

Interventions aimed towards the development of patient-centredness in undergraduate medical curricula: A scoping review

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Background. Patient-centredness has been identified by most medical schools worldwide as a desired core graduate competence. Patient-centredness positions the patient at the centre of the consultation and, therefore, focuses on the patient instead of on the disease. The concept of patient-centredness is, however, multifaceted. The choice and development of approaches and interventions that can enhance or sustain the various dimensions of patient-centredness are challenges for undergraduate medical curriculum developers.

Objectives. To determine what the extent and nature of published scientific literature on implemented interventions are and how these could assist in fostering the various constructs of patient-centredness in undergraduate medical curricula. Furthermore, to determine which of these interventions could potentially be applied and incorporated in the context of the undergraduate medical curriculum at the Faculty of Medicine and Health Sciences, Stellenbosch University, Cape Town, South Africa.

Methods. The study followed the 6-step scoping review methodology framework. Four electronic databases were searched. Two independent reviewers screened citations for inclusion and performed the data abstraction.

Results. Articles ($N=581$) were eligible for inclusion in this study. Information captured in the Excel spreadsheets resulted in 9 categories of teaching interventions, which could lead to the various constructs of patient-centredness. These included didactic sessions and workshops, simulated patients, reflection, small-group discussions, e-learning, peer role-play/drama/surrogate, narratives/storytelling/art, clinical experiences and mindfulness training.

Conclusions. It is important to acknowledge that the development of patient-centredness in medical students is more than just a set of communication skills. Curricula need to provide learning opportunities for students to enhance knowledge, skills and attitudes related to patient-centredness to develop it as a strong competence. Furthermore, students need to be placed in clinical learning environments that foster a patient-centred approach, providing various opportunities where they can reflect on their learning, be more mindful of the needs of their patients and build caring relationships with them.

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Undergraduate medical curricula have undergone important transformations over the last two decades. Medical education curricula have emphasised – among other changes – a shift away from approaching patients in paternalistic ways, to rendering a more patient-centred approach and, therefore, including more structured communication skills training.^[1] Patient-centred medical care is important for various reasons: it can assist in the building of caring relationships among healthcare providers and patients, improve health outcomes and reduce costs,^[2] while also improving patients' levels of quality of life.^[3] Furthermore, there is evidence that a patient-centred approach can increase doctor and patient satisfaction and reduce anxiety in patients.^[4,5] While it would seem that most people agree that including the teaching and learning of patient-centredness into the undergraduate medical curricula is vital, the implementation thereof is complicated by the term patient-centredness being neither clearly defined nor easy to measure.^[6]

One of the seminal definitions of patient-centredness in medicine is that of Stewart,^[5] who, in 2003, viewed patient-centredness as an approach that embraces two aspects, i.e. a perspective change from a disease focus to a holistic view that includes the patient's feelings and experience and a shift away from the medical practitioner controlling the relationship, communication and decision-making to one that involves the patient. In

Krupat *et al.*'s^[7] definition of patient-centredness, they acknowledge these same two aspects. They label them as a 'caring' and a 'sharing' construct. According to these authors, *caring*, differentiates between a patient-centred style and a disease-centred style and relates to the degree to which medical practitioners understand the perspectives of their patients and explore patients' feelings and expectations. The second construct, *sharing*, relates to the notion that power should be shared between the medical practitioner and the patient. This is not often the case in traditional doctor-patient interactions, where the medical practitioner controls the consultation with only limited involvement by the patient with regard to decision-making.^[7]

Developing educational approaches and interventions that enhance or sustain the constructs of patient-centredness has shown to be a serious challenge in modern medicine and medical training.^[8] International research over the last decade has shown that medical students tend to become more cynical and less patient-centred and empathetic towards patients during their training.^[9-12] This trend has also been confirmed by local researchers.^[13-15] The reasons for this decrease in patient-centredness seem to relate to universal factors, such as time, pressure and fatigue,^[16] the negative influences of the unintended curriculum,^[17] poor role models,^[18] as well as assessment practices that value biomedical aspects over the so-called 'softer skills' related to patient-centredness.^[19,15]

Medical programmes have attempted to address the challenges of developing patient-centredness in medical graduates by either designing new curricula or supplementing existing ones with additional courses and experiences. Many of these initiatives seem to centre on the teaching and learning of communication skills.^[10,20,21] While communication skills are acknowledged as one of the key enablers for patient-centredness, one should be careful not to reduce this complex construct to a set of communication skills only.^[22] The curriculum, in its broadest terms, needs to be considered when teaching interventions are planned, as single interventions in the formal curriculum can easily be undermined by social processes and messages that underplay the learning and practice of patient-centred care.^[23] Students are often taught one approach to patients in medical school, while they observe other, less patient-centred approaches in practice, where the hidden curriculum is prevalent.^[1] The teaching and learning of patient-centredness seem to encompass various factors, such as attitudinal factors, acquired skills and knowledge, subjective norms, student self-efficacy, assessment of learning and the environment or context within which patient-centredness is taught.^[15]

Many authors have written about teaching and learning interventions that could be used to cultivate patient-centredness in medical graduates. This scoping review was undertaken to summarise this body of literature. The intention was to provide us, as curriculum developers, with a solid knowledge base to support our decisions regarding which strategies and interventions would be most appropriate to incorporate into our resource-constrained, undergraduate medical curriculum.

Methods

The way medical students acquire patient-centredness during their training remains a challenge for curriculum developers. Therefore, the purpose of this review was to determine how the constructs of patient-centredness could be taught and learnt within the undergraduate medical curricula. The methods used for this review were based on the 6-step scoping review methodology framework, proposed by Arksey and O'Mally,^[24] and the methodology enhancement, described by Levac *et al.*^[25] The 6-step process includes: (i) identifying a research question as a roadmap; (ii) identifying relevant studies; (iii) selecting studies; (iv) charting the data; (v) collating, summarising and reporting the results; and (vi) consulting with key stakeholders.

This scoping review sought to answer the following two questions:

- What is the extent and nature of the published scientific literature on implemented interventions that can assist with the fostering of the various constructs of patient-centredness in undergraduate medical curricula?
- Which of these interventions could potentially be applied and incorporated in the context of the undergraduate medical curriculum at the Faculty of Medicine and Health Sciences, Stellenbosch University?

Search strategy and eligibility criteria

Four databases (PubMed, ScienceDirect, CINAHL (MEDLINE and ERIC), ProQuest) were searched for studies on how the various constructs of patient-centredness are facilitated in undergraduate medical curricula. The eligibility criteria included articles in English, published between January 2000 and May 2017. The search strategy was determined with input from research collaborators and outlined three themes, i.e. patient-centredness, undergraduate medical students and teaching and learning interventions. To ensure that we did not exclude any potential articles, we had to consider

Box 1. Search terms related to the teaching of patient-centredness in an undergraduate medical curriculum

'patient-centred*' or 'patient-centered*' or 'patient centred*' or 'patient centered*' or 'compassion' or 'empathy' or 'communication skill*' or 'shared decision making' or 'self-awareness' and 'undergraduate medical student*' or 'medical student*' or 'undergraduate medical curriculum' or 'medical curriculum' and 'teaching method*' or 'intervention*' or 'teaching strategy'.

aspects such as the spelling of patient-centredness, as well as the various constructs that underpin patient-centredness as identified as part of the definition clarification (Box 1).

By making use of the eligibility criteria, the two reviewers (IM and EA), who worked independently of each other, screened the titles and abstracts of articles and generated themes. Thereafter, all the articles that were representative of the inclusion criteria were independently read by the same two reviewers. Articles were eligible for inclusion in this review if they described any of the predetermined constructs of patient-centredness that applied to undergraduate medical curricula (Box 1). Articles that explored interventions that provided communication skills training programmes for undergraduate medical students, with emphasis on patient-centredness, caring and empathy, were also included. Furthermore, only articles with available abstracts were selected. Duplicates were eliminated.

Charting

PDF versions of all the articles were searched, collected and analysed. The relevant information was extracted in duplicate by each reviewer and displayed on an Excel spreadsheet. The titles and authors, journals, interventions and key findings were recorded. The information was then compared and discussed by the two reviewers to ensure consistency and to reach consensus.

Results

The search strategy resulted in a hit of 581 articles (Fig. 1). After reading the articles' titles and abstracts, 398 were excluded. Of the remaining 183, 94 duplicates were eliminated. Reviewing the full text of 89 articles, the reviewers excluded a further 38. Thus, 49 articles met the inclusion criteria, 6 of which were systematic/literature reviews. During the final stage, 16 additional studies, obtained from the reference lists of these systematic/literature reviews, were added.

Analysis of the data

The information captured in the Excel spreadsheets was analysed using content analysis and categories were determined. Nine categories (teaching interventions) that could possibly lead to the development of patient-centredness were identified. These were: reflection, small-group discussions, use of didactic interventions, simulated and standardised patient (SP) interventions, e-learning, clinical experiences and role-modelling, peer role-playing/drama/surrogate situations, narratives/storytelling/art, and mindfulness training. A diagrammatic display of the frequency in which these categories were referred to in the selected articles is given in Fig. 2.

In the 58 articles that were reviewed, we found evidence of various interventions that could lead to the development of patient-centredness or aspects thereof. Fig. 1 portrays a condensed summary of the results of the

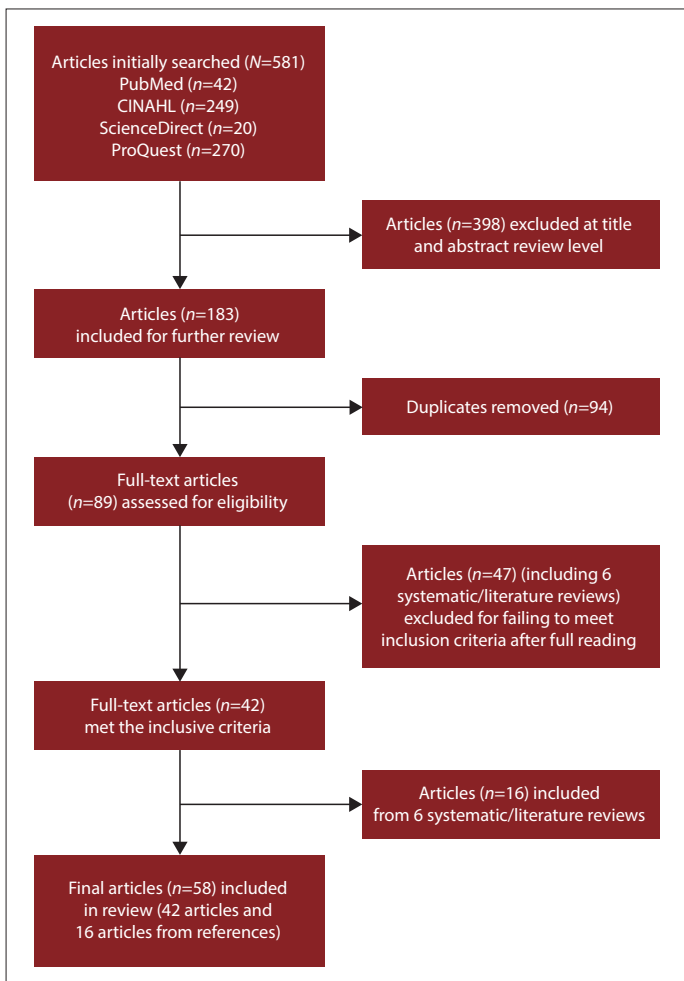


Fig. 1. Scoping review process and results.

identified 9 categories. In the following section, the essence of the various interventions is discussed, beginning with the interventions that were used most frequently in undergraduate medical curricula.

Reflection

The opportunity for students to reflect on their learning was found to be a valuable teaching strategy, as described by 33 authors. Reflection was mostly used in conjunction with other teaching and learning interventions and authors described it as being effective to develop important aspects, such as compassion, empathy and social awareness, in undergraduate medical students.^[26-32] Such reflective opportunities can create a platform for the discussion of ethical matters in realistic situations and lead to students developing new skills, specifically decision-making practices.^[33] Students perceived the opportunity to reflect as a positive enabler to enhance their patient-centredness and to gain insight into addressing patients with empathy. Loss of compassion, which often occurs because of early burnout during medical training, could be prevented.^[34-36]

Small-group discussions

Small-group discussions were mentioned in 31 of the articles as a teaching intervention, as they provide opportunities for students to interact, share

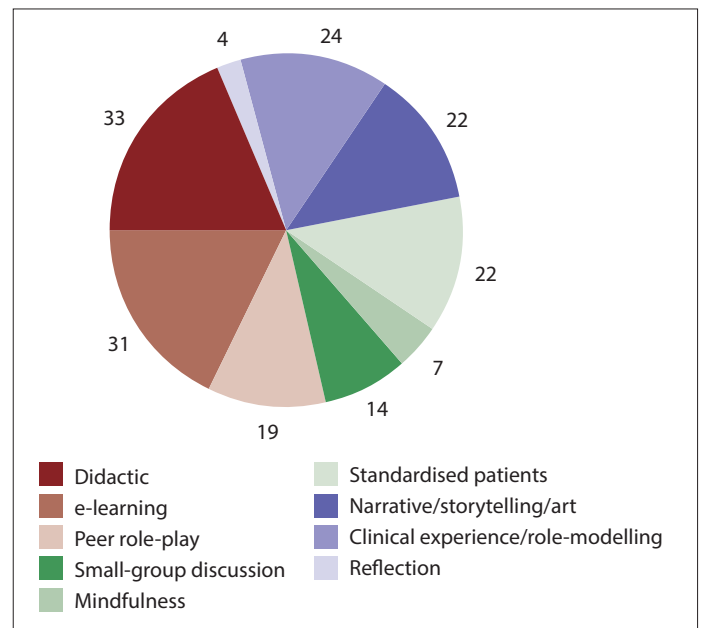


Fig. 2. Pie chart to illustrate the frequency of various interventions to teach patient-centredness.

and verbalise their feelings. One article reported that students who were given the opportunity to take part in small-group discussions related to their frustrations and feelings of anger and resentment towards patients, developed group cohesion among themselves. Students could discuss challenging or frustrating patient interactions, and how the use of empathy could have been applied to the situation.^[37] Small-group discussions could be directly beneficial to clinical practice, especially if group characteristics and different learning styles are considered.^[38]

Didactic interventions

Didactic interventions and workshops remain efficient throughout the preclinical years.^[39] Many of the included studies highlighted the importance of didactic interventions to foster the construct of cognitive empathy (n=24).^[29,40] These intervention opportunities introduced students to concepts, while engaging in discussions and opportunities to ask questions about components that needed clarification.^[37] The theoretical knowledge helped students to understand the patient's experience and perspective and to communicate this understanding to the patient. Didactic interventions, which are often used as part of basic communication programmes, included lectures, PowerPoint presentations, literature-based reading, hand-outs, workshops, problem- and case-based seminars.^[35,41,42]

Simulated and standardised patient interventions

Several articles (n=22) described the incorporation of SPs as educational interventions, which provided students with realistic situations and a safe environment to practise empathetic responses. SPs refer to both simulated patients, trained to simulate a patient's illness, and actual patients, trained to present their own illness, both in a standardised way to role-play clinical and biopsychosocial scenarios for experiential learning.^[41,42] SPs provided opportunities for students to observe and discuss their own and others' performances in the classroom. Rehearsing with simulated actors

playing the roles of challenging patients allowed students to become more confident in these types of scenarios, prior to clinical placements.^[27] Students could improve their communicative skills with patients and patients' families.^[43,44] SP interventions can increase medical students' awareness of non-verbal communication skills.^[46] Some authors reported that, while SPs are low-technology instruments, they are expensive tools for training communication skills.^[44]

Use of e-learning

Several useful e-learning interventions were identified in the 22 articles reviewed. There are many opportunities to incorporate e-learning into a curriculum so that students can acquire the concepts of patient-centredness, e.g. reviewing and analysis of audio- or video-recording of patient encounters, with doctors as role models to identify positive and negative interviewing factors,^[29] as well as prerecorded videos and role-play to demonstrate counselling skills to medical students.^[27,45] In one example, videos and role-play were used for an ageing game, simulating specific ageing characteristics,^[46] which were explored as effective interventions to increase the levels of empathy and attitudes towards caring for the elderly. Virtual patients (VPs) is a recently developed technology that is employed to enhance empathy.^[50] Video-recording remains a valuable tool for communication skills training that is relatively simple, easily replicable, cost effective and powerful to use for self-reflection and awareness of one's own biases and attitudes.^[47]

Clinical experience and role-modelling

In this review, 19 articles mentioned that clinical learning exercises present students with opportunities to learn about patient-centredness. Real-life situations allow medical students to observe and reflect on communications between doctors and patients. During these encounters, biopsychosocial issues become clearer to students, while they could also develop empathy, compassion and social awareness.^[26] Clinical experiences enable students to draw on the role-modelling of doctors as supervisors and develop conceptualisations of good medical practice. Role-modelling and exposure to patient experiences are perceived as crucial mechanisms for learning a patient-centred approach and, according to some authors, it is the most effective approach to teach empathy.^[31]

Peer role-playing, drama and surrogate situations

Some studies ($n=14$) pointed out that peer-role scenarios create opportunities for experiential learning in which students can act as a patient, doctor or family member, thus allowing them the experience of both physician and patient perspectives. These interventions can be offered in a safe environment for students to practise.^[37,46] Participants can also receive direct feedback from their peers, which is an essential part of learning skills, as feedback can improve students' self-confidence and enhance the understanding of the dimensions of diversity, as stated by Chunharas *et al.*^[52] Peer role-play can be equally effective, is relatively easy to implement and is a low-cost tool, as it requires less resources compared with training with simulated patients.^[46]

Narratives, storytelling and art

Interventions making use of creative writing, blogging, drama, poetry, fiction and film were described in 7 articles. These interventions fit into

the affective domain of empathy and help students to understand patients' experiences and appreciation for the value of patients in medical education.^[53] A significant improvement was noticed in medical students' empathy and attitudes towards patients after participating in a short course in reading and discussion of poetry and short stories.^[54]

Mindfulness training

Consistent with the shift to patient-centred medical care, mindfulness training was regarded in 4 reviewed articles as a core component, as it offers a means of sustaining and enhancing compassion among medical professionals.^[28,30,55,56] Mindfulness training can lessen physician burnout,^[30] prevent physicians' diagnostic errors^[57] and play an important role in increasing physician-patient relationships.^[30] It appeared that medical students with low self-compassion could benefit from the inclusion of mindfulness training into undergraduate medical education. These mindfulness training interventions could encourage a more positive attitude towards difficult patients, as well as assist students to develop the resilience needed to improve their own mental health and well-being.^[28,58]

Discussion

This scoping review provides a summary of teaching interventions that have been used to enhance patient-centredness in undergraduate medical students. Previous reviews have focused on interventions that cultivate empathy in medical students^[32,44,59] and communication skills training,^[37,42] which are both important components of patient-centredness. However, this study specifically focused on the teaching and learning of patient-centredness.

Recognising that patient-centredness is a multidimensional construct, the reviewers were encouraged to observe the variety of teaching interventions identified in the articles. The interventions comprised clinical experience and role-modelling, peer role-play, drama, surrogate situations, as well as narratives, storytelling and arts-based interventions.

The theoretical components of patient-centredness can be taught through didactic interventions, such as workshops and small-group discussions, while effective communication skills can be taught through simulated and SP interventions, as well as e-learning and small-group discussions.

Reflection, which formed part of most teaching and learning interventions reviewed, is the process of debriefing and making meaning out of any learning experience. This process of reflection was supported by general literature on effective learning.

Mindfulness, which among other benefits, enables one to become more aware of one's own mental processes, judgements and distractions, is currently being taught at several medical schools. Mindfulness training is gaining momentum, as it has the potential to prevent compassion fatigue and burnout and increase levels of empathy.^[60]

Conclusion

The reported challenges that exist for medical programmes to assist graduates to maintain their patient-centredness and foster it as a strong competence, can only be achieved if carefully planned interventions are included in the curriculum. For these interventions to build on one another, they need to be spaced throughout the curriculum as longitudinal, cross-cutting themes and not only as an once-off intervention. It is important for curriculum planners to acknowledge that for students to become patient-

centred doctors they need more than only a set of communication skills. Attention needs to be given, not only to teaching interventions that can address attitude changes, knowledge and skills development, but also to the student as a person and the environment where he/she is placed for clinical training. With regard to the results of this study, we are now in a process of consulting with the key stakeholders to start incorporating some of the findings in our current undergraduate medical curriculum.

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1. Donetto S. Medical students and patient-centred clinical practice: The case for more critical work in medical schools. *Br J Soc Educ* 2012;33(3):431-449. <https://doi.org/10.1080/01425692.2012.662821>
2. Mead N, Bower P, Hann M. The impact of general practitioners' patient-centredness on patients' post-consultation satisfaction and enablement. *Soc Sci Med* 2002;55(2):283-299. [https://doi.org/10.1016/S0277-9536\(01\)00171-X](https://doi.org/10.1016/S0277-9536(01)00171-X)
3. Lewin SA, Skea ZC, Entwistle V, Zwarenstein M, Dick J. Interventions for providers to promote a patient-centred approach in clinical consultations. *Cochrane Database Syst Rev* 2001;4(10). <https://doi.org/10.1002/14651858.CD003267>
4. Lorig K. Partnerships between expert patients and physicians. *Lancet* 2002;359(9309):814-815. [https://doi.org/10.1016/S0140-6736\(02\)07959-X](https://doi.org/10.1016/S0140-6736(02)07959-X)
5. Stewart M. Patient-centered Medicine: Transforming the Clinical Method. UK: Radcliffe Publishing, 2003.
6. Mead N, Bower P. Patient-centredness: A conceptual framework and review of the empirical literature. *Soc Sci Med* 2000;51(7):1087-1110.
7. Krupat E, Rosenkranz SL, Yeager CM, Barnard K, Putnam SM, Inui TS. The practice orientations of physicians and patients: The effect of doctor-patient congruence on satisfaction. *Patient Educ Couns* 2000;39(1):49-59. [https://doi.org/10.1016/S0738-3991\(99\)00090-7](https://doi.org/10.1016/S0738-3991(99)00090-7)
8. Fernando AT, Considine NS. Beyond compassion fatigue: The transactional model of physician compassion. *J Pain Symp Manage* 2014;48(2):289-298. <https://doi.org/10.1016/j.jpainsymman.2013.09.014>
9. Haidet P, Dains JE, Paterniti DA, et al. Medical student attitudes toward the doctor-patient relationship. *Med Educ* 2002;36(6):568-574.
10. Krupat E, Pelletier S, Alexander EK, Hirsh D, Ogur B, Schwartzstein R. Can changes in the principal clinical year prevent the erosion of students' patient-centered beliefs? *Acad Med* 2009;84(5):582-586. <https://doi.org/10.1097/ACM.0b013e31819fa92d>
11. Ribeiro MM, Krupat E, Amaral CF. Brazilian medical students' attitudes towards patient-centered care. *Med Teach* 2007;29(6):e204-e208. <https://doi.org/10.1080/01421590701543133>
12. Wahlqvist M, Gunnarsson RK, Dahlgren G, Nordgren S. Patient-centred attitudes among medical students: Gender and work experience in health care make a difference. *Med Teach* 2010;32(4):e191-e198. <https://doi.org/10.3109/01421591003657451>
13. Archer E, Bezuidenhout J, Kidd M, van Heerden BB. Making use of an existing questionnaire to measure patient-centred attitudes in undergraduate medical students: A case study. *Afr J Health Professions Educ* 2014;6(2):150-154. <https://doi.org/10.7196/AJHPE.351>
14. Archer E, van Heerden BB. Undergraduate medical students' attitudes towards patient-centredness: A longitudinal study. *Open Access* 2017;1-6. <https://doi.org/10.15694/mep.2017.000161>
15. Archer E, Bitzer EM, van Heerden BB. Interrogating patient-centredness in undergraduate medical education using an integrated behaviour model. *S Afr Fam Pract* 2017;59(6):219-223. <http://doi.org/10.1080/20786190.2017.1386869>
16. Bombeke K, Symons L, Debaene L, de Winter B, Schol S, van Royen P. Help, I'm losing patient-centredness! Experiences of medical students and their teachers. *Med Educ* 2010;44(7):662-673. <https://doi.org/10.1111/j.1365-2923.2010.03627.x>
17. Lempp H, Seale C. The hidden curriculum in undergraduate medical education: Qualitative study of medical students' perceptions of teaching. *BMJ* 2004;329(7469):770-773. <https://doi.org/10.1136/bmj.329.7469.770>
18. White CB, Kumagai AK, Ross PT, Fantone JC. A qualitative exploration of how the conflict between the formal and informal curriculum influences student values and behaviors. *Acad Med* 2009;84(5):597-603. <https://doi.org/10.1097/ACM.0b013e31819fa92d>
19. Claramita M, Sutomo AH, Graber MA, Scherpbier AJ. Are patient-centered care values as reflected in teaching scenarios really being taught when implemented by teaching faculty? A discourse analysis on an Indonesian medical school's curriculum. *Asia Pacific Fam Med* 2011;10(1):4. <https://doi.org/10.1186/1447-056X-10-4>
20. Bombeke K, van Roosbroeck S, de Winter B, et al. Medical students trained in communication skills show a decline in patient-centred attitudes: An observational study comparing two cohorts during clinical clerkships. *Patient Educ Couns* 2011;84(3):310-318. <https://doi.org/10.1016/j.pcc.2011.03.007>
21. Noble LM, Kubacki A, Martin J, Lloyd M. The effect of professional skills training on patient-centredness and confidence in communicating with patients. *Med Educ* 2007;41(5):432-440. <https://doi.org/10.1111/j.1365-2929.2007.02704.x>
22. Pelzang R. Time to learn: Understanding patient-centred care. *Br J Nurs* 2010;19(14).
23. Haidet P, Kelly PA, Chou C. Characterizing the patient-centredness of hidden curricula in medical schools: Development and validation of a new measure. *Acad Med* 2005;80(1):44-50.
24. Arksey H, O'Malley L. Scoping studies: Towards a methodological framework. *Int J Soc Res Methodol* 2005;8(1):19-32. <https://doi.org/10.1080/1364557032000119616>
25. Levac D, Colquhoun H, O'Brien KK. Scoping studies: Advancing the methodology. *Implement Sci* 2010;5(1):69. <https://doi.org/10.1186/1748-5908-5-69>

26. Clark DL, Melillo A, Wallace D, Pierrel S, Buck DS. A multidisciplinary, learner-centered, student-run clinic for the homeless. *Fam Med* 2003;35(6):394-397.
27. Cockbain BC, Thompson S, Salisbury H, Mitter P, Martos L. A collaborative strategy to improve geriatric medical education. *Age Ageing* 2015;44(6):1036-1039.
28. Hassed C, de Lisle S, Sullivan G, Pier C. Enhancing the health of medical students: Outcomes of an integrated mindfulness and lifestyle program. *Adv Health Sci Educ* 2009;14(3):387-398.
29. Hojat M, Axelrod D, Spandorfer J, Mangione S. Enhancing and sustaining empathy in medical students. *Med Teach* 2013;35(12):996-1001. <https://doi.org/10.3109/0142159X.2013.802300>
30. Krasner MS, Epstein RM, Beckman H, et al. Association of an educational program in mindful communication with burnout, empathy, and attitudes among primary care physicians. *JAMA* 2009;302(12):1284-1293. <https://doi.org/10.1001/jama.2009.1384>
31. Shapiro J, Rucker L, Robitsek D. Teaching the art of doctoring: An innovative medical student elective. *Med Teach* 2006;28(1):30-35. <https://doi.org/10.1080/01421590600568348>
32. Chen I, Forbes C. Reflective writing and its impact on empathy in medical education: Systematic review. *J Educ Eval Health Prof* 2014;11:20. <https://doi.org/10.3352/jeehp.2014.11.20>
33. Layat Burn C, Hurst SA, Ummel M, Cerutti B, Baroffio A. Telling the truth: Medical students' progress with an ethical skill. *Med Teach* 2014;36(3):251-259. <https://doi.org/10.3109/0142159X.2013.853118>
34. Blatt M, Plack M, Maring J, Mintz M, Simmens SJ. Acting on reflection: The effect of reflection on students' clinical performance on a standardized patient examination. *J Gen Intern Med* 2007;22(1):49-54.
35. Simmons L, Leavitt L, Ray A, Fosburgh B, Sepucha K. Shared decision making in common chronic conditions: Impact of the resident training workshop. *Teach Learn Med* 2016;28(2):202-209. <https://doi.org/10.1080/10401334.2016.1146600>
36. Hoffmann TC, Bennett S, Tomsett C, del Mar C. Brief training of student clinicians in shared decision making: A single-blind randomized controlled trial. *J Gen Intern Med* 2014;29(6):844-849.
37. Bayne HB. Training medical students in empathic communication. *J Specialist Group Work* 2011;36(4):316-329. <https://doi.org/10.1080/01933922.2011.613899>
38. Perera J, Mohamadou G, Kaur S. The use of objective structured self-assessment and peer-feedback (OSSP) for learning communication skills: Evaluation using a controlled trial. *Adv Health Sci Educ* 2010;15(2):185-193.
39. Henry-Tillman R, Deloney LA, Savidge M, Graham CJ, Klimberg VS. The medical student as patient navigator as an approach to teaching empathy. *Am J Surg* 2002;183(6):659-662. [https://doi.org/10.1016/S0002-9610\(02\)00867-X](https://doi.org/10.1016/S0002-9610(02)00867-X)
40. Riess H, Kelley JM, Bailey RW, Dunn EJ, Phillips M. Empathy training for resident physicians: A randomized controlled trial of a neuroscience-informed curriculum. *J Gen Intern Med* 2012;27(10):1280-1286.
41. Managheb SE, Zamani A, Shams B, Farajzadegan Z. The effect of communication skills training by video feedback method on clinical skills of interns of Isfahan University of medical sciences compared to didactic methods. *Health Educ J* 2012;71(5):546-552.
42. Bonvicini KA, Perlin MJ, Bylund CL, Carroll G, Rouse RA, Goldstein MG. Impact of communication training on physician expression of empathy in patient encounters. *Patient Educ Couns* 2009;75(1):3-10. <https://doi.org/10.1016/j.pcc.2008.09.007>
43. Shapiro SM, Lancee WJ, Richards-Bentley CM. Evaluation of a communication skills program for first-year medical students at the University of Toronto. *BMC Med Educ* 2009;9(1):11. <https://doi.org/10.1186/1472-6920-9-11>
44. Stepien KA, Baernstein A. Educating for empathy. *J Gen Intern Med* 2006;21(5):524-530.
45. Bloomfield JG, O'Neill B, Gillett K. Enhancing student communication during end-of-life care: A pilot study. *Palliat Support Care* 2015;13(6):1651-1661. <https://doi.org/10.1017/S147895151500022X>
46. Bosse HM, Schultz JH, Nickel M, et al. The effect of using standardized patients or peer role play on ratings of undergraduate communication training: A randomized controlled trial. *Patient Educ Couns* 2012;87(3):300-306. <https://doi.org/10.1016/j.pcc.2011.10.007>
47. Chang A, Chou CL, Teherani A, Hauer KE. Clinical skills-related learning goals of senior medical students after performance feedback. *Med Educ* 2011;45(9):878-885. <https://doi.org/10.1111/j.1365-2923.2011.04015.x>
48. Bishop TW, Gorniewicz J, Floyd M, Tudiver F, Odom A, Zoppi K. Innovative patient-centered skills training addressing challenging issues in cancer communications: Using patient's stories that teach. *Int J Psychiat Med* 2016;51(4):357-366.
49. Varkey P, Chutka DS, Lesnick TG. The aging game: Improving medical students' attitudes toward caring for the elderly. *J Am Med Direct Assoc* 2006;7(4):224-229. <https://doi.org/10.1016/j.jamda.2005.07.009>
50. Foster A, Chaudhary N, Kim T, et al. Using virtual patients to teach empathy: A randomized controlled study to enhance medical students' empathic communication. *Simul Healthcare* 2016;11(3):181-189. <https://doi.org/10.1097/SIH.0000000000000142>
51. Ahsen NF, Batul SA, Ahmed AN, et al. Developing counseling skills through pre-recorded videos and role play: A pre-and post-intervention study in a Pakistani medical school. *BMC Med Educ* 2010;10(1):7. <https://doi.org/10.1186/1472-6920-10-7>
52. Chunharas A, Hetrakul P, Boonyobol R, Udomkitti T, Tassanapitkul T, Wattanasrichaigoon D. Medical students themselves as surrogate patients increased satisfaction, confidence, and performance in practicing injection skill. *Med Teach* 2013;35(4):308-313. <https://doi.org/10.3109/0142159X.2012.746453>
53. Chretien KC, Swenson R, Yoon B, et al. Tell me your story: A pilot narrative medicine curriculum during the medicine clerkship. *J Gen Intern Med* 2015;30(7):1025-1028. <https://doi.org/10.1007/s11606-015-3211-z>
54. Boker JR, Shapiro J, Morrison EH. Teaching empathy to first year medical students: Evaluation of an elective literature and medicine course. *Educ Health* 2004;17(1):73-84. <https://doi.org/10.1080/13576280310001656196>
55. Fernando AT, Skinner K, Considine NS. Increasing compassion in medical decision-making: Can a brief mindfulness intervention help? *Mindfulness* 2017;8(2):276-285. <https://doi.org/10.1007/s12671-016-0598-5>
56. Beckman HB, Wendland M, Mooney C, et al. The impact of a program in mindful communication on primary care physicians. *Acad Med* 2012;87(6):815-819. <https://doi.org/10.1097/ACM.0b013e318253d3b2>
57. Luchterhand C, Rakel D, Haq C, Grant L, Byars-Winston A. Creating a culture of mindfulness in medicine. *Wisconsin Med J* 2015;114(3):105-109.
58. Van Vliet M, Jong M, Jong MC. Long-term benefits by a mind-body medicine skills course on perceived stress and empathy among medical and nursing students. *Med Teach* 2017;39(7):710-719. <https://doi.org/10.1080/0142159X.2017.1309374>
59. Batt-Rawden SA, Chisolm MS, Anton B, Flickinger TE. Teaching empathy to medical students: An updated, systematic review. *Acad Med* 2013;88(8):1171-1177. <https://doi.org/10.1097/ACM.0b013e318299f3e3>
60. Dobkin PL, Hutchinson TA. Teaching mindfulness in medical school: Where are we now and where are we going? *Med Educ* 2013;47(8):768-779.

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