




Learning patient-centredness with simulated/standardized patients: A realist review: BEME Guide No. 68

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ABSTRACT

Background: Given the positive outcomes of patient-centred care on health outcomes, future doctors should learn how to deliver patient-centred care. The literature describes a wide variety of educational interventions with standardized patients (SPs) that focus on learning patient-centredness. However, it is unclear which mechanisms are responsible for learning patient-centredness when applying educational interventions with SPs.

Objective: This study aims to clarify how healthcare learners and professionals learn patient-centredness through interventions involving SPs in different healthcare educational contexts.

Methods: A realist approach was used to focus on what works, for whom, in what circumstances, in what respect and why. Databases were searched through 2019. Nineteen papers were included for analysis. Through inductive and deductive coding, CICMO configurations were identified to build partial program theories. These CICMOs describe how Interventions with SPs change the Context (C→C') such that Mechanisms (M) are triggered that are expected to foster patient-centredness as Outcome.

Results: Interventions with SPs create three contexts which are 'a safe learning environment,' 'reflective practice,' and 'enabling people to learn together.' These contexts trigger the following seven mechanisms: feeling confident, feeling a sense of comfort, feeling safe, self-reflection, awareness, comparing & contrasting perspectives, combining and broadening perspectives. A tentative final program theory with mechanisms belonging to three main learning components (cognitive, regulative metacognitive and affective) is proposed: Interventions with SPs create a safe learning environment (C') in which learners gain feelings of confidence, comfort and safety (affective M). This safe learning environment enables two other mutual related contexts in which learners learn together (C'), through comparing & contrasting, combining and broadening their perspectives (cognitive M) and in which reflective practice (C') facilitates self-reflection and awareness (metacognitive M) in order to learn patient-centeredness.

Conclusion: These insights offer educators ways to deliberately use interventions with SPs that trigger the described mechanisms for learning patient-centredness.

KEYWORDS

Patient-centredness; healthcare professionals; healthcare learners; educational intervention; realist review; simulated patients; standardized patients

Introduction

Working as a patient-centred healthcare professional is essential and highly valued, although learning how to become such a healthcare professional still remains a challenge. The value of patient-centred care is demonstrated by studies that show that such care results in better health outcomes. For instance, a systematic review on patient- and family-centred care interventions and outcomes in the ICU showed an increased patient- and family satisfaction and improved mental health status, such as reduction of depression, anxiety and posttraumatic stress disorder-symptoms (Goldfarb et al. 2017). Another systematic review on patient-centred care showed higher levels of patient well-being and self-management (Rathert et al. 2013).

Practice points

In order to foster patient-centredness:

- Students will benefit from practicing with simulated/standardized patients, as this creates a safe learning environment, which evokes feelings of confidence, comfort, and safety.
- Students can learn in groups from each other with simulated/standardized patients, as this leads to comparing, contrasting, combining, and broadening perspectives.
- Simulated/standardized patients should get a role as feedback givers to create a reflective practice that leads to self-reflection and awareness in students.

Patient-centredness is a wide-ranging concept. The literature reports a variety of definitions (Mead and Bower 2000; Robinson et al. 2008; Smith et al. 2011). Scholl et al. (2014) performed a systematic review into the definitions of patient-centredness with the aim to develop an integrative model of patient-centredness. They reported fifteen interrelated dimensions and divided them into three different levels. The first level is described as *principles*, which are fundamental propositions for patient-centred care (e.g. *patient as a unique person*). These principles can be implemented by patient-centred care *activities*, level two, aiming at the involvement and support of patients. The third level is described as *enablers* (e.g. *clinician-patient communication*), which pertain to dimensions that may foster the implementation of these activities. In this study, we refer to the dimensions of Scholl for our interpretation of patient-centredness.

Given the positive outcomes of patient-centred care, efforts are being made to train healthcare professionals to become patient-centred professionals. One way to do so is to involve patients in educational interventions, with either real patients or simulated/standardized patients. Although there is debate about the differences between simulated and standardized patients and the terms are used interchangeably in literature, we use the definition as is depicted in Table 1. From here on we refer to simulated and standardized patients as SPs (Young et al. 2014). In our recent realist review into learning patient-centredness from interventions with real patients, we found that the roles of the participants in an intervention (patients, teachers and learners) change the learning context in such a way that this triggers various mechanisms, such as self-actualization, socialization, engagement with patients and broadening perspectives, leading to patient-centredness (de Groot et al. 2020). However, in interventions with real patients, learners may be worried about harming the patient. Therefore, simulations with SPs in turn benefit learning because they are known to offer a structured learning environment—with graded experiences—in which learners feel that do not bear the risk of harming real patients when practicing (Fortin et al. 2002; Thistlethwaite and Ridgway 2014). A recent scoping review on the use of SPs showed increased confidence of the learners, improved communication performance as judged by the SPs and appreciation of the created ‘safe’ learning environment (Pilnick et al. 2018). Another advantage of role-plays with SPs is the option to pause and continue after feedback (Yardley et al. 2013). This offers learners the opportunity to implement the feedback immediately when continuing with the role-play. It also gives them a moment to recollect theory and earlier experiences, and to integrate these in the role-play (Thistlethwaite and Ridgway 2014). Finally, it is known that SPs are valued for their constructive feedback and for helping learners prepare for their first encounters with real patients (Bokken et al. 2009).

Given the above-mentioned beneficial effects of educational interventions with SPs on learning, and the fact that they are increasingly implemented in educational interventions, we wondered how they foster patient-centredness. Although the benefits of the use of SPs on learning are described in literature already, we do not know how learners become patient-centred from educational interventions

with SPs. We therefore believe it is important to clarify the mechanisms through which SPs contribute to learning patient-centredness and understand why a certain educational intervention with SPs is effective in a specific context. These insights may help educators implement health care education that fosters patient-centredness in future healthcare workers.

In summary, the purpose of our research is to explore how different educational interventions with SPs influence different contexts and how these in turn trigger learning mechanisms that help learners to become patient-centred. By comparing the contexts and mechanisms with the broader literature about learning theories, we will refine our rough program theory and generate a final program theory on how learners become patient-centred within specific contexts.

Methods

Rationale for using realist synthesis

To be able to answer our research question, the realist approach is most suitable (Shepherd et al. 2009). This research method focuses on what works, for whom, in what circumstances, in what respect and why (Wong et al. 2013). Through analysing the data, CICMO-configurations are formed to clarify causation. CICMO configurations describe how in an initial *Context (C)*, a particular educational *Intervention (I)* leads to an altered *Context (C')* in which participants learn in such way that this triggers a certain *Mechanism (M)* of learning which in turn generates a certain learning *Outcome (O)* (see Table 1 for definitions). The *Intervention* and the *Context* are visible aspects. The *Mechanisms*, on the other hand, occur in a ‘black box’ (Astbury and Leeuw 2010). It is a process taking place in the head of the learner. Depending on the context, a mechanism generates a certain, visible *Outcome* (Astbury and Leeuw 2010). In this study, we aim to ‘unpack’ the black box of mechanisms and build CICMO’s in order to develop a program theory on how healthcare learners and professionals learn to become patient-centred within specific contexts.

Review process

At the beginning of this review, we (EdG, CGC) started an iterative process of searching literature, first on how the term patient-centredness was interpreted. We decided to use the model of Scholl et al. (2014) to operationalize the concept of patient-centredness, since this was the most comprehensive model and based on a systematic review of the literature. Subsequently, we performed a pilot search on papers with the search-terms: ‘patient-centredness’ and ‘learning.’

After the pilot search, we constructed a framework of search-terms (see Supplemental Appendix 1 for framework and search-string). We searched in the databases PubMed, PsycINFO, ERIC, CINAHL and Embase for relevant papers for all years before and through 2016. The search-string consisted of a group of terms on patient-centredness (outcome) combined with a group of terms on context, intervention and learning (Supplemental Appendix 1). The first search

Table 1. Definitions of terms.

Patient-centredness according to the model of Scholl (Scholl et al. 2014) Scholl et al did not define the concept but developed a model to capture the concept of patient-centredness and to enable interventions and doing measurements with this model. They divided 15 dimensions of patient-centredness into three levels: principles, enablers and activities (see box below).	
Dimensions by Scholl (Scholl et al. 2014):	
Principles	Enablers
Essential characteristics of the clinician	<i>Clinician-patient communication</i>
<i>Clinician-patient relationship</i>	<i>Integration of medical and non-medical care</i>
<i>Patient as a unique person</i>	<i>Teamwork and team building</i>
<i>Biopsychosocial perspective</i>	<i>Access to care</i>
	<i>Coordination and continuity of care</i>
Activities	
<i>Patient information</i>	
<i>Patient involvement in care</i>	
<i>Involvement of family and friends</i>	
<i>Patient empowerment</i>	
<i>Physical support</i>	
<i>Emotional support</i>	
Simulated patient: an individual trained to play a role (Cleland et al. 2009).	
Standardized patient: an individual trained to play a role, with highly specified and consistent performance.	
SP: simulated/standardized patient: Both terms are used interchangeably in literature and it is not always explained how the terms simulated or standardized patient are interpreted (Young et al. 2014). In this review, we include papers about both simulated and standardized patients because we were not always able to distinguish between the terms in the papers. We use the term SP for both.	
Context: in our review, we use the word context to denote medical, dental and nursing settings in which patient-centredness is educated. We also denoted factors in the intervention as context factors, namely factors that were external to the intervention but not necessarily external to the participants. Often, these were socio-cultural factors. There is an original context (C) and an adjusted context (C') (which results from the implemented intervention).	
Interventions: in our review, we use the word interventions to denote educational programs/ways of educating or learning patient-centredness.	
Demi-regularities: prominent recurrent patterns of contexts and outcomes (Wong et al. 2013).	
Mechanism: mechanisms are underlying entities, processes, or structures which operate in particular contexts to generate outcomes of interest. There are three essential clues located in a "realist" reading of mechanisms. These are that (1) Mechanisms are usually hidden; (2) Mechanisms are sensitive to variations in context; (3) Mechanisms generate outcomes (Wong et al. 2013).	
CIC/MO-configurations: these are configurations in the form of a statement, diagram or drawing that spell out the relationship between particular features of original context, particular interventions, adjusted context, mechanisms and outcomes (Wong et al. 2013).	
Initial Program Theory: this theory is about what an intervention is expected to do/how the intervention is expected to function. The initial program theory may be based on previous research, knowledge, experience and the assumptions of the intervention designers about how the intervention will work (Wong et al. 2013).	
Final Program Theory: this theory is the product of a realist review. In the process of conducting a review, some aspects of the initial rough theory may have been proved wrong. Others may have been supported with strong evidence. Many (perhaps most) will have been refined to some extent. Preferably, the final program theory describes how an intervention works and also with whom and under what circumstances (Astbury and Leeuw 2010).	
Middle range theory: this is a theory that is specific enough to generate hypotheses (for example in the form of propositions) to be tested in a particular case, or to help explain findings in a particular case, but general enough to apply across a number of cases or a number of domains (Wong et al. 2013).	

Table 2. In- and exclusion criteria applied in the review.

Inclusion criteria
<ul style="list-style-type: none"> • Language English or Dutch. • Context: medical graduate and undergraduate education, medicine (professional), continuing education. • Participants: Learners, residents, doctors, nurses, dentists. • The central outcome is aspects of the concept 'patient-centredness.' Key-terms in patient-centredness according to Scholl: essential characteristics of clinician, clinician-patient relationship, clinician-patient communication, patient as unique person, bio-psychosocial perspective, patient information, patient involvement in care, involvement of family and friends, patient empowerment, physical support, emotional support, integration of medical and non-medical care, teamwork and teambuilding, access to care, coordination and continuity of care. • Educational intervention. The intervention is evaluated. The intervention does not necessarily have to have been developed especially for the study. • Rich enough descriptions in the results and discussion section to allow for identification of mechanisms. • Type of study: qualitative as well as quantitative research studies.
Exclusion criteria
<ul style="list-style-type: none"> • Articles about a theoretical concept, without any empirical results. • Articles with a focus on patient outcomes only (without attention to the –learning- process). • Articles which are about teaching—or learning the knowledge component of patient-centredness ('what is PC'). • Articles in which a whole curriculum change is evaluated, with focus on curriculum change as a whole and not on (evaluation of) individual components of the curriculum that might contribute to patient-centredness. • Articles which are about the assessment of patient-centredness primarily. • Patients (real or simulated) are not part of the intervention. • Interventions were about training general communication skills only without a clear link to patient-centredness.

produced 4597 papers. At this point our review-team was extended with researchers with expertise on patient-centredness (SM), learning from simulated patients and from real patients and research into learning environments (KB, AD), communications skills (KvdB) and research into learning environments (JS). With this team, we constructed a first version of in- and exclusion criteria based on our research question and knowledge of the realist methodology (see Table 2). We screened the literature iteratively: first, we screened 4597 in three couples, each couple screened 50 different papers on title/abstract. If a couple did not agree, another couple screened the paper. In- and exclusion criteria were refined by discussion in the team to further focus our review: we decided to focus only on educational interventions using patients, either real patients or SPs, because these interventions are most closely related to the authentic workplace. To refine our understanding of the in- and exclusion criteria and to check the feasibility of these criteria, every member of the team individually screened the same next, randomly chosen, 150 papers on title/abstract. Based on the screening of these papers, we decided to only include papers in which interventions were both implemented and evaluated, because we noticed that especially these kind of papers described possible mechanisms evoked by the interventions. This again furthered the focus of the review. At this point, we also decided to leave out grey literature since we found that mechanisms described in this literature were not based on interventions that had actually been implemented. Thereafter, the three couples screened a different set of 450 papers on title/abstract each. Papers on which a couple could not reach consensus were also screened by another couple and discussed in the whole team. After this phase, the in- and exclusion criteria were finalised (see Table 2). The remaining 2947 papers were divided over the team members and screened on title/abstract individually. In case of doubt, another team member was asked for a second opinion and to decide on in- or exclusion. We looked up the 590 papers retained for full text screening, and obtained 554 full-text papers, either through our university libraries, by the help of librarians, an additional search on Research Gate and Google, or by emailing the first author. For the full-text assessment, the 554 papers were divided equally over and read by individual members of the team. In case of doubt, once again another team

member was asked a second opinion and to decide on in- or exclusion.

During the phase of full-text reading, we came to a mutual understanding on how to judge the presence of mechanisms and the quality of their description through discussion and practice within the review team, and supported by literature (Pawson et al. 2005; Astbury and Leeuw 2010; Dalkin et al. 2015). Whether a paper was included depended on whether the data could contribute to theory building (Wong et al. 2013). At this point in the process, we decided to perform two separate realist reviews since we learned that interventions with real patients were based on different pedagogies than those involving SPs. For instance: the possibility to pause the intervention is only possible when speaking with an SP. Therefore, interventions with SPs might lead to different mechanisms in learning patient-centredness compared to interventions involving real patients. From this point on, the study at hand focused on papers that describe interventions with SPs, a total of 58 papers. To appraise the quality of the papers, we assessed the papers on richness of the description of mechanisms. This resulted in a set of papers with rich descriptions ($n=11$) and a set ($n=47$) with less rich descriptions. First, we analysed the rich papers. We then analysed the less rich papers to identify mechanisms that were not yet found in the rich ones, and if that was the case, we included these to be thoroughly analysed as well. As a result, six more papers were added to the rich set resulting in a total of eighteen papers, and we concluded that we had come to a point of saturation. Because of the time that had passed between our first scoping search and the analysis, we performed an additional search for interventions on SPs (the search string included the terms on patient-centredness, context and learning combined with terms on SPs) to be able to also include the latest papers (2017–2019). After this search, one additional paper was included. In sum, nineteen papers were included for analysis.

Data extraction, analysis and synthesis process

We used Nvivo 12 for data analysis. Two members of the research team (KvdB, CGC) coded the nineteen papers in- and deductively. Through discussion, we adjusted the coding

tree constructed during the realist review on real patients to the setting with SPs. Some codes were not applicable in our context with SPs, for instance 'stressful work environment with many new impressions.' Furthermore, new codes were inductively added by open coding. At first, Kvdb and CGC each coded the same three papers, compared their coding and discussed differences until they reached consensus about the coding tree. They repeated this process for another six papers. In this way, the final coding tree was developed iteratively, and previously coded papers were recoded. The last ten papers were divided and coded separately by the two researchers. To ensure consistency of data and for validation purposes, another team-member (KB) read all codes and quotes on the context and mechanisms again. The ensuing discussion with KB, CGC and Kvdb did not yield any new codes, but some quotes were recoded. In a consecutive meeting, four researchers (Kvdb, KB, AD, CGC) analysed the coded data together to construct CIC'MO figurations. The team searched for plausible connections between intervention, change in context, and mechanisms and they identified recurrent patterns (demi-regularities, see Table 1). During the writing process, all members of the team read the different versions of the paper and gave feedback.

Initial rough program theory

Our initial rough program theory stated that Interventions with SPs create a context in which learners may learn in a safe manner, individually or with others, which triggers valuable mechanisms, such as feeling safe and self-reflection, enabling learning patient-centredness. We believe that this program theory is supported by the experiential learning theory of Kolb (Kolb et al. 2014; Poore et al. 2014), the social learning theory (Bandura 1977) and the social development theory (Vygotsky 1978).

Results

The search on and selection of interventions with real patients and SPs is shown in Figure 1.

Supplemental Appendix 2 shows the characteristics of all papers included. The studies were carried out between 1998 and 2017. The majority of the studies was performed in North America and the participants were learners and residents in medicine mainly. Most studies used mixed methods (Figures 2 and 3).

Below, we describe the Interventions (I) that changed the original Context (C), the adjusted Contexts (C') and Mechanisms (M) with which we were able to build partial program theories. For all Interventions (and their characteristics) and Mechanisms found in the articles, see Supplemental Appendix 3 and 5, respectively.

Interventions (I)

We clustered the interventions in three groups according to the different roles of the SPs. Interventions with:

1. SPs as 'surrogate' patients to create a safe learning environment;
2. SPs as facilitators in small groups to promote learning from each other; and

3. SPs as teachers/feedback givers to induce reflective learning.

The interventions changed the original context (C) into the adjusted context (C'), which elicited mechanisms (M) that foster learning patient-centredness (O). We used the three groups of interventions to build our partial program theories.

Interventions with SPs as 'surrogate' patient to create a safe learning environment

Many of the included papers described interventions involving SPs as creating a safe step for learning patient centeredness towards caring for real patients in the authentic context. In these interventions the simulated patient acted as a so called 'surrogate' patient.

Role-playing [with SPs and peers] may be a useful tool in communication skills training because it promotes active rather than passive learning, allows participants to experience the perspective of both physician and patient, and permits participants to practice approaches and responses in a safe environment with immediate feedback. (Watling and Brown 2007)

Standardized patients can be used to train communication skills in a protected learning environment. (Nikendei et al. 2011)

Interventions with SPs as facilitator in small groups to promote learning from each other

Interventions with SPs in small groups mostly focused on the opportunity for learners to collaborate with their peers. In these interventions, different activities were described: learners observing their peers interacting with the SPs, group discussions about the encounter with the SP, and giving each other feedback. As such, the SP acts as a facilitator of learning in small groups.

In the workshop, the students were given the possibility to discuss, experience and practise strategies in interaction with each other and with simulated patients. (Forsgren et al. 2017)

Interventions with SPs as feedback giver to induce reflective learning

The role of SPs as feedback giver is unique and differs from that of a real patient, as SPs can step out of their role of SP and reflect on the process with the students. A considerable part of the interventions aimed at reflection *with* an SP.

Medical students expressed appreciation for the non-evaluative feedback [with the SP, faculty observer and peer observer], as the opportunity to dispel inaccurate assumptions, to understand their own attitudes and aversions about disability, and to recognize the gap between their performance and what they would have liked to accomplish. (Duggan et al. 2009)

Other interventions dealt with reflection *on* an SP-encounter, in various ways: by the use of giving and receiving feedback from peers and/or the SP, by self-assessment of the SP encounter, by the use of a written reflection, by reflecting on a videotape of the SP-encounter (see Supplemental Appendix 3).

Ajusted contexts (C')

The interventions changed the original context (C) in such way that the adjusted context (C') contributed to learning. Here, we describe the changed contexts that align with the earlier described interventions: 'context of a safe learning environment,' 'context of learning in small groups,' and 'context of reflective practice.'

Context of a safe learning environment

A number of papers show the importance of a safe learning environment and describe that the SP, as a surrogate patient, helps create this environment. They describe the

need for learners to feel safe to make mistakes and not harm real patients.

The opportunity for learners to learn skills from one another; realistic, experiential learning without having to worry about harming patients (a universal concern of beginning learners), and immediate feedback from the SPs. (Fortin et al. 2002)

The papers described that when talking to real patients, learners feel a fear of saying the wrong things and as a result are not able to gain sufficient insight into a patient's contextual situation, which might hinder them to show empathy and build relations with their patients. Additionally, the following quote describes that when the learner does not feel safe this

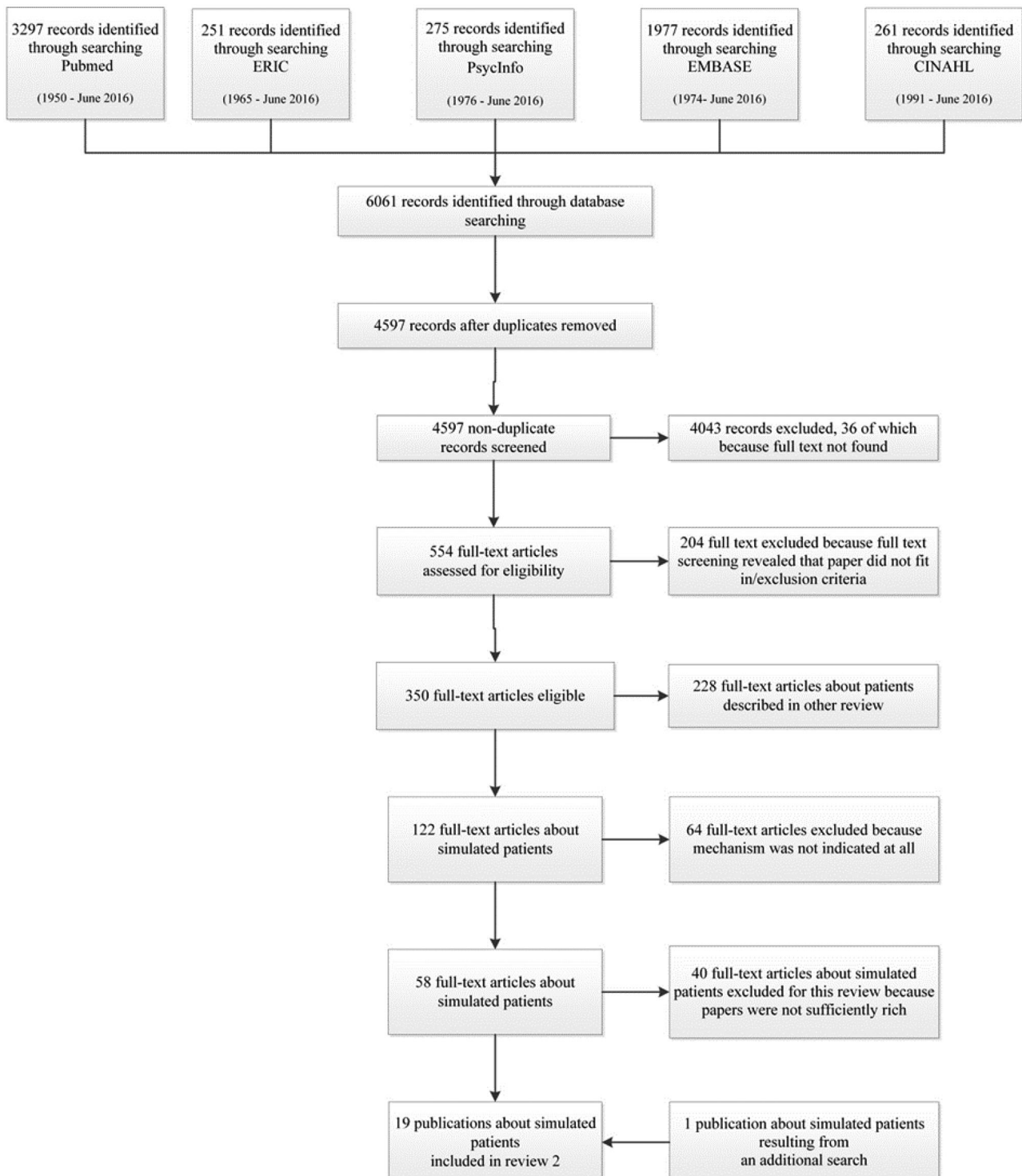


Figure 1. PRISMA scheme for selection of the included papers.

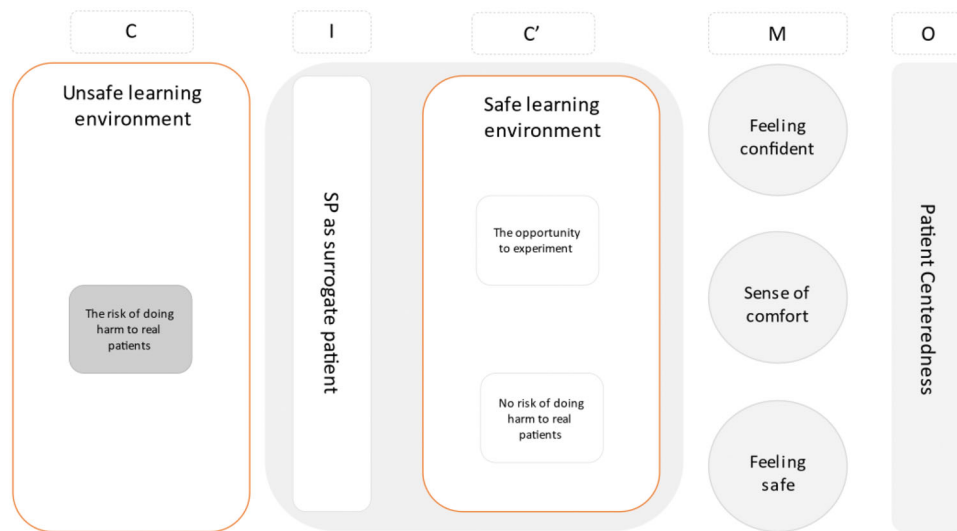


Figure 2. Partial program theory (CIC'MO) 1: SP as surrogate patient.

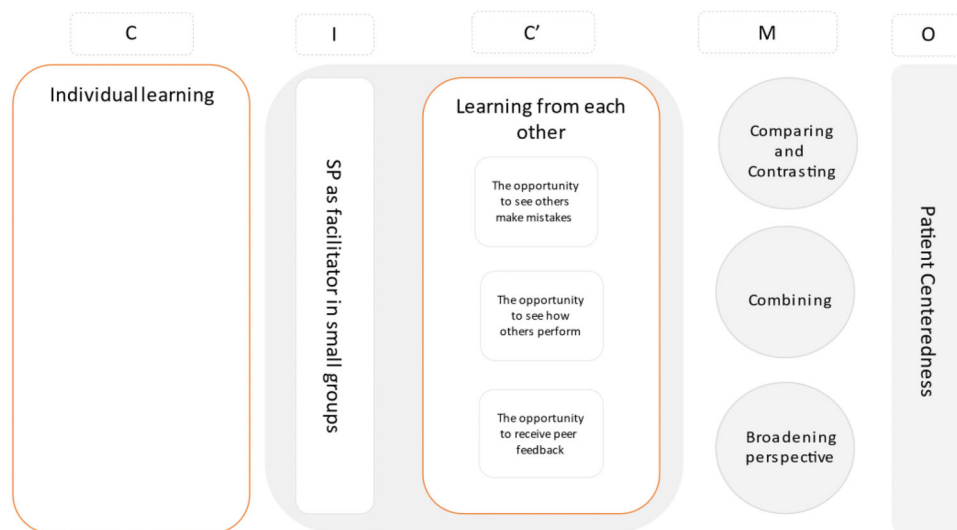


Figure 3. Partial program theory (CIC'MO) 2: SP as facilitator in small groups.

might influence the communication between patient and the learner negatively.

[When talking to real patients...] both patient and provider may have anxieties about bringing up a personal topic out of fear of judgment, fear of offending the other party, or fear of a difference in values that could lead to interpersonal tension or even conflict. Thus, patient and provider may withhold information about values in an effort to avoid discord. (Ledford et al. 2014)

Context of learning from each other

In the studies where SPs are involved in small group education, their role as facilitator offers a context that facilitates learners to learn from each other about patient-centredness, because it provides the opportunity to observe and to be observed by peers and SPs and receive feedback from them.

Learners described learning when they could observe other learners in the intervention and also learned by discussing their experiences with other learners. (Thompson et al. 2010)

Students commented that they learned from other students, as they watched an interaction in addition to conducting one; learners sometimes attributed their own strengths to the

experience of observing another interaction first. (Duggan et al. 2009)

Context of reflective practice

In the studies where SPs are actively involved in giving feedback, this offers a context in which learners have the possibility to reflect on their performances.

It may be that the workshops [with SPs, peers, and workshop facilitators] forced residents to reflect on the complexity of these challenging scenarios [breaking bad news], permitting new insight into just how difficult effective patient-physician communication can be. (Watling and Brown 2007)

Doctors appreciated the opportunity to receive constructive feedback, not only on their weaker areas, but also to be given positive reinforcement about the aspects of their individual styles that were effective. (Fallowfield et al. 1998)

Identification of mechanisms (M)

Here, we describe the mechanisms that were triggered by the aforementioned adjusted Contexts and their belonging Interventions: 'feeling confident, comfortable and safe';

'comparing, contrasting and broadening perspectives'; and 'self-reflection and awareness.'

Feeling confident, comfortable and safe

A number of papers described that the interventions with SPs changed the context in such ways (see above) that these evoked feelings of confidence, comfort and safety within learners.

Students identified the encounter with standardized patients and the opportunity to watch others deliver bad news as especially beneficial in building their confidence (.). Thus, after the intervention, learners felt more confident and comfortable ($p < .001$) in [communicating] bad news in a variety of situations. (Rosenbaum and Kreiter 2002)

Trainees' comfort levels pre-sessions were less than midrange but increased significantly after the interactions, suggesting that actual role-playing with and feedback from the SPs contributed to their increased level of comfort. In addition, their confidence level increased, which perhaps was attributable to the experiences and/or the feedback that they received. (Greenberg et al. 1999)

Comparing, contrasting, combining and broadening perspectives

Interventions with SPs seem to enable learners to compare, contrast and combine different perspectives of their peers, professionals and patients in order to learn patient-centredness. In the educational intervention mentioned below 'each student is provided with a short written case describing the bad news to be delivered and then enters a separate clinic room to interact with the SP. Video cameras and monitors allow the remainder of the group to watch the student interact with the SP from a separate room. After the encounter, each student returns to the classroom to discuss his or her feelings about the encounter and receives feedback from the SP, the other students, and the faculty member. A brief discussion then focuses on the issues raised by the particular case.' (Rosenbaum and Kreiter 2002)

First, learners get to experience [observing their peers] telling five different kinds of bad news and to compare and contrast the communication skills needed in each scenario. (Rosenbaum and Kreiter 2002)

Finally, in observing their peers, learners have a chance to see different approaches in delivering bad news that they may choose to either emulate or avoid. (Rosenbaum and Kreiter 2002)

Moreover, some papers described that learners broadened their perspectives by connecting different perspectives, taking different perspectives into account and bringing assumptions to discussion.

Medical students' comments demonstrated their ability to dispel inaccurate assumptions. Although they indicated that interviewing a [simulated] patient with a disability was a new experience, they were able to recognize their own inaccurate assumptions, like expecting other doctors to know more than they do. Students expressed learning the ways the SPs lived independent and physically active lives, and learning that disability may be more appropriately interpreted as affecting, rather than limiting, the patient's life. (Duggan et al. 2009)

Self-reflection and awareness

Finally, interventions with SPs seemed to foster mechanisms of self-reflection and awareness: learners did not

only become aware of their own strengths and difficulties in learning and how they could improve, but they were also stimulated to reflect on their own feelings and how this influences the relationship with their patients.

It really made the learners think about how contextual information changed the way they would communicate with the patient and come up with a treatment plan. It allowed them to view their own interactions after the fact. (Thompson et al. 2010)

Doctors who have been educated in a system that does not permit them to acknowledge their own feelings or provide them with the knowledge and vocabulary to articulate feelings, and teaches them that feelings are unimportant or secondary issues, are most unlikely to relate easily with empathy and respect toward their patients. Furthermore, it leads many to develop a cold, professional detachment as the only means of coping with their own emotional reactions. (Fallowfield et al. 1998)

Outcomes

Supplemental Appendix 4 shows the dimensions of patient-centredness according to Scholl et al. (2014) that were covered by the included papers included. We considered all these dimensions as an outcome (O) of patient-centredness. Almost all dimensions were mentioned in the papers included, although we sometimes had to interpret the data, since the dimensions were not always literally described. We could not identify the Scholl activities 'patient information' and 'physical support,' and the enabler 'teamwork.' The ones that were most prominent were the enabler **patient-clinician communication** and the principle **essential characteristics of the clinician**, and to a lesser extent the principle **biopsychosocial perspective**, and the activities **patient empowerment, patient involvement in care** and **emotional support**.

Partial program theories

From our analysis of interventions, contexts and the inferred mechanisms, we were able to construct three CIC'MO-configurations to build partial program theories. We will describe these below, illustrated by quotes.

Partial program theory (CIC'MO) 1: SP as surrogate patient

The fear of harming real patients in an educational setting is mitigated in an educational intervention with SPs in their role as surrogate patients. By practicing with surrogate patients students can experiment and do not have the fear to harm real patients which creates a safe learning environment. This evokes mechanisms like feelings of confidence, comfort and safety, facilitating the outcome of learning patient-centredness (Figure 2).

Both first- and second-year learners indicated that the SPs contributed to their learning by giving them the opportunity to experiment, critique, and analyze their interviewing skills without harming real patients. (Fortin et al. 2002)

Partial program theory (CIC'MO) 2: SP as facilitator in small groups

Interventions with SPs in small groups offer the learner the opportunity to not only conduct role-play, but also to observe

peers, receive feedback from all participants (SPs, peers and teachers) and have discussions with each other. In these interventions, SPs' facilitate' this group process. This context enables students to see how their peers perform with SPs, offering them a range of different strategies to be used in the same or other situations. Secondly, they watch their peers how they (also) make mistakes, which may raise feelings of relief. This leads to mechanisms of comparing, contrasting, combining and broadening perspectives contributing to learning patient-centredness (Figure 3).

Furthermore, students were able to watch their colleagues' consultations and reflect on what they could have done in the same situation, many times displaying relief on noting that their colleagues' challenges were the same as their own, both during the consultation and during the discussion. (Schweller et al. 2014)

In the workshop, the students were given the possibility to discuss, experience and practice strategies in interaction with each other and with simulated patients. This could have made the students aware of the difficulties associated with communicating with a person with severe aphasia [simulated patient] despite using supportive communication strategies [...] The study shows that the students used supportive communication strategies more frequently as well as used new strategies after the workshop. (Forsgren et al. 2017)

Partial program theory (CIC'MO) 3: SP as feedback giver

Interventions with SPs in their role as feedback giver specifically create contexts in which learners reflect *with* the SP on the SP encounter. Additionally, this context also offers opportunities for peers and teachers to give feedback as well as offering learners to self-assess. We found that this context of reflective practice leads to learners' self-reflection and creates a process of awareness about matters such as the influence of their prejudices, ideas, values and emotions on their performances. The papers describe that these mechanisms foster patient-centredness (Figure 4).

Through sensitizing practice [with the SP], learners examined individual assumptions and comfort levels regarding the topic, identified strategies they practiced in the interaction, and critically reflected on how they address patients' biopsychosocial needs. (Ledford et al. 2014)

Tentative final program theory

We started our realist review with a rough initial program theory, stating that interventions with SPs may create a safe learning environment, in which learners learn individually or with others, triggering a feeling of comfort and reflection, which fosters the learning of patient-centredness. From the results of our study, we were able to create three partial program theories described represented as three CIC'MO-configurations. With these CIC'MO-configurations, we believe that we are able to propose the following tentative final program theory, in which the relationship between the 3 adjusted context situations and according mechanisms is described: interventions with SPs as 'surrogate patient' create a safe learning environment in which learners gain feelings of confidence, comfort and safety. The SPs facilitate learners learning together by contrasting and comparing, and combining and broadening perspectives. The SP in the role of feedback giver facilitates learners to reflect on and become aware of both their performances and personal beliefs, values and emotions, in order to learn dimensions of patient-centredness (see Figure 5). Additionally, the aforementioned safe learning environment contributes to learning from each other when learners feel safe to bring up 'personal topics,' an experience they may share and discuss with their peers. Finally, comparing and contrasting perspectives (when learning from each other) may foster (self) reflection and awareness (in reflective practice) and vice-versa. This is nicely illustrated by the quotes of Fortin, Ledford and Schweller below, respectively CIC'MO 1, 2 and 3. Although we cannot infer a final program theory from our findings, we do believe we are able to substantiate our *tentative* final program theory with middle range theories in the discussion.

Discussion

This realist review focused on how different educational interventions with SPs influence different context situations such that they trigger mechanisms that foster learners to learn patient-centredness. This resulted in a tentative final

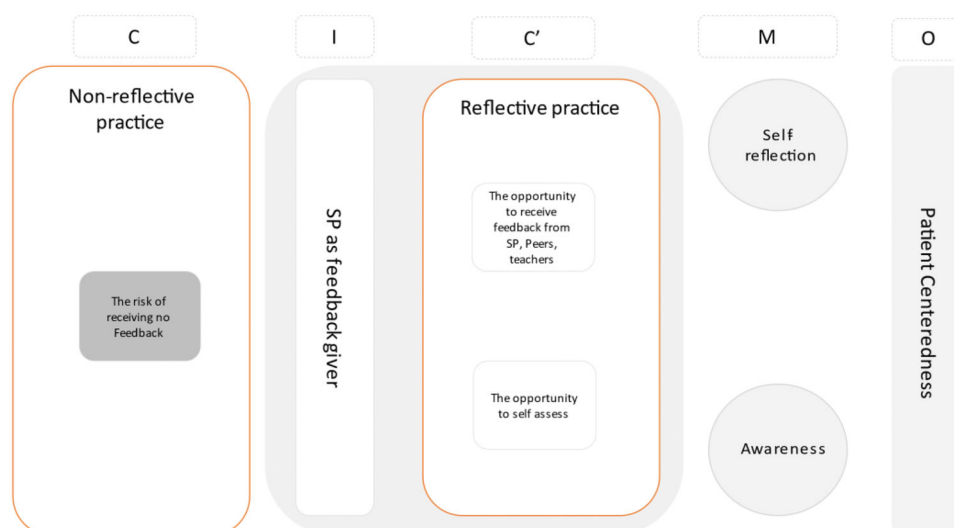


Figure 4. Partial program theory (CIC'MO) 3: SP as feedback giver.

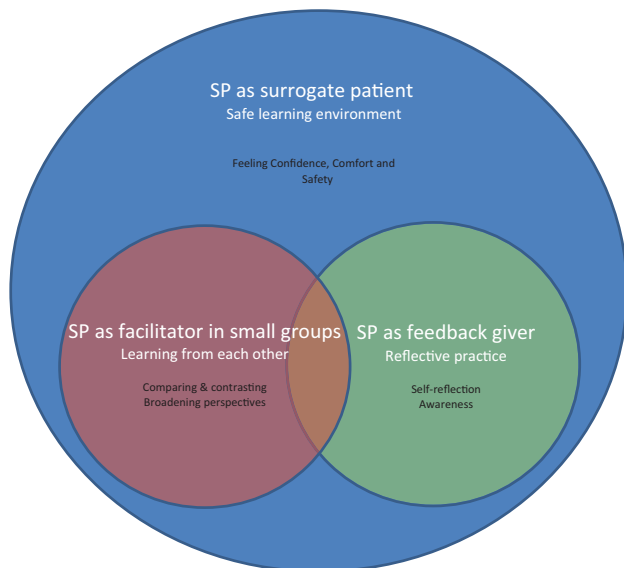


Figure 5. Tentative final program theory.

program theory describing how interventions with SPs lead to specifically three changed contexts. A *safe learning environment* (C), in which learners feel confident, comfortable and safe, which creates space for the two other contexts *learning from each other* and *reflective practice*, which influence each other (Figure 5). On the one hand, an environment in which *peers can learn from each other* (C), enabling them to compare, contrast and broadening their perspectives (M) may create an environment for *reflective practice* (C). Here, feedback of simulated patients, peers and supervisors or self-assessment induces self-reflection and creates awareness (M). On the other hand, *reflective practice* (C) may lead to a situation, in interventions with SPs in a small group, in which *learning from each other* (C) may come to its full potential, enabling learners to compare, contrast and broaden their perspectives.

The mechanisms of our tentative final program theory, match the three main learning components: affection/motivation, cognitive processing and metacognitive regulation (Shuell 1993; Pintrich 1994; Vermunt and Verloop 1999). 'Feeling confidence, comfort and safety' are elements of the affective learning component and may benefit motivation to learn. 'Comparing, contrasting and broadening' may be considered part of cognitive processing. And 'self-reflection and creating awareness' regulate the metacognitive component of learning. This, combined with the context situations in which these mechanisms evolved, may indicate that our tentative final program theory on learning patient-centredness from interventions with SPs covers important parts of the learning process.

Middle range theories to support our program theory

We identified middle range theories to substantiate our tentative final program theory. First of all, the fact that interventions with simulated patients create a safe learning environment, in which learners may be less overwhelmed by emotions and the context may be less complex compared to interventions with real patients, may lead to reduced cognitive load. According to the cognitive load theory (Young et al. 2014), this context results in more space available in learners' working memory enabling them

to process information more easily which optimizes learning. For instance, learners may bring up 'personal topics' more easily, not only because they feel less fear of doing so, but also because they have literally more 'space' in their working memory which enables them to focus on their communication, as part of patient-centredness.

Secondly, because learners feel they may make mistakes without harming the patient, interventions with SPs offer them the opportunity to experiment. This is in accordance to the experiential learning theory of Kolb (Kolb et al. 2014) describing that learners go through cycles of experiential learning, building upon prior knowledge and experiences, steered by feedback and reflection. Specifically, an intervention with an SP serves the learner with the opportunity to receive feedback during or after role-play which offers moments of reflection, through which the learner is able to adjust, improve or change the performance leading to a new experience. The safe learning environment in itself serves as a suitable environment for giving and receiving feedback creating reflective practice (Mann et al. 2009).

Thirdly, when interventions with SPs take place in small groups of learners, they may receive feedback not only from the SP, but also from their supervisor(s) or peers or from themselves through self-assessment, leading to self-reflection and creating awareness. Moreover, interventions with SPs in small groups enable learners to observe each other, i.e. observational learning. This gives them the opportunity to both compare and contrast their performances and ideas to the ones of their peers. It facilitates them to broaden their perspectives, all contributing to becoming patient-centred health care professionals. Besides, applying interventions with SPs in small groups resonates well with the social learning theory stating that learning is a cognitive process in a social context and learners learn through social interaction adjusting their behavior by observing and imitating (Bandura 1977). Also, Vygotsky stated that learners learn more from others, in a social context, than individually (Vygotsky 1978). This is a plea for involving the SPs in small group discussions, thereby broadening their roles in fostering dimensions of patient-centredness, such as patient empowerment and patient involvement.

Finally, our program theory is supported by the self-efficacy theory. Self-efficacy reflects the way a learner feels the ability to perform or complete a task (Bandura 1977) and is strengthened through all three context situations of our program theory and the mechanisms we found: feeling safe and confident, creating awareness and self-reflection and broadening perspectives. It is known that self-efficacy increases when learners feel confident, comfortable and safe, and appraise their comparisons of performances with peers positively (Bandura 1977). Thus, high self-efficacy can serve as a powerful intrinsic motivation to become patient-centred professionals.

Strengths

As far as we know, this is the first realist review and research that sought to find an answer to *how* learners learn patient-centredness from interventions with SPs. Although we realize that there is extensive knowledge about interventions with SPs, we believe that our findings

contribute to the trustworthiness of the existing knowledge. Moreover, with this realist review we tried to unravel the hidden mechanisms that interventions with SPs evoke (in order to learn patient-centredness), something that has not yet been explored in detail before.

The fact that our research group consisted of researchers with varied relevant backgrounds and expertise regarding health sciences education and research specifically with real and simulated patients strengthened this realist review.

Limitations

Although patient-centredness is the outcome in this study, we cannot state that the outcome of the program theory covers all parts of patient-centredness according to Scholl (Scholl et al. 2014). To be clear about which dimensions of patient-centredness we found in the papers, we added [Supplemental Appendix 4](#). Furthermore, as the interventions sometimes were multiple and incomplete described in the papers and also the mechanisms were not always well-defined nor made explicit in the included papers, we sometimes had to make inferences. We validated our inferences by discussing them thoroughly with the other team members. We believe that we were not able to construct a final program theory due to the above described lack in data and the extent of richness of the information in the papers. For that reason we build a *tentative* program theory.

Implications for practice

Our tentative final program theory suggests that interventions with SPs may create the right circumstances to foster patient-centredness. When those interventions are implemented in a curriculum, in the context of a safe environment, students are stimulated to reflect on their performances with SPs. Furthermore, our findings support international guidelines for small group experiential learning (Kurtz et al. 2005) in order to benefit most from learning from each other. Small groups offer students other examples of practices (with SPs) which broadens and deepens their expertise towards being a patient-centred health professional. To optimize learning patient-centredness, learners have to receive feedback from the SPs, supervisor(s) and/or peers, and should be given ample opportunity to reflect on it, preferably in-action, but also on action.

To optimally help students to become patient-centred health care professionals, educators might consider when to use interventions with SPs and when to use interventions with real patients. The results of our study and the results from our earlier realist review on interventions with real patients (de Groot et al. 2020) suggest that interventions with SPs are most suitable when students are in phases of their studies in which they do not yet feel safe and confident enough to practice with real patients. Besides, it seems that SPs are well able to contribute to a context in which reflection is induced. Furthermore, we advise to use interventions with SPs in small groups to empower learning from each other, because students can observe their peers, learn from their peer examples and discuss what they've seen with each other, the teacher and the SPs. We believe that the safe environment and the reflective practice both contribute to this collaborative learning.

Finally, with regard to the dimensions of patient-centredness according to Scholl, interventions with simulated patients seem to foster mainly the enabler *patient-clinician communication* and the principle *clinician characteristics*. In contrast, the use of interventions with real patients seems to be most suitable when students have to get a feel for the impact of diseases on the lives of patients, when they have to learn the whole illness trajectory and when they have to realize that patients are subjects rather than objects. Also, real patients may empower learning patient-centredness by offering students legitimate knowledge. This is supported by the finding that of the dimensions of patient-centredness according to Scholl, all '*Principles*,' describing fundamental propositions for patient-centred care as well as the enabler '*patient communication*' and the activity '*involvement of family and friends*' were most prominent in the realist review on interventions with real patients (de Groot et al. 2020).

Future research

Although we identified contexts and mechanisms that play a role in learning patient-centredness, and were able to create a tentative final program theory, substantiated with middle range theories, future studies should further explore the relationship between the contexts and mechanisms that we found, and how they may contribute to learning patient-centredness. One way to do so is through a realist evaluation; interviews with educators, students and simulated patients may substantiate and explore our findings in more depth (Manzano 2016).

Secondly, we considered the different roles of SPs to explain the changed contexts and mechanisms evoked. We suspect the roles of SPs can be more diverse than described in the papers and as such may add to a more profound view on our CICMO's and tentative final program theory. However, to be able to explore the relationship between interventions with different roles of the SPs, the changed contexts and the mechanisms evoked, it is important that future researchers describe the interventions with SPs in more detail (Meinema et al. 2019). Finally, we found that three dimensions of the model of patient-centredness of Scholl, the activities '*patient information*' and '*physical support*,' and the enabler '*teamwork*,' were not covered in the included studies. Future research has to shed light on whether and how interventions with SPs focussing on these dimensions may support learning patient-centredness.

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References

Astbury B, Leeuw FL. 2010. Unpacking Black Boxes: mechanisms and theory building in evaluation. *Am J Eval*. 31(3):363–381.

Bandura A. 1977. Self-efficacy: toward a unifying theory of behavioral change. *Psychol Rev*. 84(2):191–215.

Bokken L, Linssen T, Scherpier A, Van Der Vleuten C, Rethans JJ. 2009. Feedback by simulated patients in undergraduate medical education: a systematic review of the literature. *Med Educ*. 43(3):202–210.

Cleland JA, Abe K, Rethans JJ. 2009. The use of simulated patients in medical education: AMEE Guide No 42.1. *Med Teach*. 31(6):477–486.

Dalkin SM, Greenhalgh J, Jones D, Cunningham B, Lhussier M. 2015. What's in a mechanism? Development of a key concept in realist evaluation. *Implement Sci*. 10(1):49.

de Groot E, Schönrock-Adema J, Zwart D, Damoiseaux R, Van den Bogerd K, Diemers A, Grau Canét-Wittkampf C, Jaarsma D, Mol S, Bombeke K. 2020. Learning from patients about patient-centredness: a realist review: BEME Guide No. 60. *Med Teach*. 42(4):380–392.

Duggan A, Bradshaw YS, Carroll SE, Rattigan SH, Altman W. 2009. What can I learn from this interaction? a qualitative analysis of medical student self-reflection and learning in a standardized patient exercise about disability. *J Health Commun*. 14(8):797–811.

Fallowfield L, Lipkin M, Hall A. 1998. Teaching senior oncologists communication skills: results from phase I of a comprehensive longitudinal program in the United Kingdom. *J Clin Oncol*. 16(5):1961–1968.

Forsgren E, Hartelius L, Saldert C. 2017. Improving medical students' knowledge and skill in communicating with people with acquired communication disorders. *Int J Speech-Lang Pathol*. 19(6):541–550.

Fortin AH, Haeseler FD, Angoff N, Cariaga-Lo L, Ellman MS, Vasquez L, Bridger L. 2002. Teaching pre-clinical medical students an integrated approach to medical interviewing half-day workshops using actors. *J Gen Intern Med*. 17(9):704–708.

Goldfarb MJ, Bibas L, Bartlett V, Jones H, Khan N. 2017. Outcomes of patient- and family-centered care interventions in the ICU: a systematic review and meta-analysis. *Crit Care Med*. 45(10):1751–1761.

Greenberg LW, Ochsenschlager D, O'Donnell R, Mastruserio J, Cohen GJ. 1999. Communicating bad news: a pediatric Department's evaluation of a simulated intervention. *Pediatrics*. 103(6):1210–1217.

Kolb DA, Boyatzis RE, Mainemelis C. 2014. Experiential learning theory: previous research and new directions. In: *Perspect Thinking, Learn Cogn Styles* [Internet]. [place unknown]; p. 227–247.

Kurtz S, Silverman J, Draper J. 2005. Teaching and learning in medicine. *Health Expect*. 8(4):363–365.

Ledford CJ, Seehusen DA, Canzona MR, Cafferty LA. 2014. Using a teaching OSCE to prompt learners to engage with patients who talk about religion and/or spirituality. *Acad Med*. 89(1):60–65.

Mann K, Gordon J, MacLeod A. 2009. Reflection and reflective practice in health professions education: a systematic review. *Adv Health Sci Educ Theory Pract*. 14(4):595–621.

Manzano A. 2016. The craft of interviewing in realist evaluation. *Evaluation*. 22(3):342–360.

Mead N, Bower P. 2000. Patient-centredness: a conceptual framework and review of the empirical literature. *Soc Sci Med*. 51(7):1087–1110.

Meinema JG, Buwalda N, van Etten-Jamaludin FS, Visser M, van Dijk N. 2019. Intervention descriptions in medical education: what can be improved? a systematic review and checklist. *Acad Med*. 94(2):281–290.

Nikendei C, Bosse HM, Hoffmann K, Möltner A, Hancke R, Conrad C, Huwendiek S, Hoffmann GF, Herzog W, Jünger J, et al. 2011. Outcome of parent-physician communication skills training for pediatric residents. *Patient Educ Couns*. 82(1):94–99.

Pawson R, Greenhalgh T, Harvey G, Walshe K. 2005. Realist review – a new method of systematic review designed for complex policy interventions. *J Health Serv Res Policy*. 10(1_suppl):21–34.

Pilnick A, Trusson D, Beeke S, O'Brien R, Goldberg S, Harwood RH. 2018. Using conversation analysis to inform role play and simulated interaction in communications skills training for healthcare professionals: Identifying avenues for further development through a scoping review 08 Information and Computing Sciences 0801 Artif. *BMC Med Educ*. 18(1):1–10.

Pintrich PR. 1994. Continuities and discontinuities: future directions for research in educational psychology. 137–148.

Poore JA, Cullen DL, Schaar GL. 2014. Simulation-based interprofessional education guided by Kolb's experiential learning theory. *Clin Simul Nurs*. 10(5):e241–e247.

Rathert C, Wyrwich MD, Boren SA. 2013. Patient-centered care and outcomes: A systematic review of the literature. *Med Care Res Rev*. 70(4):351–379.

Robinson JH, Callister LC, Berry JA, Dearing KA. 2008. Patient-centered care and adherence: Definitions and applications to improve outcomes. *J Am Acad Nurse Pract*. 20(12):600–607.

Rosenbaum ME, Kreiter C. 2002. Teaching delivery of bad news using experiential sessions with standardized patients. *Teach Learn Med*. 14(3):144–149.

- Scholl I, Zill JM, Härter M, Dirmaier J. 2014. An integrative model of patient-centeredness-A systematic review and concept analysis. *PLoS One*. 9(9):e107828.
- Schweller M, Costa FO, Antônio MÂR, Amaral EM, De Carvalho-Filho MA. 2014. The impact of simulated medical consultations on the empathy levels of students at one medical school. *Acad Med*. 89(4): 632–637.
- Shepperd S, Lewin S, Straus S, Clarke M, Eccles MP, Fitzpatrick R, Wong G, Sheikh A. 2009. Can we systematically review studies that evaluate complex interventions? *PLoS Med*. 6(8):e1000086.
- Shuell TJ. 1993. Toward an integrated theory of teaching and learning. *Educ Psychol*. 28(4):291–311.
- Smith RC, Dwamena FC, Grover M, Coffey J, Frankel RM. 2011. Behaviorally defined patient-centered communication—a narrative review of the literature. *J Gen Intern Med*. 26(2):185–191.
- Thistlethwaite JE, Ridgway GG. 2014. The content and process of simulated patient-based learning activities. *Simulated Patient Methodol Theory, Evid Pract*. 2014:ch3.
- Thompson BM, Teal CR, Scott SM, Manning SN, Greenfield E, Shada R, Haidet P. 2010. Following the clues: teaching medical students to explore patients' contexts. *Patient Educ Couns*. 80(3):345–350.
- Vermunt JD, Verloop N. 1999. Congruence and friction between learning and teaching. *Learn Instr*. 9(3):257–280.
- Vygotsky LS. 1978. *Mind in society, the development of higher psychological processes*. Cambridge: Harvard University Press.
- Watling CJ, Brown JB. 2007. Education research: communication skills for neurology residents: structured teaching and reflective practice. *Neurology*. 69(22):E20–E26.
- Wong G, Greenhalgh T, Westhorp G, Buckingham J, Pawson R. 2013. RAMESES publication standards: realist syntheses. *BMC Med*. 11:21.
- Yardley S, Irvine AW, Lefroy J. 2013. Minding the gap between communication skills simulation and authentic experience. *Med Educ*. 47(5):495–510.
- Young JQ, Van Merriënboer J, Durning S, Ten Cate O. 2014. Cognitive load theory: implications for medical education: AMEE Guide No. 86. *Med Teach*. 36(5):371–384.