

## Review Article

# Observing cultural competence of healthcare professionals: A systematic review of observational assessment instruments



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## ARTICLE INFO

## Article history:

Received 28 April 2020

Accepted 6 October 2020

## Keywords:

Cultural competence

Direct observation

Assessment instrument

Outcome and process assessment (health care)

Psychometric properties

## ABSTRACT

**Objective:** Observational instruments are preferred for assessment of cultural competence. The aim of the current study is to identify observational instruments to assess cultural competence in healthcare providers and dietitians specifically and assess their psychometric properties.

**Methods:** A systematic review was conducted in Cinahl, Cochrane, EMBASE, PsycInfo, Pubmed, and Web of Science using search terms related to cultural competency and measurement properties. Methodological quality of the selected studies of observational cultural competence instruments in dietitians, other healthcare professionals and psychological counsellors and the measurement properties of instruments were assessed using the COSMIN checklist.

**Results:** From 11,913 articles, six articles on five instruments were selected. Instruments were targeted at health professionals and counsellors only, and designed for face-to-face communication (n = 4) or verbal responses to videotaped simulated interactions (n = 1). The instruments' content varied largely, with main focus on attitude, and little on knowledge and skills. The measurement properties were suboptimal.

**Conclusion:** No observational instrument are available to evaluate cultural competence of dietitians. Studies on psychometric properties of instruments targeted at other health professionals lack methodological rigour.

**Practice implications:** Future work should focus on developing an instrument that encompasses both 'general' cultural competences necessary for all healthcare professionals and dietetic specific competences.

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## 1. Introduction

With growing rates of migration all over the world, healthcare providers are facing an increasing ethnically and culturally diverse patient population. In the Netherlands, 13 % of the population are first generation migrants and another 11 % are second generation migrants [1]. The largest groups originate from Turkey and Morocco as labour immigrants, and from Surinam and the Dutch Antilles, which are former colonies of the Netherlands. In the last few years there is a growing number of refugees to the Netherlands from Syria, Moldavia, Eritrea, Algeria and Nigeria [2].

In ethnic minority populations, health in general is worse compared to the ethnic majority population [3]. In Europe, type 2 diabetes mellitus is two to four times more prevalent in ethnic minority populations compared to native inhabitants [4]. Also asthma, dementia, coronary heart diseases, anxiety disorders and stroke are more prevalent in ethnic minorities compared to ethnically Dutch populations [5,6]. Also, both quality and outcomes of healthcare are worse. Diabetes care, for example, is of lower quality and less effective in ethnic minorities, leading to higher rates of complications and higher health care costs [7]. Although ethnic minority patients visit their family physician more often [8], they are less satisfied with the contact with their physician than ethnic majority patients [9,10].

The aforementioned characteristics of the increasing cultural diversity of patient populations, pose specific challenges to healthcare providers [11]. Differing perspectives, values and beliefs about illness as well as expectations regarding care between healthcare providers and patients with different ethnic backgrounds may lead to misunderstandings [12,13]. Language differences often lead to miscommunication and frustration between patient and physician, which impede shared decision-making [13]. This also complicates building a trusting working alliance, which is known to be a prerequisite for the quality and outcome of medical encounters [14].

A person-centred approach is the best method to address these different perspectives and overcome individual communication barriers and it also contributes to a trusting working alliance [15]. Realisation of a person-centered approach in contacts with migrants requires knowledge of ethnic and cultural health differences and skills to communicate across linguistic and cultural differences [16]. This combination of knowledge and skills, alongside a welcoming and respectful attitude is called cultural competence [16,17]. This means that culturally competent healthcare providers should for example be able to work with an interpreter when faced with a language barrier and should be aware of their own prejudices and tendency to stereotype [16]. Furthermore, healthcare providers should be able to check for mutual understanding to prevent misunderstandings [18].

Our previous studies on dietetic care for non-western migrants revealed that dieticians' counselling does not always fit the needs of migrant patients properly, as it does not take into account sufficiently cultural eating habits nor the more directive and medical approach many migrants expect [19]. Dieticians themselves also feel uncertain about their care [20]. They experience language differences as a major barrier for retrieving information and tailoring advice to the patient's needs. Furthermore, dieticians feel they lack knowledge of the cultural background of their patients.

To be able to improve the cultural competence of dieticians, their level of cultural competence needs to be established in order to identify which knowledge, attitudes and skills are already present in practice, and which are not. However, assessment of cultural competence remains challenging [21–23]. An analysis of previous reviews on cultural competence instruments shows that most tools assess cultural competence by self-assessment [22–26]. However, as self-report measures correlate highly with social desirability scores [27] the validity of self-report questionnaires for cultural competence is questioned. Moreover, multiple studies have demonstrated a weak association between self-reported cultural competence and observer-rated cultural competence [27–29]. Ruben emphasizes the need for behavioural observation of cultural competence as a gap between knowing and doing may exist [30]. However, it is currently not known if observational instruments for assessing cultural competence in healthcare providers exist nor whether their psychometric properties are sufficient.

Therefore, the aim of the current study is to identify available observational instruments to assess cultural competence in healthcare providers and dieticians specifically and assess their psychometric properties.

## 2. Methods

This review was performed using the Consensus based Standards for selection of health Measurement INstruments (COSMIN) guidelines for systematic reviews of Patient Reported Outcome Measures (PROMs) [31], and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses: the PRISMA Statement [32]. The COSMIN methodology focusses on PROMs used as outcome measurement instruments, however it may also be used for other types of instruments, including performance-based outcome measures [31].

### 2.1. Scope of the review

Literature was searched for instruments that could assess cultural competence of dieticians and other healthcare providers. Seeleman's framework of cultural competence [16] was used to

define the construct of cultural competence: *knowledge* about epidemiology of diseases and differential treatment effects in various ethnic groups, *awareness* of how culture shapes individual behaviour, social contexts and one’s own prejudices and *skills* to transfer information in a way the patient is able to understand, to know when external help with communication is needed, and to adapt to new situations creatively.

2.2. Data sources and searches

Literature searches were performed in Cinahl plus (EBSCO), Cochrane Library, EMBASE (OVID), PsycInfo (Ebsco), Pubmed, and Web of Science (core collection) with the help of a medical librarian. These databases were searched using keywords for both free text in title and abstract (tiab) and medical subject heading (MeSH) terms. Subject headings were adapted for each database.

The search strategy consisted of two sequential searches. In the first search strategy three groups of search terms were combined (see Fig. 1): 1) terms representing cultural competency, 2) terms representing culture (2a), combined with terms representing competence (2b) and 3) a validated search filter for retrieving studies on measurement properties in PubMed [33]; the filter was adapted for all the other databases (Appendix 1). Database searches were performed from their inception until (including) November 21, 2018. The second search included the full and abbreviated names of the instruments that were obtained in the first search, such as CCCI\* (Cross-Cultural Counseling Inventory-Revised) and YTOCCS (Youth Therapist Observational Cultural Competence Scale).

2.3. Screening of articles

No specific limitations were applied for article publication date or language.

Search results were imported into RefWorks 2.0. After removing duplicates, search results were imported in Excel files for data screening and selection.

Screening was performed in two sequential phases: on titles and abstract, and full text, using the criteria presented in Table 1. In the first phase, the titles and abstracts were screened for inclusion by MJ, AdB and AP, and two senior-year students acted as second readers. Both second readers received written and oral instructions that explained the research question, the inclusion and exclusion criteria and how to include articles based on the title and abstract. The first 200 titles and abstracts were screened by all readers independently to reach consensus about the screening procedure. Thereafter, screening was divided in pairs. Any disagreement about

inclusion of articles based on the title and abstract was discussed and resolved through consensus.

In the second phase, the full texts of the articles included in the first screening phase on title and abstract were screened for eligibility by two researchers independently (pairs of MJ, AdB and AP). In case of disagreement between the two researchers, the article was discussed with RS, SL or MvdM until consensus was reached.

2.4. Data extraction and analysis

Data extraction of the selected articles was done by MJ and AdB independently. The following data were extracted: target group, construct, origin of the construct, number, content, and scoring of the items.

To be able to compare the content of cultural competence instruments, the instruments were assessed by categorizing the items according to the selected framework [16] consisting of “knowledge”, “attitude” and “skills”. The following categories that are also described in literature as important factors for cultural competence for dieticians were added: skills to educate patients to achieve low cost healthy diet and knowledge about cultural differences, including food habits and preparation of dishes [20], and skills to check mutual understanding [18].

To assess the methodological quality of the studies, evaluating the measurement properties and synthesize the evidence, the Consensus-based Standards for the selection of health status Measurement INstruments (COSMIN) risk of Bias checklist [34] was used. The following measurement properties were assessed: content validity, structural validity, internal consistency, criterion validity and construct validity/hypothesis testing, and responsiveness, measurement error, cross cultural validity/measurement invariance and reliability.

For each measurement property, COSMIN assessment was performed in three sequential steps. First, the risk of bias of each single study on a measurement property was assessed. Second, the results of each single study on a measurement property are rated against criteria for sufficient measurement properties. Third, the results from all studies on a measurement property were summarized and the quality of evidence was graded. The quality of evidence for each measurement property is rated according to the Grading of Recommendations, Assessment, Development and Evaluation (GRADE) approach [35], adapted to COSMIN, into high, moderate, low, or very low [31].

The COSMIN assessment was performed by MJ and AdB independently and disagreements were resolved through discussion. Study authors were contacted where possible in the event of missing data.

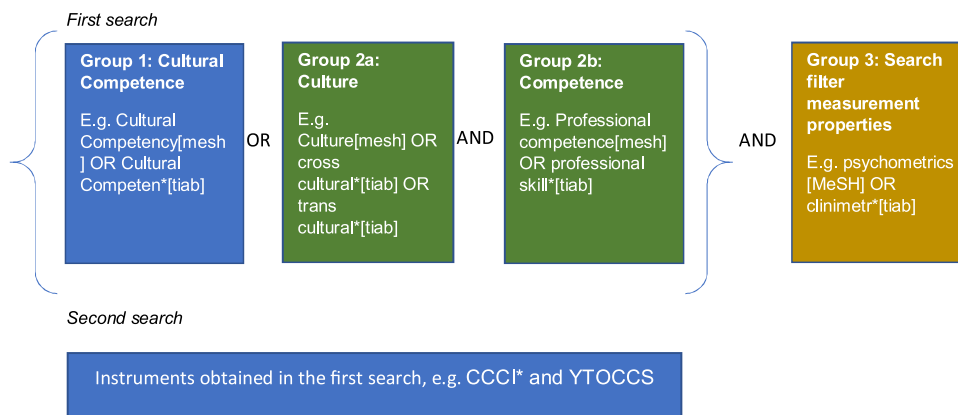


Fig. 1. Combination of groups of search terms in the first and second search strategy.

**Table 1**  
Selection criteria for the articles.

Inclusion criteria	Exclusion criteria
Primary studies and reviews about the development or psychometric evaluation of instruments to measure cultural competence	Letters, comments, case reports, books, and editorials
Observational instruments designed to assess cultural competences in healthcare professionals/students and psychological counsellors	Instruments to measure patient experiences or cultural competence of organisations
	Instruments for self-assessment
	Articles that could not be retrieved full text by the information specialist before December 2019.

### 3. Results

A total of 11,913 articles were obtained (Fig. 2). After removal of duplicates, the remaining 8090 articles were screened for eligibility. Of the remaining 54 articles, six were included in the study based on full-text screening.

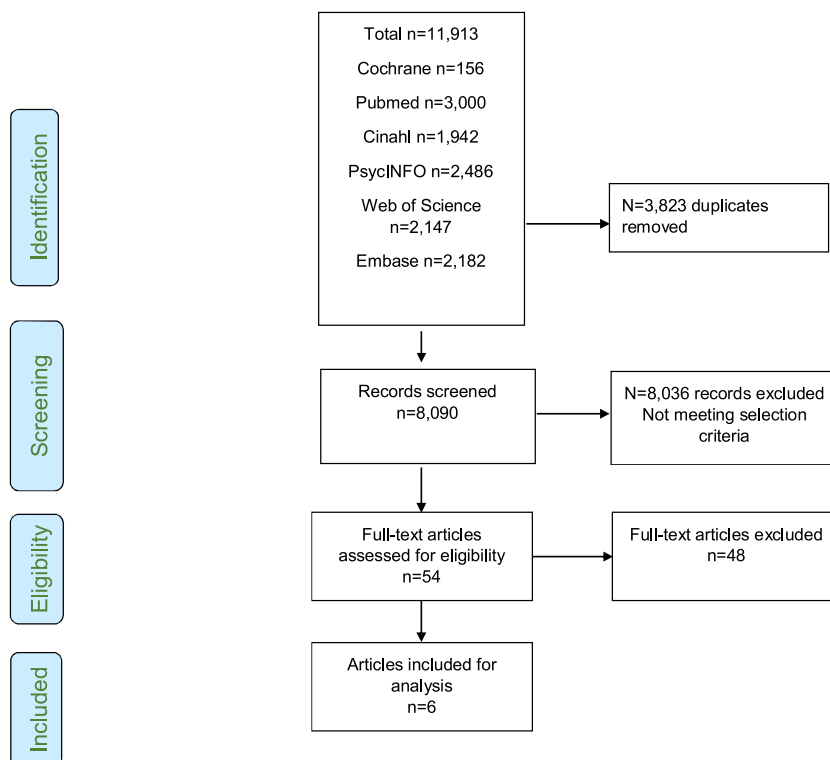
The six included articles (see Fig. 2) were published between 1976 and 2014 and described studies on five instruments (Table 2). Two studies described measurement properties of a previously developed instrument. All articles were written in the English language and all studies were performed in the United States of America. The six included articles described studies on five instruments: the Cross-Cultural Counseling Inventory-Revised (CCCI-R) [27,36], the Multicultural Competency Behavioral Scale-Verbal Response (MCBS-VR) [37], the Embedded Patient-Centered Care scale (Embedded PCC scale) [38], the Youth Therapist Observational Cultural Competence Scale (YTOCCS) [39] and an objective structured clinical examination (OSCE) based instrument by Zabar [40].

#### 3.1. Content of the instruments

The instruments were developed to target (youth) psychotherapists (n = 3) or doctors/residents (n = 2) and consisted of 13–21 items. Four instruments were designed for observation of face-to-face communication between two individuals: CCCI-R, the Zabar OSCE instrument, the Embedded PCC scale and YTOCCS. Of these, two were intended for use during objective structured clinical examinations (OSCE), a type of examination based on an interview with a standardized patient in which the patient also contributed to the rating process. The MCBS-VR was designed to assess participants’ verbal responses to videotaped simulated therapeutic interactions with diverse clients.

##### 3.1.1. Analysis of the constructs– knowledge, attitude, skills

Content analysis of the instruments according to the framework is presented in Table 2. Since the articles about the Embedded PCC scale and YTOCCS did not include detailed information about the instrument’s items, these were not categorized.



**Fig. 2.** Flow chart of results of the search strategy and selection of articles.

**Table 2**  
General characteristics and items of the cultural competence construct in the selected instruments.

General characteristics						Construct of cultural competence												
Name, (year), # studies found on the instrument	Target group – health professionals	Construct as described by author	Scoring	Origin of the construct	Training necessary for application of the instrument (hours)	Items related to Seeleman												
						Knowledge			Attitude			Skills			Additional dietetic specific items			
						Knowledge of differences in epidemiology	Knowledge of differential treatment effects	Attitude: open, or respectful, or curious	Awareness of how culture shapes behaviour/ thinking	Awareness of social contexts	Awareness of own prejudices OR stereotyping	Skills: comprehensible information transfer	Skills: Working with interpreter	Skills: Adapting to situations flexibly OR creatively	Skills: seek external help with communication	Skills: education to achieve low cost healthy diet	Skills: teach back OR check for mutual understanding	Knowledge about cultural differences, food habits and preparation of dishes
CCCI-R [1], (1991), 2 (2736)	Therapists/ psychological counselors	Cross-cultural counselling competence	Six point scale: 1 (strongly disagree) to 6 (strongly agree)	Model: multicultural counselling competency model Sue et al (1982)	6 <sup>2</sup> -24 <sup>3</sup>	no	no	yes	yes	yes	No	no	no	no	yes	no	no	no
Zabar OSCE [1] (2006), 1 (40)	Medical residents	Skills to care for culturally and linguistically diverse patients	Four point scale:1 (not done) to 4 (done excellently) Nine point scale for overall performance:1 (needs improvement) to 9 (done excellently)	Literature review, expert consultation combined with objective structured clinical examination items	\$ [4]	no	no	yes	no	no	No	yes	yes	no	NA [5]	no	yes	no
MCBS-VR [1], (2006), 1 (37)	Therapists/ psychological counselors	Multicultural competence	0 (bad response) -2 (good response) points per item	Scripts: multicultural counseling competency model Sue et al (1982) and panel of experts Arredondo et al. (1996), samples from pilot study and evaluated by panel of experts	18	yes	no	yes	yes	yes	yes	no	no	no	no	no	no	no
Embedded PCC Scale [1], (2010), 1 (38)	Medical students	Embedded Patient-centered care	Done/Not done for history taking and counselling items, and six-point scale for communication items (unacceptable-outstanding)	Kleinman explanatory model (1978) and patient-centeredness conceptual model by Mead and Bower (2000) combined with objective structured clinical examination items	30 [6]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]
YTOCCS [1], (2014), 1 (39)	Youth psychotherapists	Cultural competence	Seven point scale. 1 (culturally biased), to 7 (excellent - culturally proficient)	Theoretical and empirical literature review	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]	\$ [4]

1: CCCI-R = Cross-Cultural Counseling Inventory-Revised, Zabar OSCE = objective structured clinical examination based instrument by Zabar, MCBS-VR = the Multicultural Competency Behavioral Scale-Verbal Response, Embedded PCC scale = the Embedded Patient-Centered Care scale, YTOCCS = Youth Therapist Observational Cultural Competence Scale.

2: La Fromboise, 1991.

3: Worthington, 2000.

4: \$=not assessed.

5: NA = Not applicable.

6: Training consisted of standardizing the portrayal of the case and the calibration of the checklist items.

**Table 3**  
COSMIN evaluation of the content validity of cultural competence assessment instruments.

Instrument	Relevance			Comprehensiveness			Comprehensibility			Overall content validity	
	Methodological quality	Result (rating)	Quality of evidence (GRADE)	Methodological quality	Result (rating)	Quality of evidence (GRADE)	Methodological quality	Result (rating)	Quality of evidence (GRADE)	Result (rating)	Quality of evidence (GRADE)
CCCI-R [1]	Doubtful	+	Moderate	Doubtful	+/-	Low	Doubtful	+	Low	+/-	Moderate
Zabar OSCE [1]	\$ [2]	+	Very low	\$ [2]	+/-	Very low	\$ [2]	+	Very low	+/-	Very low
MCBS-VR [1]	Doubtful	+/-	Low	Inadequate	+/-	Very low	Inadequate	+/-	Very low	+/-	Very low
Embedded PCC Scale [1]	\$ [2]	\$ [2]	\$ [2]	\$ [2]	\$ [2]	\$ [2]	\$ [2]	\$ [2]	\$ [2]	\$ [2]	\$ [2]
YTOCCS [1]	Inadequate	?	Very low	\$ [2]	\$ [2]	\$ [2]	\$ [2]	\$ [2]	\$ [2]	?	Very low

1: CCCI-R = Cross-Cultural Counseling Inventory-Revised, Zabar OSCE = objective structured clinical examination based instrument by Zabar, MCBS-VR = the Multicultural Competency Behavioral Scale-Verbal Response, Embedded PCC scale = the Embedded Patient-Centered Care scale, YTOCCS = Youth Therapist Observational Cultural Competence Scale.

2: \$= Not assessed.

Several of the attitude aspects from the framework were present, but the knowledge aspects and skills were mostly lacking. As none of the instruments targeted dieticians, dietetic specific items were not present. In contrast, several items could not be categorized within the framework (see below).

All instruments included at least one item regarding an open, respectful, or curious attitude. The MCBS-VR included an item regarding knowledge of epidemiology and manifestation of diseases in various ethnic groups. The CCCI-R and MCBS-VR included an item about awareness of how culture shapes individual behaviour and thinking and an item about awareness of the social contexts in which specific ethnic groups live. Only the MCBS-VR included an item about awareness of one's own prejudices and tendency to stereotype.

Skills to transfer information in a way the patient can understand, skills to work with an interpreter and skills to use a teach back technique or check for mutual understanding were only included in the Zabar OSCE based instrument. Skills to adapt to new situations flexibly and creatively and skills to educate patients to achieve a healthy diet at a low cost were not included in any instrument. Only the CCCI-R included skills to know when to seek external help with communication. None of the instruments included ethnic differences in morbidity or treatment.

3.1.2. Other items, not categorized

The instruments included additional items that could not be categorized in the pre-defined framework. For example, the CCCI-R included an item about presenting one's own values to the client and included several generic communication skills, such as understanding the counselling process and eliciting a variety of verbal and nonverbal responses. The Zabar OSCE based instrument also included generic communication skills, such as facilitating the patient to tell their own story, encouraging questions and responding to emotions. This instrument also included an item on shared decision making: collaborating with the patient in identifying possible next steps/plan. The MCBS-VR included an item on knowledge about the counsellor's social impact on others and communication style differences. Both the CCCI-R and the MCBS-VR included items on cultural knowledge.

3.2. Psychometric properties of the instruments

3.2.1. Content validity

Of four instruments overall content validity was inconsistent (+/-) or indeterminate (?) see Table 3. The content validity of the Embedded PCC scale could not be assessed due to insufficient

information. The quality of the evidence for overall content validity was moderate for the CCCI-R. Due to methodological shortcomings, the quality of the evidence for overall content validity of the other instruments was low to very low.

3.2.2. Structural validity

Structural validity was determined of the CCCI-R only [36], see Table 4. The methodological quality was rated inadequate due to not meeting the COSMIN criterion for sample size. Furthermore, the result rating scored indeterminate (?), and the overall quality of the evidence (GRADE) was very low.

3.2.3. Internal consistency

Methodological quality appeared to be very good in two out of six studies, see Table 4 [37,39]. However, since none of the studies provided evidence on sufficient structural validity, all results for internal consistency scored an indeterminate (?) rating. The quality of the evidence was moderate for the MCBS-VR and low to very low for the other instruments.

3.2.4. Hypothesis testing for construct validity

Construct validity through hypothesis testing was determined for all five instruments, see Table 4. Only the MCBS-VR showed sufficient construct validity and moderate quality of the evidence. The other instruments showed insufficient construct validity (CCCI-R) or had a low (YTOCCS) or very low (Zabar OSCE instrument and Embedded PCC Scale) quality of the evidence.

3.2.5. Reliability

Of four instruments assessed (see Table 5) only the MCBS-VR showed sufficient reliability with moderate quality of the evidence. The studies on the other instruments showed insufficient reliability (YTOCCS) or had a very low quality of the evidence (CCCI-R and Zabar OSCE instrument).

3.2.6. Measurement properties not assessed

No studies were available on criterion validity, responsiveness, measurement error and cross-cultural validity/ measurement invariance.

4. Discussion and conclusion

4.1. Discussion

The purpose of this systematic review was to identify available observational instruments to assess cultural competence in

**Table 4**  
COSMIN evaluation of the structural validity, internal consistency, and construct validity (hypothesis testing) of the cultural competence assessment instruments.

Instrument	Author, year	Country (language) in which the instrument was evaluated	Structural validity				Internal consistency					Construct validity (hypotheses testing)			
			N	Meth. qual	Result (rating)	Quality of evidence (GRADE)	N	Meth. qual	Result (rating)	Combined rating, in case of multiple studies	Quality of evidence (GRADE)	N	Meth. qual	Result (rating)	Quality of evidence (GRADE)
CCCI-R [1]	LaFromboise, 1991	USA, (English)	86	Inadequate	Three factors. Not all information for '+' reported(?)	Very low	86	Inadequate	Cronbach's Alpha 0,95	(?)	Very low	\$ [2]	\$ [2]	\$ [2]	
	Worthington, 2000	USA, (English)	\$ [2]	\$ [2]	\$ [2]	\$ [2]	55	Inadequate	Cronbach's alpha 0,97	No evidence on sufficient structural validity (?)	55	Very good	Results not in line with 1 out of 3 hypotheses, results in line with 2 out of 3 hypotheses (-)	Moderate	
Zabar OSCE [1]	Zabar, 2006	USA, (English)	\$ [2]	\$ [2]	\$ [2]	\$ [2]	76	Inadequate	Cronbach 's alpha 0,91	NA [3]	Very low	76	Inadequate	Results in line with 3 hypotheses (+)	Very low
MCBS-VR [1]	Havens, 2006	USA, (English)	\$ [2]	\$ [2]	\$ [2]	\$ [2]	62	Very good	Total Cronbach 's alpha of 0,77. Separate vignettes scores 0,70, 0,55 and 0,71. No evidence on sufficient structural validity (?)	NA [3]	Moderate	62	Very good	Results in line with 2 hypotheses (+)	Moderate
Embedded PCC Scale [1]	Wilkerson, 2010	USA, (English)	\$ [2]	\$ [2]	\$ [2]	\$ [2]	322	Inadequate	Cronbach 's alpha 0,60	NA [3]	Very low	322	Inadequate	Results in line with 2 hypotheses (+)	Very low
YTOCCS [1]	Tully, 2014	USA, (English)	\$ [2]	\$ [2]	\$ [2]	\$ [2]	32	Very good	Cronbach's alpha 0.77.	NA [3]	Low	32	Very good	Results in line with 1 hypothesis (+)	Low

1: CCCI-R = Cross-Cultural Counseling Inventory-Revised, Zabar OSCE = objective structured clinical examination based instrument by Zabar, MCBS-VR = the Multicultural Competency Behavioral Scale-Verbal Response, Embedded PCC scale = the Embedded Patient-Centered Care scale, YTOCCS = Youth Therapist Observational Cultural Competence Scale.

2: \$=not assessed.

3: NA = Not applicable.

**Table 5**  
COSMIN evaluation of reliability of cultural competence assessment instruments.

Instrument	Author, year	Reliability				
		n	Meth qual	Result (rating) of individual studies	Combined rating, in case of multiple studies	Quality of evidence (GRADE)
CCCI-R [1]	LaFromboise 1991 Worthington,2000	3 raters, 13 observations 6 raters, 55 observations	Doubtful Very good	ICC or Weighted kappa not reported (?) ICC 0,80 (+)	(+/-)	Very low
Zabar OSCE [1]	Zabar, 2006	3 raters 76 observations	Inadequate	ICC or weighted kappa not reported (?)	NA [2]	Very low
MCBS-VR [1]	Havens,2006	62 raters, 3 observations (video recordings)	Very good	ICC for total scores 075 ICC for separate vignettes 0,74, 0,76 and 0,73. (+)	NA [2]	Moderate
Embedded PCC Scale [1]	Wilkerson, 2010	NA [2]	NA [2]	NA [2]	NA [2]	NA [2]
YTOCCS [1]	Tully, 2014	3 raters, 32 observations	Very good	ICC = 0,66 (-)	NA [2]	Low

1: CCCI-R = Cross-Cultural Counseling Inventory-Revised, Zabar OSCE = objective structured clinical examination based instrument by Zabar, MCBS-VR = the Multicultural Competency Behavioral Scale-Verbal Response, Embedded PCC scale = the Embedded Patient-Centered Care scale, YTOCCS = Youth Therapist Observational Cultural Competence Scale.

NA: Not assessed.

healthcare providers and in dieticians specifically, and to assess their psychometric properties. Five different instruments were found targeted at health professionals and counsellors, none were targeting dieticians. The instruments showed large variation in the content of the constructs, mainly focusing on attitude, and little on knowledge and skills. Evidence for the measurement properties was suboptimal and none of the instruments yielded acceptable results on all measurement properties. The level of evidence was generally low.

Culturally competent care, also called person centred care “plus” [41], is increasingly acknowledged as important for the improvement of the quality of care, patients’ experiences with and outcomes of care [15,42]. Therefore, being able to assess cultural competence of (future) care providers is highly important. It is therefore disappointing that there appears to be no suitable observations instrument available for the assessment of cultural competence in health professionals, and in dieticians in particular.

None of the instruments in our study covered all aspects of cultural competence. Most instruments addressed the attitudes that are essential to understand patients’ perspectives and to prevent professionals from judging too quickly [43]. Although instrument targeted health professionals and counsellors and language differences are known to be a major barrier to effective care [13], instruments included only few items on essential communication skills. Only the Zabar instrument included skills to communicate via an interpreter, even though the use of trained professional interpreters positively affects patients’ satisfaction, quality of care, and health outcomes [44,45]. Other skills that were not apparent in the counsellor observation instruments were the ability to transfer information in a way the patient can understand and skills to check for mutual understanding, such as the use of the teach-back method [18]. Patient education is an important aspect of health consultations, i.e. discussing treatment options, instructing about medication use, or giving (dietetic) advice. For patients with limited health literacy, checking for mutual understanding is therefore important to prevent misunderstandings [18].

The finding that the constructs of the instruments showed great variation is not surprising. The lack of uniformity reflects the many variations of terms and definitions used in the literature about cultural competency [46–49]. The literature contains many analogous terms or concepts, e.g. culturally appropriate care, cross-cultural counselling competence, that add to the lack of clarity in this field [49].

Content validity of the existing instruments was generally poorly studied, and if available, results were poor. Qualitative research among the target population of the instruments is needed. Content validity, i.e. the degree to which the content of an instrument is an adequate reflection of the construct to be

measured [52], is considered to be the most important measurement property, because it should be clear that the items of the instrument are relevant, comprehensive, and comprehensible with respect to the construct of interest and study population [53].

This study is, to our knowledge, the first to report an overview of available observational instruments to assess cultural competence in healthcare providers and their psychometric properties.

A strength of this review it that we conducted a second search that included terms based on the instruments that were found in the first search.

Although the literature search was conducted in all contexts of healthcare, the selected articles were only performed in the context of doctors and counsellors. Apparently, other healthcare professionals have not yet developed instruments that assess cultural competence within their field.

#### 4.2. Conclusion

No observational instrument are available to evaluate cultural competence of dieticians. Studies on psychometric properties of instruments targeted at other health professionals lack methodological rigour. It is time to develop a valid and reliable instrument that can assess cultural competence of dieticians. Such instrument development should be based on qualitative interview studies among the target population.

#### 4.3. Practice implications

As none of the instruments were developed for dieticians, knowledge about food habits and preparation of dishes and skills to achieve a healthy diet at low cost were not included in any of the instruments. Until an instrument is available that encompasses both ‘general’ cultural competences necessary for all healthcare professionals and dietetic specific competences, assessment of dieticians’ cultural competence can only be done by combining sources. The Dutch dietetic consultation model is commonly used in dietetic curricula in the Netherlands to train and assess person-centred dietetic care [50]. As cultural competency may be defined as person-centred care with a ‘plus’ [41,51], a combination is suggested of the Dutch dietetic consultation model with Seeleman’s model for cultural competence [16], and the dietetic specific cultural competencies that were found in previous studies [19,20] to develop a suitable instrument.

#### Funding

This work was supported by the Netherlands Organisation for Scientific Research (NWO), grant number 023.003.104. The funder



had no involvement in study design, nor in the collection, analysis and interpretation of data, nor in the writing of the report, and nor in the decision to submit the article for publication.

### Declaration of Competing Interest

None.

### Appendix 1 search string pubmed

#### Search 1

(Culturally Competent care[mesh] OR Culturally Competen\*[tiab] OR Cultural Competency[mesh] OR Cultural Competen\*[tiab] OR Cultural congruen\*[tiab] OR Culturally Congruen\*[tiab] OR cultural skill\*[tiab] OR intercultural skill\*[tiab] OR cultural incompeten\*[tiab]) OR ((Culture[mesh] OR Transcultural Nursing [mesh] OR Cultural car\*[tiab] OR cultural sensitiv\*[tiab] OR culturally sensitiv\*[tiab] OR cultural need\*[tiab] OR cultural humility[tiab] OR cultural differen\*[tiab] OR culturally safe[tiab] OR cultural safety[tiab] OR cultural sensib\*[tiab] OR cultural understanding[tiab] OR cultural self-efficacy[tiab] OR cross cultural\*[tiab] OR crosscultural\*[tiab] OR cross cultural\*[tiab] OR trans cultural\*[tiab] OR transcultural\*[tiab] OR trans cultural\*[tiab] OR inter cultural\*[tiab] OR intercultural\*[tiab] OR multicultural\*[tiab] OR multi cultural\*[tiab] OR cultural divers\*[tiab] OR culturally diverse[tiab] OR Cultural Pluralis\*[tiab] OR Cultural attitude[tiab] OR Cultural identity[tiab] OR Cultural behavior[tiab] OR Cultural behaviour[tiab] OR culturally diverse[tiab] OR cultural differen\*[tiab] OR cultural humility[tiab] OR cultural awareness [tiab] OR cultural barrier\*[tiab] OR culturally based[tiab] OR culturally bound[tiab] OR culturally tailored[tiab] OR indigenous people[tiab] OR ethnic minorities[tiab] OR intercultural communication\*[tiab] OR transcultural communication\*[tiab] OR multicultural communication\*[tiab] OR cultural communication\*[tiab] OR culturally adapt\*[tiab] OR cultural adapt\*[tiab] OR culturally acceptable[tiab] OR cultural acceptability[tiab] OR culturally Matched[tiab] OR culturally Appropriate[tiab] OR culturally Diverse[tiab] OR culturally Specific[tiab] OR culturally Valid[tiab] OR culturally Informed[tiab] OR cultural Proficien\*[tiab] OR cultural awareness[tiab] OR culturally aware\*[tiab]) AND (Professional competence[mesh] OR Professional competen\*[tiab] OR Professionally competen\*[tiab] OR Baccalaureate Nursing Education[mesh] OR Baccalaureate[tiab] OR Continuing Nursing Education[mesh] OR professional skill\*[tiab] OR Clinical Competence [mesh] OR Clinical Competen\*[tiab] OR Clinically Competent \* [tiab] OR clinical skill\*[tiab] OR competen\*[tiab] OR Technical Expert\*[tiab] OR Professional skill\*[tiab]))

#### AND

((instrumentation[sh] OR "Validation Studies"[pt] OR "reproducibility of results"[MeSH Terms] OR reproducib\*[tiab] OR "psychometrics"[MeSH] OR psychometr\*[tiab] OR clinimetr\*[tiab] OR clinometr\*[tiab] OR "observer variation"[MeSH] OR "observer variation"[tiab] OR "discriminant analysis"[MeSH] OR reliab\*[tiab] OR valid\*[tiab] OR coefficient[tiab] OR "internal consistency"[tiab] OR (cronbach\*[tiab] AND (alpha[tiab] OR alphas[tiab])) OR "item correlation"[tiab] OR "item correlations"[tiab] OR "item selection"[tiab] OR "item selections"[tiab] OR "item reduction"[tiab] OR "item reductions"[tiab] OR agreement[tiab] OR precision[tiab] OR imprecision[tiab] OR "precise values"[tiab] OR test-retest[tiab] OR (test[tiab] AND retest[tiab]) OR (reliab\*[tiab] AND (test[tiab] OR retest[tiab])) OR stability[tiab] OR interrater[tiab] OR inter-rater [tiab] OR intrarater[tiab] OR intra-rater[tiab] OR intertester[tiab] OR inter-tester[tiab] OR intratester[tiab] OR intra-tester[tiab] OR interobserver[tiab] OR inter-observer[tiab] OR intraobserver[tiab] OR intra-observer[tiab] OR intertechnician[tiab] OR inter-

technician[tiab] OR intratechnician[tiab] OR intra-technician[tiab] OR interexaminer[tiab] OR inter-examiner[tiab] OR intraexaminer [tiab] OR intra-examiner[tiab] OR interassay[tiab] OR inter-assay [tiab] OR intraassay[tiab] OR intra-assay[tiab] OR interindividual [tiab] OR inter-individual[tiab] OR intraindividual[tiab] OR intra-individual[tiab] OR interparticipant[tiab] OR inter-participant [tiab] OR intraparticipant[tiab] OR intra-participant[tiab] OR kappa[tiab] OR kappa's[tiab] OR kappas[tiab] OR repeatab\*[tiab] OR ((replicab\*[tiab] OR repeated[tiab]) AND (measure[tiab] OR measures[tiab] OR findings[tiab] OR result[tiab] OR results[tiab] OR test[tiab] OR tests[tiab])) OR generaliza\*[tiab] OR generalisa\* [tiab] OR concordance[tiab] OR (intraclass[tiab] AND correlation\* [tiab]) OR discriminative[tiab] OR "known group"[tiab] OR "factor analysis"[tiab] OR "factor analyses"[tiab] OR dimensionality[tiab] OR subscale\*[tiab] OR "multitrait scaling analysis"[tiab] OR "multitrait scaling analyses"[tiab] OR "item discriminant"[tiab] OR "interscale correlation"[tiab] OR "interscale correlations"[tiab] OR ((error[tiab] OR errors[tiab]) AND (measure\*[tiab] OR correlat\* [tiab] OR evaluat\*[tiab] OR accuracy[tiab] OR accurate[tiab] OR precision[tiab] OR mean[tiab])) OR "individual variability"[tiab] OR "variability analysis"[tiab] OR (uncertainty[tiab] AND (measurement[tiab] OR measuring[tiab])) OR "standard error of measur-ement"[tiab] OR sensitiv\*[tiab] OR responsive\*[tiab] OR (small\* [tiab] AND (real[tiab] OR detectable[tiab]) AND (change[tiab] OR difference[tiab])) OR "meaningful change"[tiab] OR "minimal important change"[tiab] OR "minimal important difference"[tiab] OR "minimally important change"[tiab] OR "minimally important difference"[tiab] OR "minimal detectable change"[tiab] OR "minimal detectable difference"[tiab] OR "minimally detectable change"[tiab] OR "minimally detectable difference"[tiab] OR "minimal real change"[tiab] OR "minimal real difference"[tiab] OR "minimally real change"[tiab] OR "minimally real difference"[tiab] OR "ceiling effect"[tiab] OR "floor effect"[tiab] OR "item response model"[tiab] OR irt[tiab] OR rasch[tiab] OR "differential item functioning"[tiab] OR dif[tiab] OR "computer adaptive testing"[tiab] OR "item bank"[tiab] OR "cross-cultural equivalence"[tiab]) NOT ("addresses"[Publication Type] OR "biography"[Publication Type] OR "case reports"[Publication Type] OR "comment"[Publication Type] OR "directory"[Publication Type] OR "editorial"[Publication Type] OR "festschrift"[Publication Type] OR "interview"[Publication Type] OR "lectures"[Publication Type] OR "legal cases"[Publication Type] OR "legislation"[Publication Type] OR "letter"[Publication Type] OR "news"[Publication Type] OR "newspaper article"[Publication Type] OR "patient education handout"[Publication Type] OR "popular works"[Publication Type] OR "congresses"[Publication Type] OR "consensus development conference, nih"[Publication Type] OR "practice guideline"[Publication Type]) NOT ("animals"[MeSH Terms] NOT "humans"[MeSH Terms])) OR (Measur\*[ti] OR Assess\*[ti] OR Scale\*[ti] OR Tool\*[ti])

#### Search 2

(multicultural[tiab] AND counselling[tiab] AND assessment [tiab] AND survey[tiab] AND (form[tiab] OR forms[tiab])) OR (behavioral[tiab] AND assessment[tiab] AND scale[tiab] AND for[tiab] AND intercultural[tiab] AND communication\*[tiab]) OR (Behavioural[tiab] AND assessment[tiab] AND scale[tiab] AND for[tiab] AND intercultural[tiab] AND communication\*[tiab]) OR CCC\*[tiab] OR (Cross[tiab] AND Cultural[tiab] AND Counseling[tiab] AND Inventor\*[tiab]) OR (youth[tiab] AND therapist\*[tiab] AND observational[tiab] AND cultural\*[tiab] AND competenc\*[tiab] scale\*[tiab]) OR Ytoccs[tiab] OR (zabar[Author]) AND cultural[tiab] OR ruben scale\*[tiab]

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