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Learning from patients about patient-centredness: A realist review: BEME Guide No. 60

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ABSTRACT

Background: Patient-centred work is an essential part of contemporary medicine. Literature shows that educational interventions contribute to developing patient-centredness, but there is a lack of insight into the associated learning processes.
Objective: Through reviewing articles about educational interventions involving patients, we aspire to develop a program theory that describes the processes through which the educational interventions are expected to result in change. The processes will clarify contextual elements (called contexts) and mechanisms connected to learning patient-centredness.
Methods: In our realist review, an initial, rough program theory was generated during the scoping phase, we searched for relevant articles in PubMed, PsycINFO, ERIC, CINAHL and Embase for all years before and through 2016. We included observational studies, case reports, interviews, and experimental studies in which the participants were students, residents, doctors, nurses or dentists. The relevance and rigour of the studies were taken into account during analysis. With deductive as well as inductive coding, we extended the rough program theory.
Results: In our review, we classified five different contexts which affect how upcoming professionals learn patient-centredness. These aspects are influenced through components in the intervention(s) related to the *learner*, the *teacher*, and the *patient*. We placed the mechanisms together in four clusters – *comparing and combining* as well as *broadening perspectives, developing narratives and engagement with patients, self-actualisation*, and *socialisation* – to show how the development of (dimensions of) patient-centredness occurs. Three partial-program-theories (that together constituting a whole program theory) were developed, which show how different components of interventions within certain contexts will evoke mechanisms that contribute to patient-centredness.
Translation into daily practice: These theories may help us better understand how the roles of patients, learners and teachers interact with contexts such as the kind of knowledge that is considered legitimate or insight in the whole illness trajectory. Our partial program theories open up potential areas for future research and interventions that may benefit learners, teachers, and patients.

Introduction

In contemporary medicine, a doctor should consider the patient's situation and listen to his or her values, preferences and needs. Such a patient-centred approach has been recognised as indispensable in the work ethics of physicians, even though what is meant with the term patient-centredness varies (Mead and Bower 2000; Michie et al. 2003; Robinson et al. 2008; Smith et al. 2011). After an analysis of existing conceptual definitions, Scholl et al. identified 15 dimensions of patient-centredness, which could be packed together into three clusters: *principles, activities* and *enablers* (2014). Examples of dimensions within the *principles* cluster are the essential characteristics of the clinician, the patient as a unique person and the bio-psychosocial perspective, examples of dimensions within the *activities* cluster are patient involvement in care and emotional support, and examples of dimensions within the *enablers*

cluster are clinician-patient communication as well as teamwork and teambuilding (Scholl et al. 2014). A recent review update showed positive effects of communication skills interventions on patient-centredness during consultations (Dwamena et al. 2012). Outcomes on the patient level (e.g., adherence to treatment plans) were partly positive but less evident. Even though there was a large heterogeneity of the studies included, the conclusion based on Dwamena et al. (2012) was that educational interventions (from now on we will use the term 'intervention') help providers to improve patient-centred care through transferring new skills.

Despite the facts that the importance of patient-centredness is generally acknowledged and that studies focusing on teaching a patient-centred approach show positive effects (Dwamena et al. 2012; Maatouk-Bürmann et al. 2016), there is still insufficient knowledge regarding how to create good designs to optimise learning patient-

Practice points

- Educational interventions should involve patients more often in the role of a teacher or as someone who can tell the learner what an illness means in daily life, as these patient roles seem connected with relational mechanisms that foster patient-centred outcomes (in future health professionals).
- Educators and developers may profit from knowledge about the impact of context. Five different contexts seem relevant when upcoming professionals should learn patient-centredness: a) No access to the whole illness trajectory of real people; b) Non-patient-centred role models; c) Patients are seen as an object; d) No time to connect with patients; e) Only certain knowledge is considered legitimate.
- Context can be changed/altered through learner, patient and teacher components in the intervention(s) so that learning occurs through four types of mechanisms, namely a) comparing and combining as well as broadening perspectives, b) developing narratives and engagement with patients, and c) self-actualisation, and d) socialization.
- Developers could think more broadly about role models of student-centred teachers who do not only showcase patient-centred behaviour but also give feedback to learners and show and or discuss his or her emotional feelings and experiences.
- Research in the domain of patient-centredness might benefit from a broader look at patient-centredness: not only looking at 'clear' dimensions such as 'the patient as a unique person' but also at the teamwork necessary to obtain these attitudes in a busy ward.

centredness. For instance, it is not yet clear how interventions contribute to patient-centredness and under which circumstances. To this end, we need to improve our understanding of the mechanisms through which learners become patient-centred to understand why a certain design is effective in a specific context. Such questions call for research into interventions that is grounded in a realist paradigm, focused on what works for whom, in which situation, and why (Pawson and Tilley 2004).

Given recent developments – implying that patients are seen more as a partner in education, research and care (Bleakley and Bligh 2008; Bell et al. 2009) – we focused this review on interventions in which patients play an active role. Many studies describe the value of giving real patients a more active role in teaching within medical education because patients are seen as experts in living with their medical conditions (Wykurz and Kelly 2002; Jha et al. 2009a, 2009b; Towle et al. 2010; Henriksen and Ringsted 2014). An active role of real patients as an educator was valued because their contributions made learning more real (Bell et al. 2009). Towle et al. (2010) stated that learning patient-centredness asks for the involvement of real patients in

education. In this realist review, we included articles that evaluated interventions, diverse in design, in which patients were an essential part of the learning experience.

The purpose of our review is to describe different interventions that aimed to help participants to become patient-centred and to find out how, i.e., through which mechanisms, participants in these interventions respond in different contexts (Wong 2012; Wong et al. 2016). Through a comparison of these descriptions, the contexts, the mechanisms and the broader literature about (learning) theories, a program theory will be generated on how participants develop patient-centredness within specific contexts.

Methods

Our review was performed using a realist review approach which aims to produce explanations of why different contexts trigger mechanisms that lead to outcomes (Pawson and Tilley 2004). To understand how interventions lead or do not lead to an effect, clarification of causation is necessary (Wong 2012). Realist reviews aim for formulating configurations described with different abbreviations such as CIMO, CMO, CICMO, depending on the presence and the centrality of an intervention in the study (Ellwood et al. 2017; Emmel et al. 2018, p. 88). In these abbreviations, C stands for Context, I = Intervention, M = Mechanism and O = Outcome. We use Context-Intervention-Context-Mechanism-Outcome (CICMO) because this configuration implies the identification of paths through which interventions in a particular context affect this context (C-I-C), which in turn trigger mechanisms (M) that bring about the outcomes (O), in our case becoming patient-centred. From the CICMO configurations, we developed partial program theories. A program theory explains the connections between components in (educational) interventions, contexts, and the underlying mechanisms that are presumed to be responsible for outcomes (Lacouture et al. 2015). For a definition of these concepts, we refer to the glossary (Supplementary Appendix 1).

Search sources and strategy

We conducted an initial scope of the literature which helped us to identify which definitions for patient-centredness were used and the different intervention-types described that aim for developing patient-centredness in participants. We discussed the outcomes of this scoping of the literature within the team, in which one author has written her doctoral thesis on patient-centredness in medical students (KB), another author on learning from preclinical patient contacts (AD), and two others (SM, DZ) were involved in a patient panel intervention within a Dutch medical curriculum (Mol et al. 2019). During these discussions, a major discussion point was whether we should limit our search to patient panels only (where we expected the yield to be minimal) or a broad range of interventions without limitation up-front. We initially decided upon the latter. Also, the team identified several theories that seemed useful for formulating a program theory. We discussed theories already known to the authors and searched for literature about these theories. This search was informal, browsing the literature.

Initially, our program theory was informed by our knowledge of existing theories on learning that we expected to be relevant in interventions aiming for patient-centredness, such as situated learning and social learning theory (Bandura 1977; Lave and Wenger 1991). Then we identified more specific mechanisms from the literature on learning patient-centredness. The first was that when the intervention allows for hearing patients' opinions, learners will become more aware of what they need to improve (Wykurz and Kelly 2002). The second one was that by experiencing the patient-contact, learners saw patients more as human beings than as numbers or diseases (Henry-Tillman et al. 2002). These two mechanisms, greater awareness and contextualising disease, were considered for a rough program theory. Rough, since the importance of the context was not considered yet. After our orienting search, we constructed a search string to find papers to refine and explicate our program theory (see Supplementary Appendix 2). The details on our search and the decisions we took along the way are, for the sake of readability, included in Supplementary Appendix 3.

Full-text screening

Out of 590 articles, we succeeded to obtain 554 full-text articles. Several research team members (KB, KvdB, EdG, CW, SM, JSA, AD) individually judged the full texts to find out whether the articles concerned interventions with real patients. During this process, we excluded 204 articles because the articles did not meet the in- and exclusion criteria. In 122 of the remaining 350 full-text articles, patients turned out not to be part of the intervention, resulting in 228 articles with real patient interventions.

Full-text screening for the mechanisms

As a research team, we came to a mutual view on what to consider a mechanism, based on methodological papers on how to judge an article on the presence of a mechanism, and whether the full text described a mechanism in sufficient detail (Astbury and Leeuw 2010). After this discussion, all team members individually read and judged the same set of five articles and then discussed these to see if they could agree upon the presence of a described mechanism.

After this exercise, we divided the remaining articles into sets. Each of three couples individually read a set of articles to screen on the presence of a mechanism; in other words, to find out whether the authors mentioned, somewhere in the article, how they expected their intervention to work or whether the results entailed findings that might be seen as mechanisms. After screening the articles individually, the members within a couple compared their outcomes and discussed disagreements and, if the couples did not reach consensus, passed the articles on to the team to have them independently screened and discussed in the larger team. For the qualitative papers, we also evaluated whether the descriptions were rich enough for further analysis (Booth 2016). After these steps, a set of 32 papers remained.

Data extraction

We used Excel to make an overview of the characteristics of the interventions. With NVivo 11, we performed the final analysis of mechanisms, contextual elements (from now on called 'contexts' or, when singular, 'context'), intervention components and outcomes. The final set was read in detail and analysed by two researchers (EdG, KB). The quality of the studies considered as rich enough for further analysis was appraised by the other members of the research team, based on the methods of the Joanna Briggs Institute for the distinct research designs (http://joannabriggs.org/) to add information about the included papers.

Synthesis of extracted evidence

Below, we describe the way in which we identified the contexts, mechanisms, intervention components and outcomes, plus how these contributed to an adjusted program theory.

Contexts

Contexts were considered to be individual, institutional and infrastructural characteristics external to the intervention. Context is not the same as 'the environment in which an intervention is implemented' but also, a group of people with specific views for whom an intervention might work. We coded fragments in the papers in which authors described contexts, for example, the workplace culture, that we considered as relevant for the mechanisms. In most instances, we could not compare the same interventions with regard to context because the papers retained did not contain enough information about the contexts or because the contexts of the interventions were not equal. Often, the contexts were described in the introduction of a paper as a rationale for starting with the intervention but not mentioned explicitly as part of the environment in which the intervention was implemented. We could not always find evidence for the way in which interventions affected these contexts, and we were hampered by the limited manner in which the contexts were described in most papers. Papers in which the results or discussion sections also described what the contexts looked like after the intervention had taken place, as opposed to the original contexts in which the intervention was implemented, were given additional weight in our analysis.

Intervention

We allowed for any intervention suiting our criteria to be included in our review (Table in Supplementary Appendix 3). Therefore, the final set of interventions included was heterogeneous. We identified components within these interventions that we expected to affect the context, such as the role of the student, the patient and the teacher of the intervention (for an example, see the results section), based on the broader literature (Bombeke et al. 2010; Towle et al. 2010). The intervention component provides a resource to which participants respond (with behaviour or different attitudes). This response, in turn, helps to remediate contextual problems that hinder learning or to enhance contexts that stimulate learning.

Mechanism

We identified mechanisms expected to be activated when people participate in these interventions and hence increase the chance for a successful outcome, being patient-centredness. These mechanisms existed on a personal level and can be described as the reasoning and responses of individual participants that result from the changed context (Astbury and Leeuw 2010). Through discussions among the researchers, we made sure that mechanisms identified were not intervention components and as such would have been 'designed' or 'implemented', but rather concerned the processes that cause the outcomes. An illustration of the complexity of these considerations can be seen in the description of the mechanism labelled 'reflection'; we had to be very clear that reflection as an 'assignment' was not what the researchers inferred from the data (see Supplementary Appendix 4).

Intended outcomes

The patient-centredness dimensions of Scholl were coded in the results and discussion sections of the papers (Scholl et al. 2014). Because the included papers were primarily qualitative papers, outcomes were, in many instances, not clearly defined and measured.

Developing and adjusting the program theory

Based on the findings of our realist review, we developed and adjusted our rough program theory through the following steps. Through inductive coding, we identified intervention components, contexts, mechanisms, and outcomes in the papers. Next, we determined the relevance of the contexts through a judgement whether these contexts occurred sufficiently in our 32 papers. This judgement was based on the number of papers in which a specific context was mentioned, the coding density and the richness of the fragments. After this, we developed configurations by analysing whether and which intervention components influenced the context and how. This influence could be described in the paper (anticipated or resulting from the study) or could be inferred by us as researchers, using queries within NVivo to support the linkages. To elucidate the influence of an intervention component, we interpreted whether the intervention component provided a solution for those situations where the context constrained the learning of patient-centredness, or an enhancement when the context was beneficial for learning patient-centredness. For example, some interventions explicitly aimed to change the power balance in a context where power constrained learning.

When our data indicated a link between the intervention component and the context, we considered which mechanisms were described in those papers. Here also, the coding density and co-occurrence of coding within papers, as shown through NVivo queries, supported our analysis. In discussions between researchers (KB, EdG) and grounded in fragments from the papers as the data, we established which of these mechanisms were expected to be a response to the intervention component within this context. For example, the context of an authentic learning situation labelled as insight into the whole illness trajectory of the patient, in which patients act as a teacher, evokes a

response in learners of emotional commitment. Finally, also with the support of the NVivo functionality, close-reading of the papers and discussion among the researchers (KB, JS, EdG), we linked outcomes in the included papers to mechanisms. In this manner, CICMO configurations were established, which we subsequently discussed with the whole team, and from the configurations, we developed and visualised partial-program theories, intended to contribute to a more advanced whole program theory that informed us about what works for whom, why and how, and under which circumstances. At this stage, we returned to background papers that we identified in the first title-abstract screening phase as relevant but that did not meet our inclusion criteria as they were theoretical rather than empirical papers. We explored those papers (and additional ones found through snowball sampling) to check whether they could be helpful to refine our partial program theories and consequently our whole program theory (see discussion section).

We discussed the placement of mechanisms into clusters, to make the partial program theories more succinct. For this process, the collective knowledge of all researchers about (learning) theories was used to connect the inductively derived mechanisms to middle-range theories. In searching informally for additional literature on these theories, we established which theories were most appropriate.

Results

The search strategy and the assessment for eligibility resulted in a set of 32 articles that were included in this review. For reasons of readability, the PRISMA scheme is included as Figure 1 in Supplementary Appendix 3. In Supplementary Appendix 5, an overview is presented of the studies included. Most studies were performed in hospital settings in North America. The majority of papers were about students, not residents or professionals, and 25 out of the 32 papers had a qualitative design.

Interventions

Different characteristics of the interventions were identified (see Supplementary Appendix 6). Below, we describe the intervention components that we have explored for our partial program theories. These intervention components are issues that a developer of a whole educational program might design for: learners can be given the role of a chronicler for example, or teachers can be asked and trained to take up the role of a carer.

Learner role

Learners may have different roles in the intervention. They can have a medical role, the role of a chronicler, a trainee, a patient advocate, or a listener. The first two roles (medical and chronicler) were present in several papers, and therefore both of these roles will be described and were included in our partial program theories. Within the intervention, a learner may have a chronicler role when he or she is required to ask about and present a patient's life story.

In contrast to the eight papers about the chronicler role, in the papers with learners' roles as trainees and listeners,
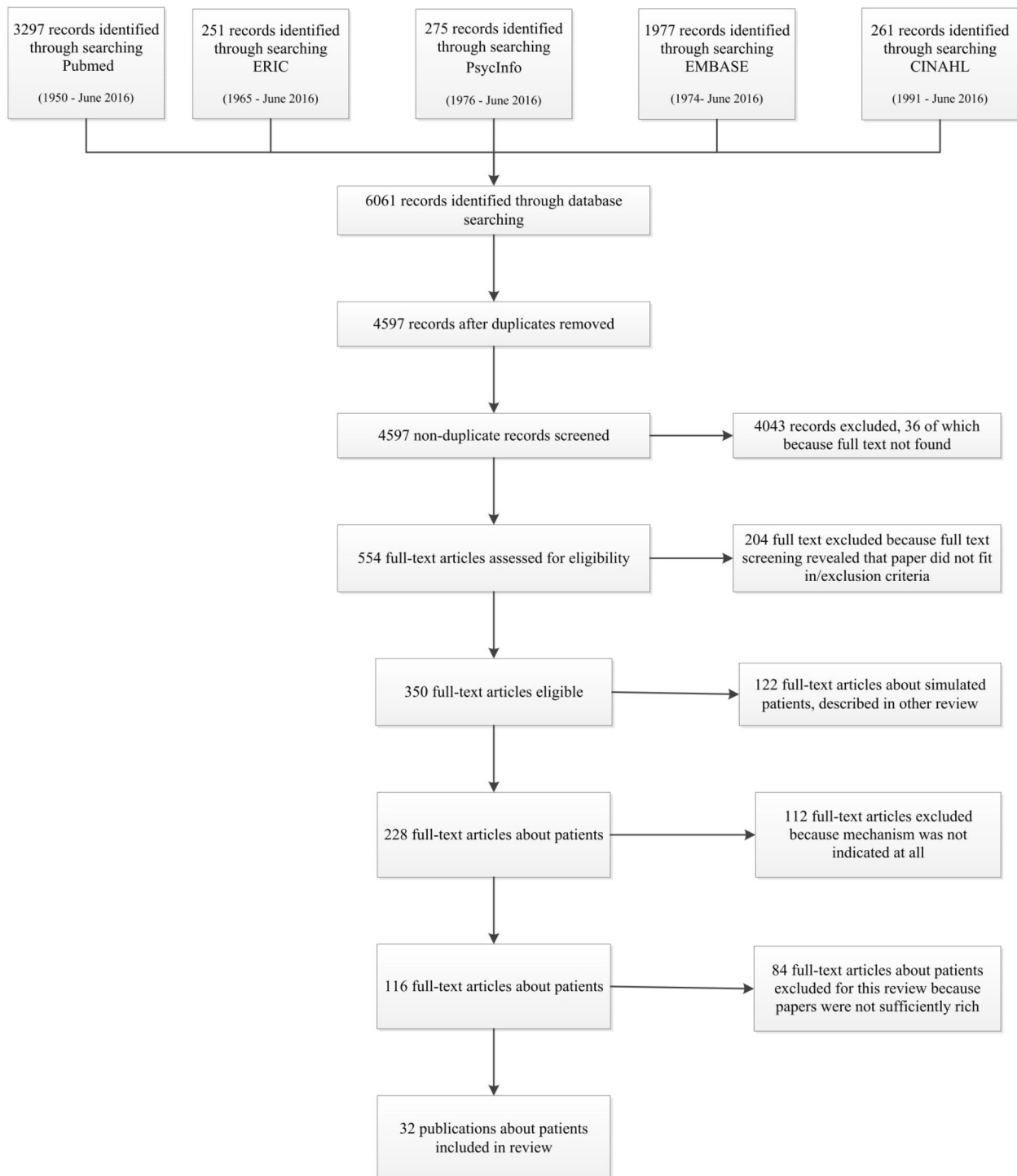
Figure 1. PRISMA scheme for the selection of the included papers.

the focus was on gathering information about a patient's illness(es). The learner has a medical role (seen in 13 papers) when, within the intervention, the learner is given real responsibilities for patient care and becomes part of the healthcare team.

Patient role

In many papers, the patient does not have an explicit role, he or she is present, and the learner cares for the patient. Nevertheless, two broad categories of patient roles were identified, namely as an informant and as a teacher. In nine papers, the patient has an autonomous role, without the teacher playing a role as a go-between the learner and the patient. The patient has a role as an informant about

the disease in daily life, where the learner asks questions about the patient's life and what the disease means for the patient. The patient interacts, often in the own home environment, as an informant about the disease in daily life with the learner.

In other papers (6), the patient has a more active role as a teacher. Patients with a teacher role were sometimes also involved in designing the intervention and deciding on the learning goals.

Teacher role

We identified different roles that a teacher or supervisor might have, namely the roles of carer or assessor. One of the roles, identified in seven papers, implies that the

teacher is not primarily the 'expert who will give all the answers' but rather someone who cares for the learners and recognizes that interactions with severely ill people for the first time might be challenging. As such, he or she takes on a learner-centred role, which we describe as the role of the carer. In seven papers, the teacher had a role as an assessor. The teachers in these papers did seem to feel that their primary responsibility was to assess whether the students made sufficient progress and were 'good enough', which is in contrast with the role of a carer where teachers feel their primary responsibility is to support the learners.

Other intervention components

We identified different intervention components such as whether the intervention is mandatory (as opposed to voluntary), performed purposely in a setting where connecting with patients is more customary or a recognised element in the curriculum. These aspects were considered pertinent due to the relevance of a context related to lack of time (see below, under contexts). We could not identify clear CICMO configurations around these intervention components and therefore these components will not be included further.

Contexts

We identified five contexts that seem important for eliciting mechanisms that are relevant for learning patient-centredness. The first context was the presence of legitimate people (teachers or patients) who are considered as providing worthwhile knowledge or of legitimate knowledge, knowledge considered as being worthwhile to learn.

> Students hold a largely bio-medical, hi-tech vision of nursing, reinforced by what is seen as being 'high status' in clinical areas. Understanding signs, symptoms and syndromes become the main focus for students' sense of purpose, achievement and significance. If reinforced, this remains the dominant value that students hold as they qualify. [E]

A distinct aspect of this context that was intertwined in the fragments about legitimacy was the way power relations or hierarchy between learners and patients are present in the context.

> Students questioning the credibility of patients' knowledge or the legitimacy of patient-led teaching can be interpreted in terms of their unconsciously trying to maintain or protect traditional power relations. [Q]

The second context was the occurrence of dehumanizing influences; for instance, the negative consequences of seeing patients as objects instead of human beings. In many papers, such influences were referred to in fragments mentioning a need for efficiency and administrative burden or referring to the hidden curriculum.

> Medicine was described as objectifying patients with its focus on the technical and empirical, rewarding those with technical prowess with more ''prestige'': They are seen as a medical thing and not a human, not a person … the message is: we want to fix your heart failure. [AA]

The third context pertained to the availability of good role models before the intervention took place. When *seeing and interpreting* role models was visible in the results or discussion sections of a paper as the process by which

the outcome was reached, we coded this response to role models as a mechanism rather than as context. Role models and their relevance for the success of an intervention was, for example, visible in the following quotation:

> It may have also been due to a lack of instructors who felt confident in their ability to demonstrate interviewing techniques. Although physicians had the necessary clinical experience, they were rarely familiar with patient-centred interviewing techniques. [C]

The fourth context concerned the integrality and coherence of the learning situation, which we labelled as 'insight in the whole illness trajectory', especially relevant in those periods in a curriculum where learners did not have clinical education yet. The interventions generated a kind of 'in-between' space where learners were not just practising with hypothetical cases, but at the same time were not overwhelmed by all the things they would experience when entering clinical practice with the risk of forgetting about patient-centredness.

> Learning about how to have difficult conversations was seen as disconnected from clinical work: "It's not really built into clinical education … we talk about it in tutorials and hypothetical cases … when you first have a patient who is dying, you avoid talking about it because you don't have the words and don't know what to say. So you just withdraw". [AA]

Having time to connect with patients was the fifth context that we considered relevant. In our analysis, we identified that the core of an inhibiting context was that there was no (or limited) time to connect with patients. In the papers, this kind of narratives related to perceived rather than to actual time. An aspect of this 'no time' narrative is that emotions and connecting with patients are perceived as time-consuming and as a risk for your self-preservation as a professional in a busy ward.

> … and a message that there isn't time to listen to a person's story. Further, they are learning that getting 'emotional' or 'close' may actually be seen as unprofessional or even dangerous, especially when it puts ''self-preservation'' at risk. […] This strongly articulated message that an experienced physician shouldn't or doesn't have time to show emotion … [AA]

Identification of mechanisms

Supplementary Appendix 4 provides an overview of the mechanisms identified and a description for each mechanism. We describe two examples below to explain the concept of mechanisms further. A first example is a mechanism called "Being emotionally involved with others and experiencing affective identification", which is seen in fragments such as:

> The emotional impact of the volunteers' stories gave students motivation to change and develop as physicians. Students consistently expressed—either explicitly or implicitly—how they wished to incorporate ''lessons'' from the stories they heard into their own approach to patients. [T]

The stories were an aspect of the intervention while the impact of these stories is that they elicit an unconscious response from the participants (a mechanism) within certain contexts.

The second example of a mechanism is 'Contextualizing disease with the life stories of real people':

A central finding in all focus groups was feelings of respect and admiration for patients, who had often endured many traumas and setbacks during life, yet still maintained a positive attitude. For young students relatively inexperienced in life's adversities, the meeting with a person who had a much longer life perspective was a powerful experience. 'Think positively and remember to be optimistic', my patient did not say it directly, but I thought to myself several times 'she has lots of energy – I hope I will be like that when I get to her age'. [N]

These mechanisms may be on a cognitive level or a more psychological, unconscious, level. In developing the program theory, we identified four clusters of mechanisms:

1. *Comparing and combining as well as broadening perspectives.* Some of the included papers focused on observing other perspectives primarily, while in other papers the emphasis was on contrasting and connecting previously known perspectives with new ones. In this cluster, we included all mechanisms that presume a cognitive or rational response to the changed context and the intervention component.
2. *Developing narratives and engagement with patients.* In this cluster, the mechanisms are relational and assume social learning. Some of the mechanisms have a focus on developing narratives as meaning making while others were about developing or changing relationships.
3. *Self-actualisation.* This cluster includes mechanisms that have a focus on the learning of the self, through individual learning processes, such a feeling useful or inspired.
4. *Socialisation.* This cluster consists of mechanisms that pertain to adaptation or adjustment to the social environment.

Outcomes

The overview shown in Supplementary Appendix 7(A) gives a general impression which dimensions of patient-centredness (Scholl et al. 2014) were covered in the included papers. In sum, in the majority of the interventions, the intended outcomes concerned dimensions such as '*the patient as a unique person*' while in the minority of the interventions, the intended outcomes concerned dimensions from the enablers cluster, such as *coordination and continuity* and *teamwork*. In Supplementary Appendix 7(B) an overview is presented of the mechanisms that we inferred most frequently from those papers in which a specific outcome was described. Not all dimensions of Scholl et al. (2014) were seen in our data.

Partial program theories

After identifying the separate elements of the CICMO, we went back to the included coded papers and developed CICMO configurations (see Supplementary Appendix 8). For the contexts and the intervention components in our set of included papers, we developed three partial program theories. These are visualised (see the Figures below) in the following manner: first, starting at the left, the existing context is depicted, followed by the intervention component which occurred in the data and the changed context resulting from the intervention component. Then the mechanisms are shown that were triggered by the intervention component through the change in context, which contributes to learning patient-centredness. The boldness of the lines reflects the degree to which the configurations were present in the data.

Partial program theory 1: learner role

In our data, we identified two learner roles in the interventions: the learner (1) as a medical professional and (2) as a chronicler. Although we also identified other roles in the papers, the accompanying CICMO's were less clear. For the role of a medical professional (depicted in Figure 2), the mechanisms inferred the most are: *feeling competent in doing what you do*; *feeling welcome, safe, and secure* [both in 'self-actualisation']; and *seeing and assimilating role models* [socialisation]. Even though the medical role was mentioned explicitly in papers about longitudinal interventions, often the same mechanisms and outcomes were seen in papers in which the setting was not longitudinal but consisted of several meetings in a short time span. For the role of the chronicler (not depicted in the Figure), the most
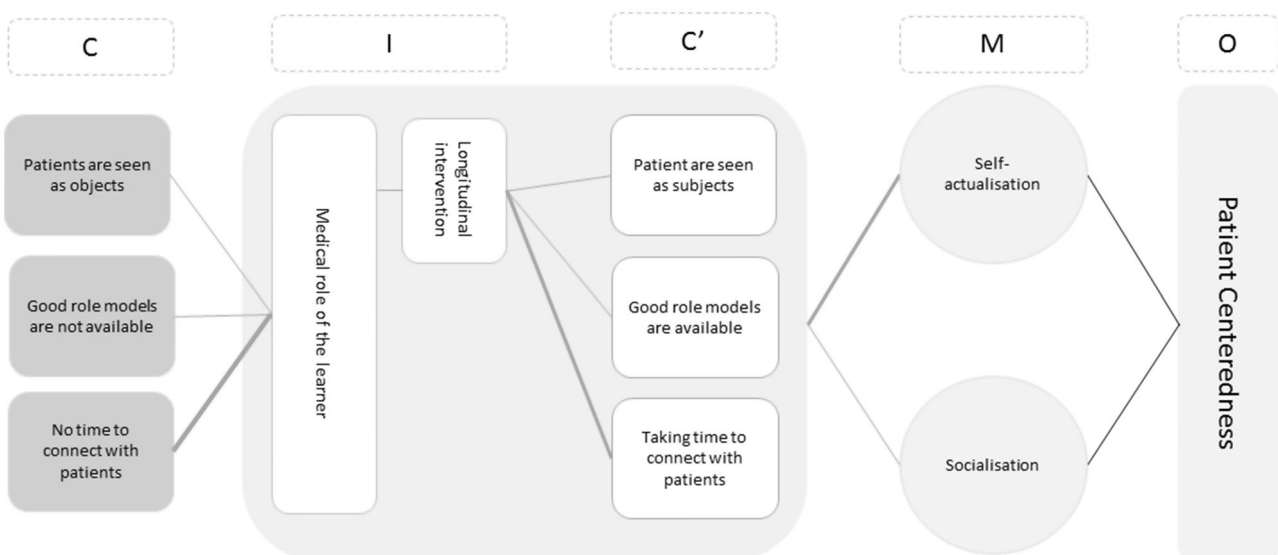

Figure 2. Visualisation of the partial program theory for the role of the learner as a medical professional.
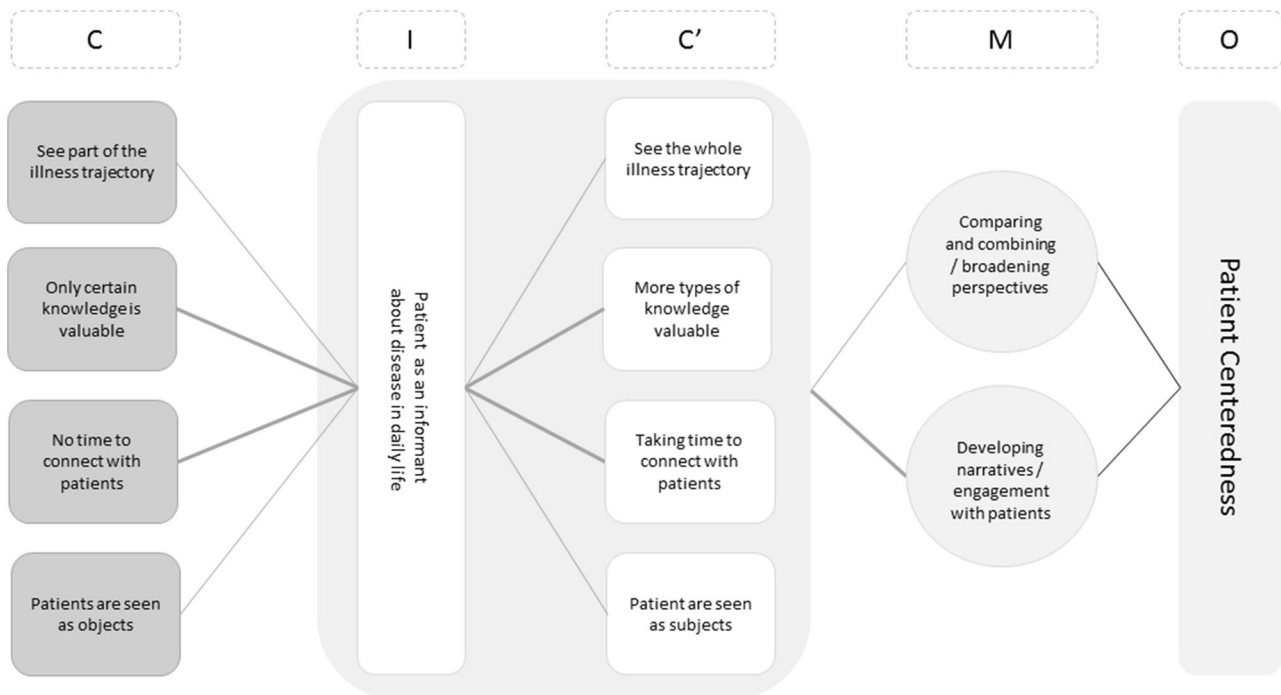
Figure 3. Visualisation of the partial program theory for the role of the patient as an informant about daily life.

important influence on the context was the change in what knowledge was considered valuable and whether the patient was seen as an object or a subject. This is illustrated by the following quote:

> In our study, the residents switched hats, from being an interrogative gatherer of information about a patient's illness to being the audience of a person's life story. […] The traditional medical interview is predicated on the physician's solving of a 'puzzle'; it inherently problematizes the patient, and has its focus on the physician's goals, which can result in an objectification of the patient. [AA]

The mechanisms for the chronicler role that we inferred the most are: *contributing and developing meaningful narratives*, *showing affective identification*, *being emotionally involved with others* [all in 'developing narratives/ engagement with patients'], and *imagining to be someone else* [self-actualisation].

Partial program theory 2: patient role
We identified two patient roles in the interventions: the patient as an (1) informant about the disease in daily life and (2) as a teacher. For the first role (depicted in Figure 3), the mechanisms inferred the most are: *being emotionally involved with others and showing affective identification*, *articulating your thoughts and reflections in interaction with others,* and *imagining a patient's live more completely* [all in the cluster 'developing narratives and engagement']. The changed context concerning the perception of patients as subjects is illustrated below:

> […] it exposed me to all the factors of chronically ill patients … financial strain, family roles, patient/physician relationship, etc. Second, it showed me, in a very intimate setting, how a family responds to tremendous stress, grief, and fear, and the strength, hope, courage, and incredible outlook on life that are brought about by such a situation. It was remarkable and inspiring and speaks volumes to the importance of considering the patient as a human being as opposed to a medical chart. [Z]

For the patient role as a teacher (not depicted in the Figure), the most influential contexts were the change in what knowledge was considered valuable and whether the patient was seen as an object or a subject.

The mechanisms inferred the most are *contextualising disease with the life stories of real people* [developing narratives], *integrating different perspectives* [perspectives], and *feeling no pressure to live up to expectations in their environment* [socialisation].

Partial program theory 3: teacher role
We identified several teacher roles in the interventions, with the most prominent two roles being that of (1) a carer and of (2) an assessor. For the role of the carer (Figure 4), the mechanisms inferred the most are: *feeling welcome, safe and secure* [self-actualisation]; *experiencing a sense of comfort with a stressful environment*; and *seeing and assimilating role models* [both in 'socialisation']. The following quote illustrates how the caring teacher as a role model, described elsewhere in the paper where this quote comes from, influences the perspectives of learners:

> As a result of such experiences, students learned that they could be 'compassionate and caring physicians and keep their emotional sanity'. [FF]

For the role of the teacher as an assessor, all contexts were seen as relevant but not very strong. The mechanisms inferred the most are: *feeling competent in doing what you yourself do*, *developing your professional identity* [both in 'self-actualisation'], and *seeing and assimilating role models* [socialisation].

Whole program theory

As it became clear from our review that the contexts and intervention components all occur in different combinations, it was not possible to develop, let alone visualise,
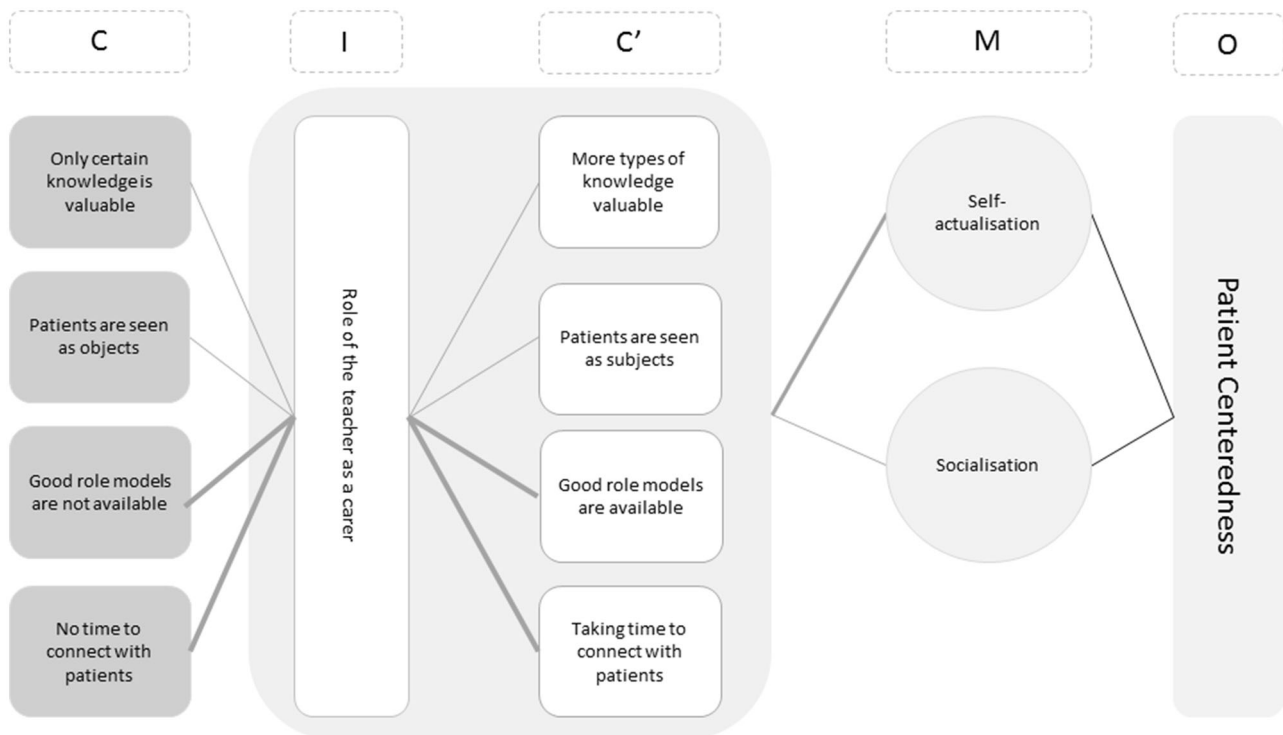
Figure 4. Visualisation of the partial program theory for the role of the teacher as a carer.

one comprehensive program theory that was supported sufficiently by our data. Nevertheless, in practice, representatives of all three stakeholder groups (the patient, the learner, and the teacher) are present in interventions, and therefore our partial program theories should be considered in conjunction.

Discussion

In our review, we have classified five different contexts which are relevant when upcoming professionals should learn patient-centredness: (1) *No access to the whole illness trajectory of real people*; (2) *Non-patient-centred role models*; (3) *Patients are seen as an object*; (4) *No time to connect with patients*; (5) *Only certain knowledge is considered legitimate*. These five contexts are influenced through *learner*, *patient* and *teacher* components in the intervention(s). Subsequently, we developed three partial-program theories which connect intervention components, contexts, mechanisms, and outcomes. In our data, the role of the patient as an informant about illness in daily life was most explicit, as was the role of the teacher as a carer. As to the learner roles, both the learner as a medical professional and the learner as a chronicler often occurred, even though in many papers, learners were 'just regular learners', which turned out to be a too heterogeneous role for further analysis. It became clear that the mechanisms most frequently identified in combination with patient-centredness outcomes were all in the relational cluster (*developing narratives and engagement with patients*), while these mechanisms were inferred primarily in papers about patients as an informant about their disease in daily life.

In our review, patients' lack of authoritative knowledge was seen as hindering for learning. In contrast, in their paper on learning – in general, not with a specific focus on patient-centredness – from patients, Henriksen and Ringsted (2011) described this lack as an advantage for

learners. Here, they were less afraid to ask 'stupid questions' and get rid of the pressure to behave as nascent professionals during patient care (Henriksen and Ringsted 2011). In our review, we learned that a caring teacher is about supporting learners. In the paper by Branch et al. (2001), however, it was emphasised that being a carer is also about 'not hiding your emotional reactions to patients' experiences'. In their paper, it was evident that a caring and supportive teacher is not a nice additional extra, but that such a teacher may help to make learners more receptive to certain interventions (Branch et al. 2001). Furthermore, we found that role modelling was not only teachers' behaviour towards patients but also giving feedback to learners, for example when learners talked about patients as if they were objects.

> … when a resident presented, "Mr. X is the 'pancreatitis' with a high white blood cell count," I would interrupt, saying, "Do you mean Mr. X is the gentleman we are taking care of who suffers from pancreatitis?" To my pleasant surprise, I found that the residents and students were as shocked as myself and began pointing out these moments to each other. [Branch et al. 2001]

We divided the mechanisms into four clusters, (1) *comparing and combining as well as broadening perspectives*, (2) *developing narratives and engagement with patients*, and (3) *self-actualisation, and (4) socialisation*, to show how the development of (dimensions of) patient-centredness occurs. Some of these contribute to patient-centredness along cognitive/rational lines, while others are more about emotional connections. Below, we discuss these clusters in relation to middle range theories that may help to interpret and enrich the mechanisms we identified in the papers.

Middle range theories in relation to our partial program theories

Several of our mechanisms were in a cluster under the heading '*comparing and combining as well as broadening perspectives*', which were primarily cognitive processes.

Transformation theory seems useful for understanding how these mechanisms may promote becoming patient-centred. In this theory, it is assumed that questioning prior assumptions, critical self-reflection and changing how to see the world, is essential for learning (Prout et al. 2014). In transformation theory, an "activating event" is a concept used to describe what starts the learning process. In our program theory, the activating event could be the learner, patient or teacher intervention component. By transformational learning, learners become more open to new meanings and discuss these with others in their environment.

Learning to become patient-centred often involves mechanisms clustered under 'developing narratives and engagement with patients'. These mechanisms indicate social learning theories. Story theory (Smith and Liehr 2005) seems useful for understanding how these mechanisms may promote becoming patient-centred. In story theory, three concepts are key: intentional dialogue, connecting with self-in-relation, and creating ease. The role of a chronicler, one of the intervention components identified in our review, provides opportunities for applying this theory which is about intentional dialogue to find out "what matters most to patients" (Smith and Liehr 2005). We argue that the three key concepts of this theory are essential in learning patient-centredness (Millender 2011) because learning occurs through stories as a result of the idea that "the way people experience themselves and their situation is 'constructed' through culturally mediated social interactions" (Smith and Liehr 2005). In the interventions included in this review, this line of arguing is followed in reflective journals written by participants as (part of) their assignments.

Other social learning theories, such as situated learning theory (Lave and Wenger 1991), are relevant because of their focus on the context and the values, norms and relationships fitting for that community (Handley et al. 2006). These theories can help better understand the contexts and their importance for evoking mechanisms that contribute to learning patient-centredness. For example, we identified that a context in which specific types of knowledge are considered as more legitimate than others affected the way the intervention supported learning. Also, our context which refers to the presence of role models aligns with socio-cultural practices in which participants gain knowledge, skills and experience (Prout et al. 2014).

Finally, a social learning theory that aligns well with the mechanisms we identified in our review is role theory. Role theory "seeks to explain how individuals are expected to act and how they expect others to act in reference to particular positions they occupy within the social milieu" (Richards 2015, p. 382). In our review, we identified the importance of particular positions within a hierarchy. Role theory could help to understand our results better: in a context in which 'the good teacher' is expected to be a non-emotional expert, tensions may arise if teachers take up the role as a carer. The latter was also seen in our review [G] where, in a context in which caring was not considered to belong to the role of the physician, an intervention on patient-centredness was less successful.

In sum, when designing or evaluating interventions that were intended to lead to more patient-centredness, closer alignment with the above theories is warranted. In our review, we saw that many (17 of the 32) papers mention a theory explicitly, but that they rarely explain how this theory was instrumental in the design or evaluation of the intervention.

Limitations

The way intervention components affected the context positively or negatively was not always clearly indicated by the authors of the included papers. This necessitated an interpretation by us as researchers. The context was often mentioned in the introduction or discussion section, but it was less clear how that context evoked mechanisms. We followed an approach from diverse perspectives (described in the methods section) to support our configurations, but we still depended on the authors of the included papers. An example is that in the literature learners are said to enjoy authentic learning situations, such as interventions with real patients (Diemers et al. 2007, 2008). Therefore, we expected that in the case of authentic learning situations, mechanisms linked to motivation would be important (such as feeling useful). However, such mechanisms were not frequently notable and, therefore, the link between motivation and authenticity of learning with real patients deserves further study.

Developing a program theory, composed of three partial program theories, based on a heterogenic set of interventions, asks for compromises. To be able to establish configurations, mentioned above, we have chosen to split up the intervention components and the contexts. In practice, the components and contexts will interact. For example, the role of a learner as a medical professional interacts with what teachers do as role models, which is shown in the background paper by Branch where a caring teacher helps the learner and gives responsibility in the patients' care:

> … the attending physician facilitated the student's participation in the care, reflected mutually with the student on the exercise, and facilitated a discussion of the case at a level that was respectful to the patient and to the novice learner. A learner with more experience, such as a resident, might have been invited to take the lead in the discussion with the patient. The true power of role modelling […] as they participate in the humanistic care of patients. [Branch et al. 2001]

Finally, a limitation of our review is to be found in the lack of conceptual clarity and shared definitions of patient-centredness, as was also ascertained by Regan de Bere and Nunn (2016), in the papers included in our review. As Bleakley and Bligh (2008) already indicated, the inherent complexity of operationalising patient-centredness has to be taken into account. Although we could not, as recommended in the RAMESES guidelines (2016), start our analysis with a clear perspective on outcomes, we used the framework by Scholl et al. (2014) to structure our outcomes. This framework may also provide good guidance for developers of interventions to clarify what aspects of patient-centredness they aim to reach.

Translation into practice

The partial program theories are intended to be helpful as a starting point for discussion, to discuss why a certain intervention design, within a specific context, could or could not be successful in helping participants to become

(more) patient-centred. When developing an intervention aimed at learning patient-centredness, educators could benefit by explicitly taking their contexts into account. In doing so, it seems relevant that in our results two categories of contexts appeared. Role models, access to the whole illness trajectory and no time to connect with patients seem to be easier to influence through the design of the intervention. The other category of contexts, about what knowledge is considered legitimate and seeing the patient as an object, often pertains to characteristics of the workplace culture. Even though some of the papers in our review described that they were able to change such contexts on a small and localised scale, a major change seems to be necessary to make interventions contribute to patient-centredness more. Our results may provide educators, who wish to develop interventions to improve learners' patient-centredness, with starting points for identifying contexts relevant to the success of potential interventions. This may help them to select the most appropriate approach and increase chances to attain positive learning outcomes.

Our partial program theories show that different components of the intervention, interacting with contexts, are relevant for the outcome of the intervention and how this outcome comes about. Here, thinking more broadly about role models seems to be useful for developers. The teacher as a role model does not only showcase patient-centred behaviour but also gives feedback to learners and shows his or her emotional feelings. With respect to the patients' role, designers of interventions should not think about the patient as interesting teaching 'materials' (Bleakley and Bligh 2008; Spencer et al. 2000), but be aware of the added value that the patient as a human being may have in education: as a teacher or as someone who can tell the learner what an illness means in daily life (Towle et al. 2010).

In sum, for educators, our review will potentially provide valuable points for discussion and reflection, but not a simple 'to do' list. In our analysis, contexts became not only evident but also appeared to be quite hard to change (MacLeod and Frank 2010). In one of the papers, the complexity of introducing interventions with the aim of contributing to patient-centredness was even called an "ideological stumbling block" (Regan de Bere and Nunn 2016). In a culture in which patients are positioned as a source of information instead of partners in learning, interventions that contribute to patient-centredness will ask for substantial efforts in the design, implementation and sustenance.

For researchers, one of our main recommendations would be to be more explicit about the context in which they implemented their intervention. In doing this review, we noticed many effect studies, focusing on whether certain educational designs affect the outcome patient-centredness. Those studies describe the context in a limited manner. It would help to know more about sociocultural aspects of the context and in what way these aspects were considered when designing and implementing the intervention. In a recent commentary (Horsley and Regehr 2018), this clarity was advocated for as well.

Additionally, we argue that training and interventions to learn patient-centredness would benefit from a broader look at patient-centredness: not only looking at clear dimensions such as 'the patient as a unique person' but also at the teamwork necessary to obtain these attitudes in a busy ward.

In the papers included in this review, authors either did not refer to theory at all or referred to 'grand' theories that hardly lend themselves to empirical testing. We think that the middle-range theories discussed along with our program theory could help researchers to use other theories when designing and evaluating interventions. We argue that role theory, for example, would be a useful approach in designing interventions with the purpose for learning participants' dimensions of patient-centredness because it helps thinking about what learners expect of people in a specific role, may it be the patient, the learner or the teacher.

Conclusion

By doing a realist analysis of the literature about interventions in which real patients take part, we developed three program theories. These theories help to understand better how the role of the patients, the learners and that of the teachers interact with contexts such as the kind of knowledge that is considered legitimate or insight in the whole illness trajectory. We inferred four clusters of mechanisms that explain how patient-centredness is learned. These clusters align with different middle-range theories, which sometimes are known from the literature about learning patient-centredness but more often not. This review provides potential areas for future research and gives developers of interventions aimed at patient-centredness food-for-thought.

Disclosure statement

Glossary

Context: In our review, we use the word context to denote medical, dental and nursing settings in which patient-centredness is educated or investigated. Besides, we considered context to be those factors external to the intervention but not necessarily external to the participants in the intervention. Often, these were socio-cultural factors.

Learning: In our review, we choose learning and related terms to denote general terms about education.

Interventions: In our review, we use the word interventions to denote possible programs/ways of educating or learning patient-centredness.

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