



Research article

Evaluation of cross-cultural competence among German health care professionals: A quasi-experimental study of training in two hospitals

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ABSTRACT

Sociocultural diversity in the German health care system is increasingly reflected in multicultural teams and the diversity of patients. To ensure successful collaboration in a multicultural environment and effective care to diverse patients the importance of cross-cultural competence training is growing. There is a lack of evidence-based training approaches for the German health care system, and it is unclear how the theoretical-conceptual promotion of cross-cultural competence can be achieved sustainably. The aim of the study is to evaluate the effectiveness of cross-cultural competence training for German health care professionals. A quasi-experimental evaluation study in two German hospitals was conducted. Cross-cultural competence was examined in an intervention and a control group (n = 196) using the self-reported instrument Cross-Cultural Competence of Healthcare Professionals (CCCHP) and analyzed with SPSS Statistics 25. Cross-cultural training had a cognitive level impact on knowledge, awareness, and attitudes and showed a highly significant reduction in social desirability. On an affective level, cross-cultural motivation and curiosity initially increased at t1 and decreased at t2. Cross-cultural emotion and empathy increased slightly. On a behavioral level, cross-cultural skills decreased after the training. For sustainable effects, cross-cultural training should focus more on practical skills in addition to theoretical content. Training interventions should be long-term. The results show that more needs to be done in the German health care sector to meet the increasing diversity and demands.

1. Introduction

In Germany, administrators and policymakers are seeking to resolve a shortage of health professionals by recruiting international professional nurses and doctors [1,2]. However, the state of research internationally as well as studies focusing on Germany

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specifically prove the challenges of multicultural cooperation and patient-centered care. Cultural, linguistic, and professional differences can lead to insecurities, negative attitudes, and perceptions [3–7]. In the first quantitative study of discrimination experiences in German hospitals, a significant proportion of hospital staff reported experiencing or observing discrimination in the workplace, and cross-cultural competence played an important role in staff’s ability to identify these events [8]. In addition, cross-cultural competence has the potential to promote person-centered care, which in turn promotes efficient care processes and cost savings [9,10]. Therefore, promoting cross-cultural competence in health care professional education is becoming increasingly important [11–16]. Compared to research conducted in other countries, there are significant gaps in Germany when it comes to quantitative research on the cross-cultural competence of health professionals despite, an increasing need for sustainable cross-cultural competence training through evidence-based training beginning at the professional development level [17–20]. Several proposals by Antón-Solanas and Rissel, among others, put forward pathways for how to undertake the implementation and content of cross-cultural competence training, but there exists little scientific evidence demonstrating sustainable training effectiveness once implemented [6,21]. Several systematic reviews support the importance of culturally sensitive approaches to health care; however, recent studies show that efficacy has not yet been adequately addressed [3,22–24]. Addressing cross-cultural issues in health care professional education can promote culturally sensitive behaviors and raise awareness of hierarchy, power, privilege, and implicit bias [25–27]. Several Anglo-American studies support the effectiveness of cross-cultural competence training, but the promotion and development of cross-cultural competence has not been standardized or systematically addressed, and training interventions have not been recorded at all or have been recorded sparsely [28,29–37]. In this regard, empirical studies demonstrate the importance of systematic cross-cultural competence training for the development of cultural awareness [38]. In the present study, a self-reported instrument was used to evaluate the effectiveness of cross-cultural competence training for German health care professionals.

1.1. Definition and conceptualization of cross-cultural competence

While differing theoretical-conceptual definitions and approaches of cross-cultural competence can be found in the literature, there is widespread agreement that it is a multidimensional construct encompassing knowledge, skills, and awareness and can be learned and fostered [28,39–43]. In this study, cross-cultural competence is understood as an ongoing process of becoming aware of one’s own sociocultural biases [17,44]. Due to the numerous definitions and conceptualizations of cross-cultural competence, it is challenging to conduct comparisons of evaluation studies. Nevertheless, most studies are based on the three-dimensional theoretical model of cultural competence with awareness, knowledge, and skills defined on affective, behavioral, and cognitive levels [39,28,43,30]. At the affective level, the first step is to become aware of one’s own sociocultural biases and prejudices. At the cognitive level, cultural

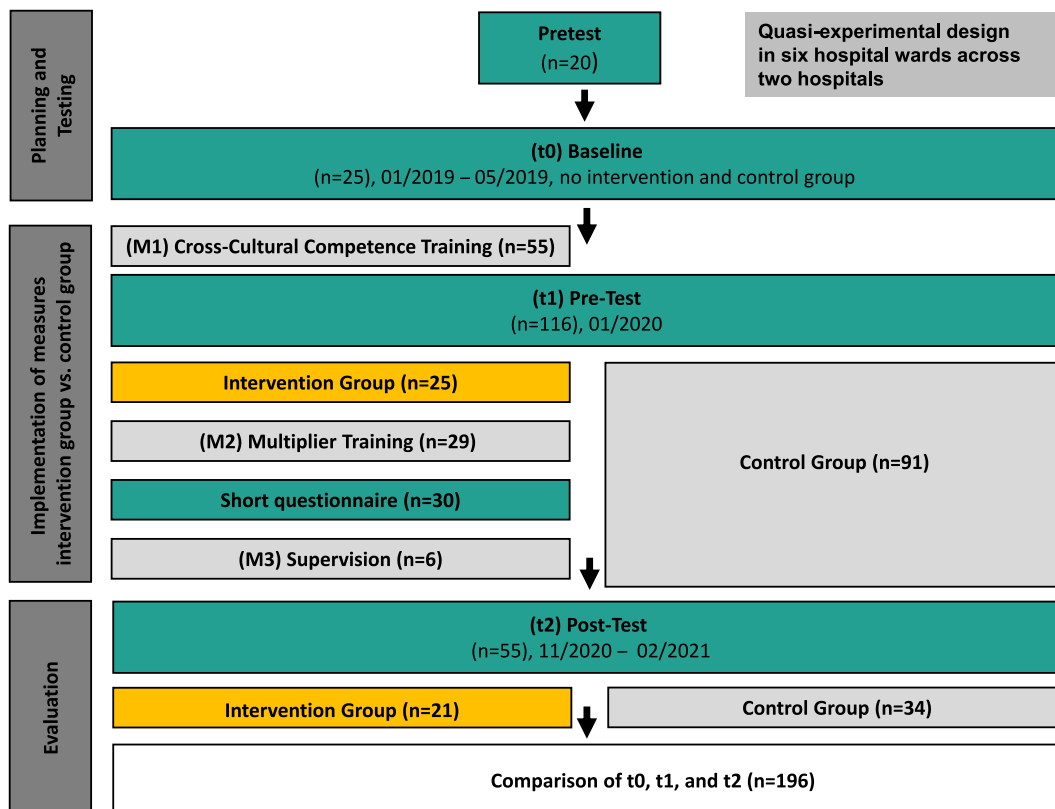


Fig. 1. Flow chart for study participants.

knowledge is extended. Thirdly, cultural skills are developed at the behavioral level [44]. Cross-cultural interventions foster appropriate and equitable health care by raising self-reflection and awareness of the own culture and improving cross-cultural competence [28].

2. Methods

2.1. Study design and setting

The effectiveness of the cross-cultural interventions (cross-cultural competence training, multiplier training, and supervision) was systematically evaluated by the first author in a quasi-experimental controlled cohort study in four hospitals. A validated self-assessment instrument (CCCHP) was used three times to compare the quantitative data by using unique anonymized codes composed of the first two letters of the parents' first name and the first two digits of the date of birth.

2.2. Description of cross-cultural interventions

The cross-cultural measures were carried out by the fourth author of this article in six wards across two hospitals. The interventions included cross-cultural competence training (M1), multiplier training (M2), and supervision (M3). In addition, organizational and content-related aspects were queried at each survey time to evaluate the implementation of the cross-cultural measures. An overview of the measures is shown in Fig. 1.

2.2.1. Cross-cultural competence training (M1)

First, the two-day cross-cultural training aimed to teach relevant cross-cultural content and skills for cross-cultural competence. Specifically, the participants (n = 55) were trained on some of the special requirements and preferences of patients with a migration background. Culturally, and linguistically sensitive materials were developed based on a survey of the current situation and an analysis of needs. These included medical history forms, medical guides, information materials about the health care system. In addition, information about health and psychological questionnaires in Arabic, English, Farsi, French, Polish, Russian and Turkish. Finally, different pictograms have been compiled to overcome language barriers.

2.2.2. Multiplier training (M2)

This course was followed by two-day multiplier training. 13 health care professionals in Hospital A and 16 in Hospital B, all belonging to the intervention group, participated in multiplier training (n = 29). In this second component, cross-cultural knowledge, behavior, and skills were addressed, and a set of cross-cultural measures was presented. The intervention group was trained to use these materials when working with patients of different cultural and linguistic backgrounds. For long-term and sustainable effects, the intervention group was supervised over three months.

2.2.3. Supervision (M3)

The final component of the intervention was supervision, which took place in three wards in each of the two hospitals over a period of three months. This portion of the training was paused in March 2020 due to the COVID-19 pandemic and resumed on a limited basis in August 2020, with the applicable regulations and hygiene measures in effect. Finally, as part of the intervention program, a future workshop was virtually conducted in January 2021 with relevant decision-makers in order to implement the measures sustainably within the health organizations. After the implementation and evaluation phase, the materials were made available to the public.

2.3. Sample

Six hospital wards in two hospitals were selected for the intervention and control groups for the study. The hospitals are located in two states and belong to the same denominational hospital organization. To ensure comparability, the pool of wards was limited to specific specialties. The selected wards in the intervention and control groups included emergency department, surgery, and internal medicine in each hospital. Inclusion criteria for the target population included that the participants were employees of the selected wards from health-related professions with direct patient contact, such as medicine, nursing, and also administration and social work. During the entire intervention phase, a total of 90 participants were trained, of which 55 persons participated in cross-cultural competence training (M1), 29 in a multiplier training (M2) and six participants in a supervision (M3). The training for multipliers (M2) was carried out in consultation with the management. The multipliers were the contact persons during the supervision phase (M3). The selected hospital wards were randomly assigned to either the intervention or control group.

2.4. Data collection

After a pretest was conducted in which 20 people were interviewed, the implementation of cross-cultural measures and data collection for the evaluation study took place between March 2019 and January 2021. Health care professionals of the selected six wards in the two hospitals (IG) were informed by their head nurse about the accompanying evaluation. Initial data collection (t0) took place prior to measure implementation in January 2019 to May 2019, with all health care professionals in both the control and intervention groups receiving a written survey questionnaire for study participation. The completion of the questionnaire took

approximately 15 min and was voluntary. Respondents could complete the questionnaire during their working hours. In addition to the written survey, there was also the option to participate in the survey online. The pre-test (t1) took place after the first measure was implemented, cross-cultural training took place in January 2020 (M1). The post-test was conducted at the end of the intervention phase taking place between November 2019 and February 2020. The implementation and administration of the raw survey was done via the software program SoSci Survey. The data collection and backup were secured on SoSci Survey's protected and secure server. Since most of the nursing staff do not have their own professional e-mail address, an online link to the survey was forwarded to staff via the head nurse. After the deadline of the pre-test (t1) and post-test (t2) the participants were reminded of the survey in writing to increase the response rate. A total of 30 questionnaires per ward were distributed at each survey time point (n = 180). The response rate at time t1 was 64.4 percent and 30.6 percent at time t2.

2.5. Measuring cross-cultural competence in health care

The variable "cross-cultural competence" was measured with the Cross-Cultural Competence of Healthcare Professionals (CCCHP) self-reporting instrument, which was developed and validated by Bernhard et al. [19] for health care professionals in Germany. The instrument builds on the theoretical model of Sue et al. (1982) in which cross-cultural knowledge, cross-cultural attitudes and assumptions, and cross-cultural skills are considered to be subdimensions of cross-cultural competence. The multidimensional construct of the CCCHP includes a total of 32 items in five subscales: 1. cross-cultural motivation and curiosity (CC-MC); 2. cross-cultural attitudes (CC-A); 3. cross-cultural skills (CC-S); 4. cross-cultural knowledge and awareness (CC-KA); and 5. cross-cultural emotions and empathy (CC-EE). see Fig. 2.

Cross-cultural motivation/curiosity (CC-MC) encompasses health care professionals' willingness to provide culturally sensitive care, engage in cross-cultural encounters, and expand their understanding of diverse cultural populations. Seven items reflected professionals' motivation, while two items were designed to measure health care professionals' openness to cultural diversity. Cross-cultural attitudes (CCA) describe attitudes such as tolerance, appreciation, respect for differences, and positive attitudes toward other cultures and diversity (4 items). Cross-cultural skills (CC-S) encompasses four items and refers to the ability to respond appropriately to the (cultural) needs of patients. Health care professionals with cross-cultural skills take the time to address special needs and are able to communicate professionally with their patients. Cross-cultural knowledge/awareness is related to knowledge of culture and migration, as well as concepts of disease and health, and individual awareness of one's own perceptions and internalized values. Cross-cultural emotions/empathy (CC-EE) refers to feelings and emotional reactions that arise in dealing with diversity. It describes the ability to deal with difficult intercultural situations and an individual's ability to reflect on their emotions and skills (4 items). In addition, socially desirable response behavior is evaluated with five items (CC-SD). A 5-point Likert scale is used for the response items (5 = totally agree to 1 = not at all agree). The subscales differ in their number of items [19]. Within the statistical analysis, cases with two and more than two missing values were not considered (n = 3). Where missing values were found within the five subscales, the arithmetic mean was calculated taking into account the number of items within each subdimension.

2.6. Statistical analysis

The statistical analyses were conducted on the self-reported answers of the interviewed health care professionals of the intervention and control group using the software program SPSS Statistics 25. The internal consistency of the items was calculated with Cronbach's alpha. Descriptive differences between the intervention and control group were calculated using the Mann-Whitney-U-Test, Chi-Square Test (χ^2), and Fisher's Exact Test.

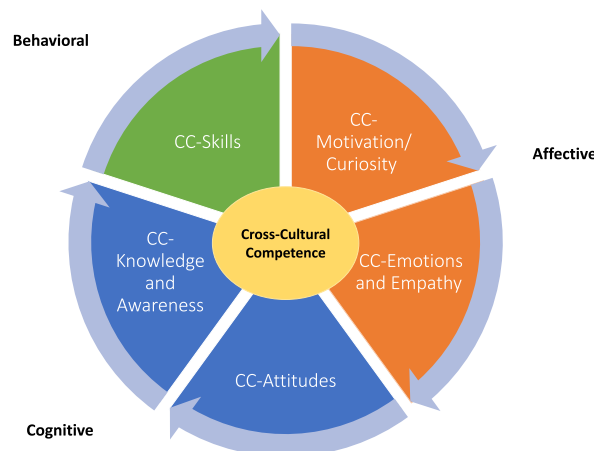


Fig. 2. Subdimensions of Cross-Cultural Competence for Healthcare Professionals according to Bernhard et al. [19].

Table 1
Description of the study sample.

Characteristics	Baseline (t0) n = 25	Pre-Test (t1) (n = 116)		Post-Test (t2) (n = 55)	
		IG 1 (n = 25)	CG 1 (n = 91)	IG 2 (n = 21)	CG 2 (n = 34)
Age, median (IQR)	7 [40]	39 [44]	40 [40]	45 [19]	31 [23]
Gender% (n)					
Male	24.0 (6)	28.0 (7)	24.2 (22)	26.3 (5)	25.8 (8)
Female	76.0 (19)	72.0 (18)	75.8 (69)	73.7 (14)	74.2 (23)
Migration Background % (n)					
None	72.0 (18)	80.0 (20)	81.1 (73)	85.0 (17)	74.2 (23)
One parent	0.0 (0)	0 (0)	8.9 (8)	10.0 (2)	12.9 (4)
Both parents	28.0 (7)	20.0 (5)	10.0 (9)	5.0 (1)	12.9 (4)
Profession % (n)					
Medicine	8.0 (2)	16.0 (4)	11.4 (10)	14.3 (3)	12.5 (4)
Nursing	64.0 (16)	60.0 (15)	69.3 (61)	85.7 (18)	75.0 (24)
Administration and Social Assistance	28.0 (7)	24.0 (6)	19.3 (17)	0 (0)	12.5 (4)
Organization % (n)					
Hospital A	36.0 (9)	60.0 (15)	60.4 (55)	33.3 (7)	24.2 (8)
Hospital B	64.0 (16)	40.0 (10)	39.6 (36)	66.7 (14)	75.8 (25)
Leading position % (n)					
Yes	8.0 (2)	12.0 (3)	13.2 (12)	14.3 (3)	6.5 (2)
No	92.0 (23)	88.0 (22)	86.8 (79)	85.7 (18)	93.5 (29)
Work experience (years), median [IQR]	12 [28]	10 [39]	10 [39]	22 [17]	8 [28]
Years of work in the hospital % (n)					
Less than 1 year	16.0 (4)	28.0 (7)	11.0 (10)	10.5 (2)	23.3 (7)
1 to 5 years	24.0 (6)	36.0 (9)	41.8 (39)	36.8 (7)	43.3 (13)
More than 5 years	60.0 (15)	36.0 (9)	47.3 (43)	52.6 (10)	33.3 (10)
Place of work education % (n)					
Germany		88.0 (22)	95.3 (81)	90.5 (19)	97.0 (32)
Other country		12.0 (3)	4.7 (4)	9.5 (2)	3.0 (1)
Job satisfaction % (n)					
Satisfied	88.0 (22)	80.0 (20)	76.7 (69)	76.2 (16)	81.8 (27)
Partly satisfied	12.0 (3)	20.0 (5)	22.2 (20)	23.8 (5)	18.2 (6)
Unsatisfied	0 (0)	0 (0)	1.1 (1)	0 (0)	0 (0)
Cross-cultural contact % (n)					
Family/relatives (high)		37.5 (9)	32.1 (27)	14.3 (3)	32.4 (11)
Family/relatives (low)-		62.5 (15)	67.9 (57)	85.7 (18)	67.6 (23)
Work (high)-		100.0 (25)	90.5 (76)	90.5 (19)	85.3 (29)
Work (low)-		0.0 (0)	9.5 (8)	9.5 (2)	14.7 (5)
Neighborhood (high)-		37.5 (9)	39.3 (33)	33.3 (7)	50.0 (17)
Neighborhood (low)-		62.5 (15)	60.7 (51)	66.7 (14)	50.0 (17)
Friends (high)-		54.2 (13)	59.5 (50)	35.0 (7)	52.9 (18)
Friends (low)-		45.8 (11)	40.5 (34)	65.0 (13)	47.1 (16)
Patient contact % (n)					
< 6 months/year		30.4 (7)	25.3 (20)	30.0 (6)	19.4 (6)
> 6 months/year		69.6 (16)	74.7 (59)	70.0 (14)	80.6 (25)
Working abroad (>2 months) % (n)					
Yes		16.7 (4)	10.8 (9)	9.5 (2)	11.8 (4)
No		83.3 (20)	89.2 (74)	90.5 (19)	88.2 (30)
Participation in CCC training % (n)					
Yes	21.7 (5)	32.0 (8)	40.0 (36)	76.2 (16)	0.0 (0)
No	78.3 (18)	68.0 (17)	60.0 (54)	23.8 (5)	100 (33)
Experiences with Interpreters % (n)					
Yes		60.0 (15)	58.5 (48)	42.9 (9)	46.9 (15)
No		40.0 (10)	41.5 (34)	57.1 (12)	53.1 (17)

The continuous variables “age” and “work experience” were calculated by the Mann-Whitney-U-Test, all other categorical variables by Chi-Square Test and Fisher’s Exact Test.

2.7. Ethical consideration

The study was approved and accepted by Ethics Committee at FOM University of Applied Sciences for Economics and Management, Germany. The participants were involved in the study if they accepted to participate. The participation was voluntary and anonymous, and confidentiality was guaranteed.

3. Results

3.1. Sample characteristics

In the survey period between the measurement t0 and t2, a total of 196 completed questionnaires were returned in the two hospitals (A and B). A total of 21 respondents participated in both the pre-survey and the post-survey (see Fig. 1). Since not all participants provided sufficient information to generate an anonymized personal code (n = 10), only 10.71 percent of the questionnaires of the post-survey could be matched to the questionnaires of the initial survey. In comparison to the intervention group, the response rate in the control group disproportionately high both at the first survey time point (t1) with 78.45 percent (n = 91) and at the second time point (t2) with 61.82 percent (n = 34). The demographic characteristics and key attributes of the total sample and the control and intervention groups at the survey time points (t0, t1, and t2) are summarized in Table 1. Regarding demographic characteristics, there are no significant differences between the control and intervention group at t1 and t2.

3.2. Cross-Cultural Competence of Healthcare Professionals

The internal consistency of the overall construct (CCCHP) is 0.831 and is thus very good. The reliability for the subscales varies similarly to Bernhard et al. [19] from 0.609 to 0.785. Table 2 summarizes the measurements at the three points in time (t0, t1, and t2). The results indicate that the overall construct shows only minimal changes; the changes in the individual subdimensions are shown below.

3.2.1. Cross-cultural motivation and curiosity (CC-MC)

The comparative statistical analyses at the three survey times and the comparison between the intervention and control group show that cross-cultural motivation increased significantly within the intervention group at t1 compared to the control group (0.041). However, this effect can no longer be seen at t2 the mean scores in both groups (IG: 3.94 and CG: 3.99) decreased significantly compared to the survey at t0.

3.2.2. Cross-cultural attitudes (CC-A)

For the sub-dimension cross-cultural attitudes, the values increased at t1 in the intervention and the control group (IG: 3.40 and CG: 3.25). At t2 the values decreased in both groups (IG: 3.17 and CG: 3.09). There are no significant differences. Within the intervention group, the values for cross-cultural attitudes are comparatively higher at both survey times.

3.2.3. Cross-cultural skills (CC-S)

The cross-cultural skills decreased within the intervention and control group at t1 and t2 (IG: 4.08 and CG: 4.10). It is striking that the values within the intervention group initially decreased similarly to those in the control group and were significantly lower compared to t2 (IG: 3.77 and CG: 3.98).

Table 2
Cross-cultural competence over the training time.

Measuring time	Baseline (t0)		Pre-Test (t1)		Training effect p-value	Post-Test (t2)		Training effect p-value
	M (SD)		M (SD)			M (SD)		
Subscale (n = 196)	(n = 25)	IG (n = 25)	CG (n = 91)			IG (n = 21)	CG (n = 34)	
CC-MC	4.13 (0.54)	4.37 (0.44)	4.11 (0.55)	0.041*		3.94 (0.65)	3.99 (0.61)	0.696
CC-A	3.27 (0.75)	3.40 (0.67)	3.25 (0.81)	0.385		3.17 (0.83)	3.09 (0.68)	0.238
CC-S	4.09 (0.67)	4.08 (0.53)	4.10 (0.53)	0.574		3.77 (0.62)	3.98 (0.54)	0.054
CC-KA	3.02 (0.88)	3.48 (0.97)	3.40 (0.78)	0.759		3.75 (0.68)	3.31 (0.83)	0.026*
CC-EE	3.58 (0.70)	3.74 (0.45)	3.74 (0.69)	0.893		3.76 (0.60)	3.67 (0.53)	0.673
SD	4.28 (0.57)	4.24 (0.49)	4.41 (0.45)	0.059		4.11 (0.46)	4.48 (0.48)	0.002**
CCC	3.63 (0.42)	3.81 (0.39)	3.72 (0.45)	0.319		3.68 (0.49)	3.60 (0.43)	0.472

CC-MC= Cross-Cultural Motivation/Curiosity, CC-A: Cross-Cultural Attitudes, CC-S: Cross-Cultural Skills, SD: Social Desirability, CC-EE: Cross-Cultural-Emotions/Empathy; CC-KA: Cross-Cultural Knowledge/Awareness (mean score: range 1–5), CCC=Cross-Cultural Competence (mean score of CC-MC, CC-KA, CC-A, CC-S, CC-EE). Higher scores indicate higher Cross-Cultural Competence. M = mean score; n = number of participants; SD = standard deviation; IG= Intervention Group; CG= Control Group.

3.2.4. Cross-cultural knowledge and awareness (CC-KA)

Respondents' cross-cultural knowledge increased at t1 in both the intervention and control groups (IG: 3.48 and CG: 3.40). This effect continued at t2 for the intervention group, where the average score continued to increase significantly compared to the control group. The cross-cultural knowledge was additionally evaluated after the implementation of the multiplier training (M2, see Fig. 1) using three knowledge items (n = 30). Within the survey, content that had been previously taught was queried. Overall, the participants were only able to answer 42 percent of these questions correctly. They were also asked to evaluate the content, methods, and training facilitator using closed and open-ended items. The participants reported that they appreciated the methodology and content of the training as well as the facilitator. They criticized the short duration of the training and the theoretical focus. A majority of respondents demanded more practical exercises and guidelines for concrete implementation.

3.2.5. Cross-cultural-emotions and empathy (CC-EE)

Scores for the subscale on cross-cultural emotions and empathy increased at the same rate from t0 within the intervention and control groups to a mean of 3.74. While this score remained constant within the intervention group with a mean score of 3.76 the score in the control group decreased slightly (3.67).

3.2.6. Social desirability (SD)

Furthermore, the values show that social desirability decreased within the intervention group at t1 (IG: 4.24 and CG: 4.41). While social desirability within the control group increased at t2 to a value of 4.48 at t2 this value decreased highly significantly in the intervention group to a mean value of 4.11.

4. Discussion

The German health care system faces opportunities and challenges when it comes to care provision and workplace interactions due to socio-cultural diversity, including linguistic and cultural diversity. Cross-cultural competence is increasingly recognized by health care professionals as an essential precondition of providing effective care and fostering collaboration. However, most training programs that purport to improve cross-cultural competence have not been thoroughly evaluated using empirical evidence-based approaches [39,33,35,36].

This multicentre pilot study evaluated the effectiveness of a cross-cultural intervention to promote cross-cultural competence among health care professionals in two hospitals in Germany using a self-reported instrument with a control group. The changes between baseline, pre-test, and post-test do not support the effectiveness of the training. However, the training did reveal high scores in the area of socially desirable response behavior, suggesting that unconscious biases may influence the behavior of German health care professionals. Compared to the control group, socially desirable response behavior decreased highly significantly after the training. In line with the results of several systematic reviews, this study's results emphasize the importance of addressing implicit bias in health care, particularly with regard to health care disparities. Moreover, this study strongly suggests that further research is needed to examine the role of implicit bias, especially within the German health care sector. Health care professionals are often unwilling to talk about racism in the workplace; increased reflection and antiracist training are necessary to reduce implicit bias and improve communication between diverse patients and health care staff. Training to interpret nonverbal behaviors should be conducted in order to promote empathetic and culturally sensitive communication, reduce bias among healthcare professionals, and perceived bias among patients, as nonverbal communication influences the doctor-patient relationship.

Furthermore, participants of the control group showed increased cross-cultural motivation and curiosity at the beginning of the study, and cross-cultural awareness and knowledge (affective and cognitive level) of the participating staff increased. These findings hold great importance in the field of educational theory and suggest a shift in focus when developing and implementing cross-cultural competence programs. Instead of individual measures, continuous development is recommended to achieve durable learning outcomes. The study results suggest it is helpful to include more practical exercises in the trainings and to give participants reason to reflect on their experiences in order for the training to achieve effects on behavioral level. At the same time, cross-cultural competence interventions should be constructed in such a way that they consider personnel and organizational levels of development [18]. In line with Alizadeh and Chavan (2016), the study supports the idea that cross-cultural learning occurs on the affective, behavioral, and cognitive levels [45]. It also affirms that the development of cross-cultural competence is an ongoing process [44]. The challenge in cross-cultural learning lies in attaining sustainable outcomes across affective, behavioral, and cognitive domains. Therefore, systematic, evidence-based, and holistic approaches, along with long-term and sustainable strategies, are deemed necessary.

As in the case of most evaluation studies [37], there are sample-related and methodological limitations that must be considered. Because the sample size was small and physicians only made up 12 percent of the group, no general conclusions can be drawn. The baseline survey sample is small, and it is unclear whether these 25 participants ended up in the intervention group or control group. This information may influence the value of the baseline. In addition, only half of the training participants agreed to participate in the evaluation study. The number of participants more than halved from t1 to t2. The reasons for non-participation were time-related, particularly evident at t2 during the early stress of the COVID-19 pandemic.

Because members of the nursing staff do not have their own work e-mail addresses, participants were mostly contacted in writing by post. Difficulties contacting nursing staff and other health care professionals were compounded by long working hours and staff shortages.

Regarding the methodological approach, due to the self-reporting instrument, the results are based only on the subjective assessments of the health care professionals, which has already been criticized in numerous studies [28]. That these assessments can lead

to bias is shown by the significant results at t1 and t2 regarding social desirability. Individual results may also be biased by ward-related influencing factors. In particular, the effects of the COVID-19 pandemic could be significant here. For example, it is evident that cross-cultural motivation dropped significantly at t2. The follow-up survey (t2) was conducted six months later, rather than the planned three months, which may have led to recall bias. Furthermore, the specification of an anonymized personal code was intended to ensure the individual assignment of the survey participants in order to be able to compare the data; however, the use of the personal code was not successful. As a result, only 10.71 percent of surveys could be matched, which impacted the results. Additionally, there are only a few evidence-based studies examining the effectiveness of cross-cultural interventions in relation to the patient [39,30]. Within the present study, it was not possible to include the perspective of patients, especially patients with a migration background.

Despite the numerous methodological limitations, it should be emphasized that the CCCHP is a validated instrument that has been tested for its psychometric properties, which is not the case in numerous studies [19,46]. In addition to quantitative data collection, it would be beneficial to conduct qualitative surveys. Since most studies rely on quantitative surveys [47], different methods should be considered.

5. Conclusion

The German healthcare system is becoming increasingly diverse, indicating a growing demand for strategic and sustainable training programs that promote (further) cross-cultural competence development. Studies conducted in Europe and Germany reveal that (unconscious) bias and discrimination pose significant challenges in providing patient-centered care during multicultural collaboration in healthcare settings [8,2]. In the context of the present study, health professionals responded highly significantly socially desirable in terms of cross-cultural competence. Although no overall effectiveness of the trainings can be determined, the significant changes in the individual subdimensions provide important learning theory insights for the sustainable conceptual and didactic implementation of cross-cultural competence trainings. The results demonstrate that the trainings have the potential to motivate health care professionals to engage in cross-cultural training (affective level), raise awareness, and impart cross-cultural knowledge (cognitive level). In line with Hoopes (1979) and Benett (1993), the results of the study suggest that the promotion of cross-cultural competence occurs in a stage model. The findings suggest that cross-cultural competence occurs in a three-stage model (ACB) at affective, cognitive, and behavioral levels. These findings need to be considered in future health education.

When taking into account the current state of research, our results show that cross-cultural competence does not develop by itself but requires a continuous learning process and appropriate measures at the level of organizational and personnel development [18,48,49]. Measures implemented by administrators in the health care system to promote cross-cultural competence should interact with all three levels, affective, behavioral, and cognitive, to have the strongest and most durable positive impact.

The results of the present study indicate that cross-cultural training can be successful in promoting cross-cultural motivation, knowledge and awareness (affective and cognitive level). Nevertheless, it is difficult to effectively implement skills learned through training in everyday professional life (behavioral). Recent studies show that interactive learning, e.g., in the form of simulations, can have a positive learning effect [50,51]. Overall, it is clear that more needs to be done in the German health care system to train and promote cross-cultural competence in order to meet the growing diversity and increased demands.

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Ethics statement

Ethical Approval Number: 20240001 (Ethics Committee, FOM University of Applied Sciences for Economics and Management)

CRediT authorship contribution statement

Patricia Beck: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Visualization, Writing – original draft, Writing – review & editing. **David Matusiewicz:** Conceptualization, Funding acquisition, Writing – review & editing. **Meryam Schouler-Ocak:** Funding acquisition, Supervision, Writing – review & editing. **Zohra Khan:** Funding acquisition, Supervision, Writing – review & editing. **Lisa Peppler:** Funding acquisition, Writing – review & editing. **Liane Schenk:** Conceptualization, Funding acquisition, Methodology, Project administration, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2024.e27331>.

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