	6
Misunderstandings	11	6
Conflict contents		
Self-determination and autonomy	85	43
Uncertainty/mistrust/fear of new things	58	29
Parsimony	32	16
Basic mood/behavioural problems caused by disease or medical condition	29	15
Punctuality and sense of time	23	12
Understanding of hygiene and cleanliness	20	10
Self-esteem	15	8
Gender-specific care	14	7
Different views on closeness and distance	13	7
Mobility and lethargy	13	7
Xenophobia	7	4
Language barriers	7	4

TABLE A2 Patient-rated (cross-cultural) communication behaviour

Scale	Items	Range	M (t1)	Median (t1)	SD (t1)	M (t2)	Median (t2)	SD (t2)	Z	p
Satisfaction with information	6	1–5	3.94	4.13	0.86	3.95	4.17	0.86	−0.032	.974
Frequency of staff changes	1	1–5	2.82	3.00	1.08	2.32	2.00	1.22	−2.079	.038*
Satisfaction with attentiveness	1	1–5	4.72	5.00	0.64	4.88	5.00	0.42	−1.091	.275
Satisfaction with interactions	6	1–5	4.37	4.50	0.70	4.37	4.50	0.71	−0.200	.842
Unclear explanations	1	1–5	2.38	2.00	1.36	2.31	2.00	1.41	−0.318	.750
Impersonal treatment	1	1–5	1.45	1.00	1.02	1.48	1.00	1.01	−0.243	.808
Considerateness	2	1–5	4.52	5.00	0.75	4.52	5.00	0.59	−0.450	.653
Conflict potential	2	1–5	1.42	1.00	0.99	1.18	1.00	0.41	−0.534	.593
Satisfaction with general treatment	1	1–5	4.52	5.00	0.80	4.64	5.00	0.68	−0.767	.443
General satisfaction with nursing service	1	1–5	4.61	5.00	0.57	4.44	5.00	0.86	−0.425	.670

Note: Annotations: questionnaire developed based on a reliable and valid instrument for patient surveys (Büssing & Glaser, 2003); Z, Z-value (Mann-Whitney-U test); t1, pre-test; t2, posttest; M, mean; SD, standard deviation.

* $p \leq .05$.

** $p \leq .01$.

*** $p \leq .001$.

TABLE A3 Longitudinal correlations and autocorrelations between self-rated cross-cultural attitudes, positive affect, knowledge and behaviour and objective cross-cultural knowledge between t1 and t2

		1 (t2)	2 (t2)	3 (t2)	4 (t2)	5 (t2)	6 (t2)	7 (t2)	8 (t2)	9 (t2)	10 (t2)
1	Age at t1	0.999***	−0.224	−0.060	−0.049	0.066	−0.075	−0.015	−0.038	0.168	−0.172
2	Sex at t1	−0.221	1.000	−0.053	−0.181	−0.103	−0.063	0.320	0.447*	0.430*	0.234
3	Cross-cultural attitudes at t1	0.087	−0.121	0.649***	0.422***	0.081	0.554***	0.242	0.316	0.355	0.274
4	Positive affect in cross-cultural encounters at t1	0.051	−0.265*	0.368**	0.743***	0.385**	0.465***	−0.242	−0.155	−0.098	0.013
5	Self-rated cross-cultural knowledge at t1	0.013	−0.096	0.451***	0.621***	0.751***	0.577***	−0.124	−0.005	−0.008	0.232
6	Self-reported cross-cultural behaviour at t1	−0.050	−0.053	0.529***	0.491***	0.197	0.617***	0.435*	0.350	0.249	0.465*
7	Knowledge about conflict triggers and causes at t1	−0.065	0.216	−0.045	0.072	0.247	−0.070	0.669***	0.614**	0.531**	0.728***
8	Knowledge about solution strategies at t1	−0.256	0.258	0.124	−0.059	0.376	0.075	0.444*	0.477*	0.340	0.645**
9	Systemic thinking at t1	0.042	−0.153	0.273	0.349	0.557**	0.219	0.254	0.217	0.155	0.249
10	Total score of case vignettes at t1	−0.100	0.084	0.186	0.159	0.427*	0.245	0.466*	0.516*	0.387	0.582*

Note: $N \leq 62$.

Pearson product-moment or Spearman's rank correlation coefficients (where applicable); t1, first measurement time; t2, second measurement time; autocorrelations in matrix diagonal.

* $p \leq .05$.

** $p \leq .01$.

*** $p \leq .001$.

TABLE A4 Regression models of longitudinal associations between tested cross-cultural knowledge at t1 and self-rated cross-cultural attitudes, emotions, knowledge and behaviour at t2

	Self-reported cross-cultural attitudes at t2				Positive affect in cross-cultural encounters at t2				
	R ²	ΔR ²	β	95% CI	R ²	ΔR ²	β	95% CI	
Step 1	.027	.027			.025	.025			
Age			−0.080	−0.406	0.292		0.015	−0.353	0.376
Sex ^a			0.136	−0.240	0.423		−0.156	−0.456	0.236
Step 2	.278	.251*			.482**	.457***			
OV t1 ^b			0.502*	0.052	0.735		0.690***	0.264	0.896
Step 3	No variables included				No variables included				
Triggers and causes t1			[0.041]				[0.017]		
Solution strategies t1			[0.011]				[−0.166]		
Systemic thinking t1			[0.239]				[0.221]		
Total score of case vignettes t1			[0.143]				[0.038]		
	Self-rated cross-cultural knowledge at t2				Self-reported cross-cultural behaviour at t2				
	R ²	ΔR ²	β	95% CI	R ²	ΔR ²	β	95% CI	
Step 1	.011	.011			.150	.150			
Age			−0.102	−0.531	0.349		−0.380	−0.540	0.050
Sex ^a			−0.035	−0.448	0.388		0.053	−0.248	0.312
Step 2	.460*	.449**			.309	.158			
OV t1 ^b			0.700**	0.493	1.752		0.443	−0.027	0.800
Step 3	No variables included				No variables included				
Triggers and causes t1			[0.217]				[−0.151]		
Solution strategies t1			[0.163]				[−0.181]		
Systemic thinking t1			[0.255]				[0.396]		
Total score of case vignettes t1			[0.250]				[0.084]		

Note: $N \leq 26$.n.i., not included in the stepwise regression model; ΔR^2 , R square change; β , standardized coefficient (z-standardized variables); t1, first measurement time; t2, second measurement time.^aFemale = 1, male = 2.^bOV, respective outcome variable at t1 (self-reported cross-cultural attitudes, self-reported positive affect in cross-cultural encounters, self-rated cross-cultural knowledge, self-reported cross-cultural behaviour).* $p \leq .05$.** $p \leq .01$.*** $p \leq .001$.