

Transcending patient care by teaching providers compassionate care: A systematic review of current empathy enhancing interventions for medical students.

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Capstone 2017

Master of Physician Assistant Studies

May 23, 2017

Abstract**Introduction:**

The expression of empathy by healthcare practitioners during patient encounters has previously demonstrated overall better outcomes, compliance with treatment choices and satisfaction for patients. Studies of medical student empathy have demonstrated a decline in the level of empathy expressed by some students at the start of their clerkship year. As such, investigators have examined the effects of a variety of empathy enhancing interventions to help mitigate this disconcerting loss. The following review will summarize current literature presenting empathy enhancing interventions on the basis of their efficacy and use in medical training curricula.

Methods:

Literary searches with PubMed, Scopus and EMBASE were performed to identify peer-reviewed articles that present some form of an empathy enhancing intervention studied on medical students, from Jan 1, 2010 to present.

Results:

Identified interventions for enhancing empathy include assigned readings, watching videos depicting patient encounters, debriefing or focus groups, simulated clinical interactions, reflection on video recording of student-patient interaction and simulating disease pathology, namely tattooed psoriasis. Of the interventions identified, only interaction with actual patients and simulated disease pathology were able to elicit significantly higher empathy rating scores with pre-post questionnaire comparisons. Four articles demonstrated significant results with the combined effects of several of the aforementioned interventions.

Conclusions:

Enhancing student empathy is best achieved through patient interaction, ideally with actual patients, though standardized patients have demonstrated utility. The synergistic effects of multiple interventions lend support to the use of standardized patients with the overall effect being capable of enhancing student empathy. The timely nature of these interventions should facilitate their incorporation into any Medical school curriculum, including Physician Assistant programs.

Transcending patient care by teaching providers compassionate care: A systematic review of current empathy enhancing interventions for medical students.

Introduction:

The significance of expressing empathy during practitioner-patient interactions is gaining prevalence within the literature over various aspects of medicine which almost demands the attention of all health care providers alike. Physician empathy has demonstrated overall better clinical outcomes for patients (1-4) and improved patient satisfaction (5, 6). Patients of empathetic providers are more likely to adhere to recommended therapies (7). There has even been research to demonstrate that Physicians who take a few extra minutes with patients, to facilitate questions from their patients ensuring the patient is clearly understanding of their condition(s), have lower malpractice liability (8).

The widely diverse, plethora of benefits from expressing empathy during a practitioner-patient interaction does not however simplify the task of defining it. Empathy has been defined as understanding what another person is thinking or feeling; being able to place oneself in another's shoes. One study defined empathy as a multidimensional concept comprised of perspective taking, standing in the patient's shoes and compassionate care (9). Empathy has been discussed elsewhere with its definition existing as a balance of cognitive, interpretive, moral aspects, emotional and behavioral contributions (10). When questioned on the meaning of empathy, some medical students commented on the need for some similar experience to draw from in order to successfully portray empathy (11).

While a single, unified definition may remain elusive, one thing current literature seems to agree upon is that regardless of how you define empathy, specifically within a medical setting,

if it is not perceived by the patient, its benefits are lost. In order to investigate empathy in medicine, researchers have established a quantitative approach utilizing psychometric scaling based questionnaires. The questions are designed to address some of the more commonly acceptable definitions of empathy. Presently there are several different questionnaire-based assessment tools that have been developed and are now well-established for the study of empathy in medicine. Some of the more prominent in literature are the Jefferson Scale of Physician Empathy (JSPE; (9)) and the Interpersonal Reactivity Index (IRI; (12)). However, given the polysemic nature of empathy, some researchers have used modified versions of these questionnaires or devised completely original questionnaires to best suit their research design.

The study of empathy in medicine has identified a gender bias towards women. Using the JSPE women self-report their empathy ability significantly higher than men (13, 14). Furthermore, simulated patients asked to assess the empathy of the students also revealed significantly higher scores for women over men (13). Several explanations have been offered for gender differences in empathy including women being more receptive than men to emotional signals and on the basis of the evolutionary theory of parental investment with women developing more caregiving attitudes toward their offspring than men (reviewed in (15)). Functional MRI studies have shown when faced with emotional tasks, females recruit more emotion and self-related regions of the brain with strong activation of the amygdala region whereas males demonstrate stronger activation of cortical, rather cognitive-related areas of the brain (14). Albeit there are clearly divergent processing strategies used for males and females, both genders were demonstrated to have capacity for empathy (14).

With more and more attention turning to the benefits of expressing empathy during clinician-patient interactions, research has identified a rather disconcerting decline in the level of

empathy expressed by medical students of both genders, during the course of their training with lows occurring in the third year (16, 17). With no clear explanation for why this may be, some have argued for the negatives around empathy; with the medicine taking precedence over feelings, that the time consuming narratives required for an empathetic interaction are impractical (discussed in (18)). Further to the point, *faking it* doesn't work; without proper investment in the interaction, the portrayed empathy is transparent to a clairvoyant benefactor (19). Concerning then, this dip has been demonstrated to persist through to some first year residents, who's self-evaluation of their ability to be empathetic during an OSCE interaction with a standardized patient showed no significant correlation with the scores provided by the SPs (20).

Physician assistants undergo a similar training to that of medical students; with initially didactic training followed by clinical rotations with similar pressures to *make the diagnosis*. Therefore it would be logical to assume that Physician Assistants would be subject to the same dip in the level of expressed empathy if the dip is related somehow to the nature of training to be a medical professional. In a study of self-reported empathy, Physician Assistant students were shown to overestimate their abilities relative to the scores provided by the standardized patient, the instructor or an observer (21). In addition, investigation has shown that Physician Assistant students do in fact also fall victim to the same decline in the level of empathy they can express at completion of their didactic training when compared to their abilities at matriculation (22). Interestingly, while females scored higher than males, further demonstrating the gender bias, the slope of the decline is the same for both genders.

With the reasoning for practitioners to possess this ability being so vital, it has been previously debated as to whether or not empathy is something that can be taught (23). Jeffrey, D.

(2016) argues that empathy is a multifaceted concept that can be taught by addressing the individual facets that comprise empathy (23). In agreement with this idea, when students were surveyed regarding the empathy-related curriculum at the University of California Irvine School of Medicine, United States, students responded with high satisfaction for their education, claims of having either stayed at the same level during their training or even increased their empathetic abilities (24). Listed as a barrier for learning empathy was the lack of good role models (24), suggesting the need to see empathy in order to recognize it, understand it and eventually convey it themselves. As counter argument, Downie, R. (2016) suggests that medicine is best served by the humane physician who is natural and comfortable with discussions of disease states with patients utilizing innate concerns for the patient (23). Beyond this, he further argues that attempting to experience feelings other than one's own is an impossible goal to realize, and therefore trying to teach this insurmountable mission to medical students can lead to judgement blinded by emotion with poor clinical outcomes. It should be noted that both authors begin the endeavour of debating teachable empathy by first uniquely defining empathy.

The following will review current literature with the aim to identify 1) if empathy can be taught and 2) if so, by what methodologies can empathy be taught in order to endeavour to limit the loss of empathy during medical training or even increase it from baseline. Specific implications for the Physician Assistant training program will be discussed.

Methods:

Search strategies for three bibliographic electronic databases (PubMed, Scopus and EMBASE) were created to capture English-language, peer-reviewed full articles initially without publication date restrictions. For the PubMed search, MESH terms were searched and then used

in the AND configuration to limit the search results as follows: (("Education"[Mesh] AND "Empathy"[Mesh]) AND "Students, Medical"[Mesh]) AND "Teaching"[Mesh]. The specific search criteria for Scopus were as follows: "Medical Student" AND empathy AND teaching AND intervention. The EMBASE criteria were as follows: "Medical Student" AND empathy AND teaching. From these resulting searches, abstracts were reviewed and assessed for content demonstrating an intervention aimed to influence the empathy level of the medical student. Similarly, full-text articles were assessed for interventions that could be utilized or incorporated into the medical training program with the intent on enhancing the empathy of its students. It was at this level where title selection was restricted to articles published after 2010. In addition, there were 2 titles found with free-hand search criteria which were included in the study.

Results:

The selection process for the current study is outlined in flowchart format (Figure 1). In short, the initial search results from PubMed, Scopus and EMBASE yielded 154 titles, from which 119 papers were selected for abstract review and 33 selected from that for full-text review. Finally, there were 9 titles selected for final review in this article. These nine articles are comprised of 1 supervisor-evaluated letter writing, 1 self-evaluation of meeting learning objective and 7 pre-post questionnaire comparison evaluations. Among these articles, various different methods for teaching empathy have been studied. They range from assigned readings, including that of animated comics, writing letters, watching videos depicting both successful and ineffective examples of patient encounters, debriefing or focus groups, simulated clinical interactions with and without clinical educators present, reflection on video recording of one's own patient interaction and even simulating disease pathology, namely tattooed psoriasis.

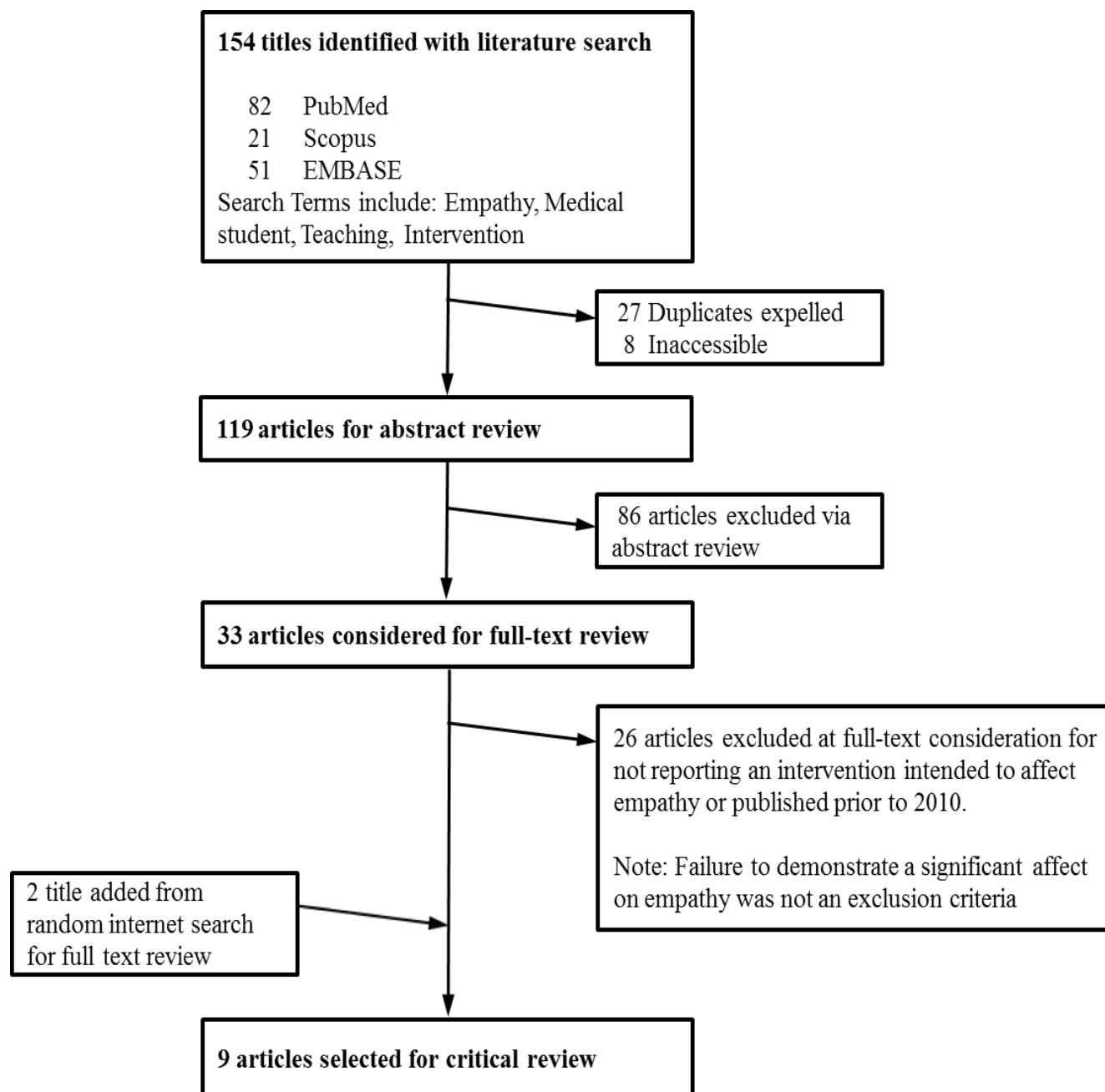


Figure 1: Flowchart of the criteria for a literature search and study selection process for review of current literature on medical training interventions intended to enhance the level of empathy of undergraduate medical students. Publication date criteria implemented at the level of full-text review; restricted to articles from 2010 or newer.

The outcomes of each article's reported methodology for increasing the level of empathy for medical students is summarized in Table 1.

Empathy Taught with *Priming*

Among all the different methods of teaching empathy to students reviewed in this study, several different themes have emerged. The first being the idea of *priming* the student prior to a patient interaction with pre-readings, watching video recordings or previewing the post-interaction questionnaire. Unfortunately, only one paper was reviewed that presented any data specifically evaluating the effects of the pre-interaction education alone. The benefits of pre-readings alone was suggested by Tsao and Yu (2016) with their novel approach to enhancing empathy levels of first and second year medical students with the use of animated comics (25). The authors created two animated comic strips on the subject of diabetes management. The first depicting a patient's fear of insulin initiation and the second depicting the resultant self-management burnout of a patient trying to follow lifestyle recommendations. Tsao and Yu (2016) did a comparison of the self-reported, pre- and post-intervention questionnaires from 25 first and second year medical students. While there was a demonstrated upward trend in the JSPE scores inferring increased empathy, it did not reach statistical significance. This upward trend in empathy level was further demonstrated, albeit again not statistically significant, with the use of small focus groups.

Empathy Taught with Reflection

The second theme, namely small group debriefings or focus groups with guided reflection, however was far more represented within the literature. Similarly, there were no papers reviewed that specifically assessed the efficacy of just group discussion. However, a

Table 1: Summary of nine articles identified in a systematic review of the literature published from January 1, 2010 until present that reported on an intended empathy enhancing intervention for medical students.

Author, year	Design and participants	Intervention	Method of evaluation	Effect on Empathy level
Tsao, P., 2016	Pre-post comparison of 25 first and 2 nd year medical students	Viewing of animated comics followed by small focus group	JSPE ^a	↑
Shield, R., 2011	3 x 60 min Schwartz Communication Sessions	Pre-readings/videotape; skills/role play and discussion based communication sessions in small & large groups	Self-evaluation of having meet learning objectives	¥
Mrduljaš- Đujić, N., 2012	Evaluation of letters written to patients over the course of the 6 th year of medical training.	Supervising physician feedback after each letter	Blinded evaluation by the supervisors in the practice of Family Medicine offices.	Not directly measured

Lim, B., 2011	Pre-post comparison of 72 5 th year undergraduate medical students	Seminar on motivational interviewing, role-playing workshop and 1hr actor-facilitated teaching intervention	JSPE ^a , BECCI ^{a,b} and OSCE ^{a,b} performance evaluation	↑↑↑
Kushner, R., 2014	Pre-post (immediate and 1 year later) comparison of 127 1 st year medical students interviews with obese SP's	Pre-readings; small group reflection session pre- and post-interviews with SP	Original 16 item questionnaire ^a	↑↑↑
Quail, M., 2016	Pre-post comparison of 62 3 rd year undergraduate speech pathology students clinical skills placement	Clinical initial conversation with actual nursing home patient, SP or virtual patient	Original questionnaire ^a and JSE-HPS ^a	↑↑↑ [§]
Schweller, M., 2014	Pre-post comparison of 124 4 th year and 123 6 th year medical students performance in 1 OSCE and 3 witnessed OSCEs of colleagues	Simulated medical consultations with SPs followed by small group debriefing; observation of peers interaction with SP's	JSE-SV ^a and IRI ^a	↑↑↑

Kalish, R., 2011	Pre-post comparison of 11 3 rd year medical students	Pre-readings, previewing of the Empathy questionnaire; actual rheumatological patient interview, self-reflection of video recorded interview with small focus group and preceptor feedback	Original 10 item 4-point Likert scale questionnaire ^a	↑↑↑ [#]
Latham, L., 2011	Pre-post comparison of 61 1 st year medical students perception of the mental burden of psoriasis	Temporary tattoo simulating psoriasis	Original Likert scale questionnaire ^a	↑↑↑*

JSPE – Jefferson scale of Physician Empathy

^a – Student self-reported question

↑ – increase in empathy reported, however not statistically significant

¥ – Some students expressed appreciation for principles of interaction and relationship, including empathy, can be taught

BECCI – Behavior Change Counseling Index

^b – Practitioner evaluation of the student

OSCE – Objective Structured Clinical Examination

↑↑↑ – significant increase in empathy reported

SP – Standardized patient

JSE-HPS – Jefferson Scale of Empathy – Health Professions Student version

IRI – Interpersonal Reactivity Index

JSE-SV – Jefferson Scale of Empathy Student Version

§ – significant increase in empathy reported only observed for actual nursing patient interactions

– increase of empathy inferred by the significant decrease in self-reported compassionate care post video review

* – measure of empathy inferred as an increase in burden perception

slight modification to this theme; one article reviewed used a combination of theme one and theme two. Shield *et al.* (2011) evaluated the effectiveness of the *Schwartz Communication Sessions*, modeled after “Schwartz Rounds”. Preparation for these sessions consisted of reading a case, reading the relevant readings and/or viewing a video. The sessions that followed would include small group discussion, sometimes with roleplaying and practice communication strategies that session leaders have found effective within their own experiences. Lastly, all the small groups would convene as one large group for discussion amongst participants and the expert panel. Unfortunately, Shield *et al.* (2011) did not specifically analyse the effectiveness of the sessions on participants own capacity for empathy. They did however survey both faculty and participants of the sessions using a five-point Likert scale which revealed an 85% faculty and 51.9% student in favour of either excellent or exceptional for the session on Empathy and Professionalism (26). Furthermore, evaluation of having met the learning objectives of the session, which included “develop insight in others’ points of view”, showed majority for both faculty and students in favour of yes.

In further support of reflection lending to the enhancement of student empathy, Mrduljaš-Đujić *et al.*, (2012) reported the use of letter writing, addressed to a patient after their interview with the student practitioner outlining the results of the encounter. Sixth year students doing their practical work in family medicine, wrote letters that were reviewed prior to being sent and evaluated by the supervising physicians for courtesy and empathy demonstrated in the letter by the student, among other criteria. While the authors did present several excerpts of the writings which demonstrated the students’ ability to combine knowledge and empathy for reader evaluation, there was no quantifiable evidence presented of the increase in student empathy beyond stating students received high marks on their exam (27).

Empathy Taught with Roleplay

The use of role-playing within group discussion, followed by a one hour actor facilitated teaching intervention was used to significantly increase the empathy of fifth year undergraduate level medical students (28). Both groups (control and intervention group) attended teaching modules consisting of motivational interviewing, a briefing to discuss substance use/abuse and a role playing workshop with case-based scenarios, all led by an experienced team of four addiction health practitioners. Lim et al. (2011) incorporated a “How to Act-in Role” intervention run by a theatre skills tutor, that taught some acting skills and methods to listen to, observe body language, interpersonal cues and enhance the participants’ capacity to connect with their patients. These skills were then used during a further series of role-playing training scenarios by the intervention group participants whom acting out the role of both patient and clinician. Students in the intervention group scored significantly higher levels of empathy per the JSPE pre-post questionnaires ($p < 0.001$), as well as a significantly better OSCE performance as assessed by the examiner ($p < 0.05$) and a self-evaluation ($p < 0.001$) of a video recording of the interaction (25). Of note, there was no significant difference between the control group and the intervention group ($p > 0.05$) pre-intervention questionnaire scores. Furthermore, there was no observed difference in the scores of either empathy or OSCE performance between males and females with this intervention (28).

Empathy taught with Patient / Standardized Patient Interactions

A prevalent trend in the literature presenting enhancement in empathy by students was with the use of patient or standardized patient interactions. Building on this idea, was Kushner *et al.*, (2014) with their examination of weight bias and stereotyping of obese patients by medical

students. Their experimental design utilized two of the previously discussed interventions, namely *priming* and small group discussions, both pre-interview and a reflective discussion session post-interview with the observing student to the interview and the standardized patient present. The students interviewed in groups of 3-4 with each student interviewing 4 of 6 different loosely structured cases, each role-played by 1 of 12 different SP during the course of the exercise. Kushner *et al.*, (2014) were able to demonstrate a significant improvement in the level of empathy demonstrated by nearly half (48.4%) the students towards the obese standardized patients (29). This was measured by the difference in the pre- and post-interview questionnaire scores ($p < 0.001$). Arguably more significant, was their finding that when the same students were re-evaluated with the same post-interview questionnaire one year later, the improvement in scoring scales above baseline were maintained, demonstrating the lasting effects of the encounter. This study was limited however by the failure of the authors to report the distribution amongst the sexes of those with improved levels of empathy given the well-established gender bias of female's capacity for empathy (reviewed in (15)). In addition, the authors did not use a control group, nor did they utilize the same SP for all students.

The use of standardized patients has been demonstrated to be an important and valuable learning tool in the teaching and training of medical professionals. However, while the interaction may be adequately sufficient for teaching physical examination skills, it is somewhat less effective at teaching empathy. The use of nursing home residents, standardized patients or virtual patients as examined by Quail *et al.* (2016) were found to be equally beneficial with respects to the amount of learning that can be derived from the interaction, its utility for learning how to interact with real patients and the degree of skill improvement as reported by the students with post interaction questionnaires. However, of the three patient interactions, it was only the

interactions with the actual nursing home residents that demonstrated a significant increase in the self-reported level of student empathy using the Jefferson Scale of Empathy – Health Professions Student Version (30). The authors attribute this to the nature of the discourse exchanges with the nursing home residents. The clinical educators present during the interviews noted that the interviews with the actual nursing home residents tended to be longer, offering more time for rapport building and further exploration of conversation topics. Of note, this experiment was performed using 62 participants, of which only one was a male.

Further to the validity of utilizing standardized patients for teaching empathy, Schweller *et al.* (2014) were able to demonstrate a significant increase in the level of student empathy with their experimental design (31). Their approach differed from Quail *et al.* (2016) by utilizing weekly simulation interactions over a four week period (each student would participate in one interaction and bear witness to the other three simulated interactions of their peers with the SPs) with in-depth debriefing lead by the doctoring physicians after each interaction. Furthermore, the post-interaction questionnaires were not completed until after all four weeks, allowing for reflection of not only ones own performance but also the performance of one's peers. This approach demonstrated an increase in the empathy scores of both the 4th year students (from 115.8 to 121.1; $p < 0.001$) and of the 6th year students (from 117.1 to 123.5; $p < 0.001$). Of note, these findings are consistent with the observed dip in empathy of medical students during the transition into the clinical years. This study by Schweller *et al.* (2014) was out of Brazil where the medical training of students is a 6 year program; students begin to perform consultations of their own patients in the fourth year. Interestingly, Schweller *et al.* (2014) reported significant increases in the level of empathy by not only the fourth year students but also the sixth year students as well (30). Unfortunately, while the authors did comment on having intentions to

follow up with the participants of the study for further investigation of the degree at which the increased capacity for empathy has been maintained, this data is as of yet not available.

Self-awareness is another big issue given that as discussed above, medically trained health care providers alike tend to overestimate their abilities to be empathetic (20, 21). This in turn can be a factor that limits the ability of students to enhance their empathetic ability. While feedback and self-evaluation post-patient interactions have been shown to be a useful method of teaching empathy to students, Kalish *et al.* (2011) found it very efficacious to have students reflect on a video tape recording of their own patient interaction (19). In short, the education experience design included pre-readings and previewing the compassionate care questionnaire followed by a patient interview with one of 10 different rheumatological patients. Students were also asked to self-evaluate the patient interaction prior to watching the video using a questionnaire. Subsequently, students reviewed the video with direction to *tag* the video with an electron text bubble at a point that they felt demonstrated compassionate care and at least one missed opportunity to demonstrate compassionate care. In addition, students were asked to evaluate the degree of expressed empathy, as well as recognize the opportunities (missed or maximized) for compassionate care of their own video recordings as well as the interactions performed by their colleagues. The results of the comparison of the pre- and post-interaction self-evaluation questionnaires revealed lower scores post-review of the video suggesting that the students were able to in hindsight recognize the areas that they can improve on. Unfortunately, obvious limitations to this study then, are the fact that this inferred increase in empathy was not demonstrated with a subsequent patient interaction evaluation, and the lack of standardization amongst the patient cohorts, and small sample size (n=9).

Empathy Taught Through Experience

Some have argued that the definition of empathy requires a component of previously having experienced the same or at least a similar situation in order to be successful at putting yourself in another's shoes (23). Latham *et al.* (2011), while assessing the perception medical students have on the burden of psoriasis also demonstrated an inferred increase in some of the student's level of empathy for the psoriasis burdened patients (32). This was achieved using a rather unique approach of having a psoriasis-looking tattoo applied to their body and asked to walk around in public for 24hrs with the tattoo visible. Pre- and post-questionnaires were used to assess the baseline perception of burden of various diseases with psoriasis and eczema scoring in the lowest physical impact. Post-questionnaire shows a significant increase in the perception of both the physical impact and the emotional impact of psoriasis. Unfortunately, the authors fail to report any direct measure of empathy and subsequently empathy change as a result of the psoriasis tattoo experience.

The summation of the nine papers reviewed in this article demonstrates a variety of methods that can be effective at increasing the capacity of one's empathy level. These methods include watching videos depicting successful and ineffective examples of patient encounters, debriefing or focus groups, simulated clinical interactions with and without clinical educators present and reflection on video recordings of patient interaction. Furthermore, combining the use of multiple methods seems to increase the utility of methods that independently were unable to show a significant effect. Therefore, using assigned readings, including that of animated comics and letter writing alone may not provide a significant increase in empathy, but in conjunction with one of the aforementioned methods, these methods can have a useful role in the education process.

Making Sense of the Findings:

Increasing the Awareness of Empathy

The use of *priming* and focus or discussion groups has supporting evidence for being a practical means of increasing the level of empathy for students. However, the mechanism of how this happens is not fully understood. One possibility may be as simple as just having the issue of declining empathy pointed out to the student. By simply making students aware of the problem, thereby allowing them the opportunity to address this concern may be the initial step needed to overcome the inertia of stifled empathy. Similarly, ensuring a clear understanding of the definition of empathy by students with assigned reading materials could also be as efficacious. Kalish *et al.* (2011) had study participants preview the compassionate care questionnaire prior to the patient interaction, in essence predefining the criteria for a compassionate patient interaction. Optimistically, Kushner *et al.* (2014) demonstrated an empathy increase that was maintained over a period of one year post intervention (which included Pre-readings and small group reflection session) which demonstrates valuable returns on the efforts of the interventions. Since *priming* students with pre-readings, defining the requirements for an empathetic patient interaction or having short discussions with mentors on the topic of empathy requires little time to perform, it makes such interventions a practical means of raising awareness and thereby enhancing empathy levels of students.

The Experience of Empathy

Awareness clearly plays an important role in producing empathetic patient interactions, but no studies reviewed in this article were able to demonstrate significant increases in empathy with just the use of priming techniques. From the six of nine articles reviewed that demonstrated significant increases in empathy, the commonality amongst five of them was having the student

experience human interaction. Lim *et al.* (2001), Kushner *et al.* (2014) and Schweller *et al.* (2014) reported significant increases in empathy utilizing some component of priming and/or group discussion and interactions with standardized patients, suggesting a successful recipe for creating the opportunity for expressing empathy. Conversely, in lieu of utilizing any priming techniques, Quail *et al.* (2016) reported no significant increases in empathy from students that interacted with standardized or virtual patient. Interestingly, when students were subjected to interaction with actual nursing home residents, Quail *et al.* (2016) did report a significant increase in self-reported empathy. Taken together, this would suggest one possible origin for empathy may lie within the experience itself; within the summation of the discourse, posturing by the patient, pain filled eyes of a patient with longstanding, exhausting burden. This concurs with the non-significant results presented with just reading about the afflicting ailment and how it can affect a patient (25). Arguably, these findings may in fact suggest that the definition of empathy need be adjusted to require some component of experience. As demonstrated by Latham *et al.* (2011) with their approach to teaching empathy with psoriasis tattoos, perhaps the best way to put yourself into someone else's shoes is to have worn at least a similar pair yourself. While not all disease states can be simulated, the experience of being intimately involved with the plight of a patient may facilitate insight into the human condition not otherwise achievable through didactic training.

Increasing the Capacity for Empathy

The results of this review in no way offer a definitive answer to the question, can empathy be taught to medical students? As previously demonstrated, student empathy declines for some within the third year (16, 17), with one proposed explanation being student focus on the biomedicine and making the diagnoses, subsequently distracting from the practitioner patient

dynamics needed for an empathetic interaction (10). Four of the six papers reviewed here that demonstrated a significant increase in empathy were done so using third to sixth year students. Therefore, it is difficult to differentiate an educated increase in their capacity for empathy as opposed to merely helping the students return to their initial baseline prior to the well-established decline noted for the third year. Two studies reviewed however, did report a significant increase with first year students which would support teaching of empathy and not just recovering the lost level. The overlapping similarities of the interventions used by the teams that studied the first year students and the third through sixth year students may suggest a potentially successful approach to teaching empathy to all health care provider learners independent of the stage in their training.

Enhancing the Teaching of Empathy in Physician Assistant Training

The bulk of interventions used to significantly enhance the empathy of medical learners discussed above were performed in the time frame of hours to days. The implications of this for medical program curriculums, particularly Physician Assistant programs given their truncated timetable, should make the implementation of these interventions into existing programs feasible. Undoubtedly, all programs will already utilize some form of OSCE for performance evaluation. The addition of self-reported empathy questionnaires utilizing the Jefferson Scale of Physician Empathy for evaluation would be a relatively quick, simple and inexpensive way of promoting consideration for empathy amongst the mechanics of differentials and reiterating the need for empathy during practitioner-patient interactions. As a contributing factor to the significant increase in empathy levels reported by Kalish *et al.* (2011), students were given the questionnaire to review prior to the interview with the patient. This may be argued as a key

component to the reported success as it would have clearly outlined the theoretical framework for the exercise and prompted the student by placing empathy in the forefront of the exercise.

Integration of the questionnaire alone however is less likely to provide the best learning opportunity for student. Instead, enlist even just one OSCE station into an empathy theme based case to provide the occasion to experience a distressing situation a patient might be dealing with. Ultimately, the use of an OSCE as discussed above has demonstrated utility in the enhancing of student empathy even if it fails by comparison to interactions with actual patients. As demonstrated by Quail *et al.* (2016) the discourse from actual patients cannot be realistically mimicked by the standardized patients in order to produce a significant increase in lieu of any other additional intervention. Therefore, when looking to integrate empathy teaching into an OSCE situation it is recommended to ensure the design includes pairing an empathy themed OSCE with additional priming and/or group discussion interventions.

As discussed above, the empathetic ability over-estimation by students and residents alike dictates the making of recordings during OSCE stations and having not only the student, but also an experienced practitioner and the patient review the video and discuss constructive feedback as a group. The benefits of having students not only review videos of their colleagues but also of themselves have been previously demonstrated (19, 28), which could in turn be used to address the issue of overestimating their abilities. As an example, Kalish *et al.* (2011) reported the testimony of one student that described the interaction as contrived after having reviewed the videotape. It is not entirely unexpected that after having navigated the labyrinth of history details, the investigator may look back on the experience with a convoluted twist on the events that had just unfolded. Thus, group reviewing of recorded OSCE interviews can: provide students with the opportunity for self-reflection they may need in order to enhance their abilities,

produce an opportunity to discuss a better way with a mentor, while being a relatively easy addition to any medical program.

Of the many different interventional themes identified by this review, the only one which showed enhancement of empathy on its own was *Experience*. The article by Quail *et al.*, (2016) reported a significant increase in student empathy when the students interacted with actual patients (30). Similarly, Latham *et al.*, (2011) demonstrated significant increase in burden perception when students were tattooed with a psoriasis simulating tattoo (32). Simulating disease states may not be feasible for all curricula but patient interviews with actual patients should be. As one example, the University of Manitoba, Masters of Physician Assistant program (MPAS) students are currently required to be evaluated during an observed history and physical by senior staff at least twice during each clinical rotation using the RIME (Reporter, Interpreter, Manager, Educator) framework to clinical teaching and evaluation with previously demonstrated efficacy (33). One particular category in the Mini-CEX (clinical exam) evaluation form utilized by MPAS is *Civility & Professionalism*, which would be an appropriate place to incorporate an evaluation of empathy as well. The expected yield of such an intervention would be rather high as the format currently requires several of the interventions discussed above; observed interview and evaluation by senior staff with an actual patient and the encounter being discussed together providing constructive feedback for the student.

Conclusion:

The need for instruction pertaining to empathy in medical training programs is not a new idea and is slowly starting to become a reality. As current literature continues to amass evidence regarding the need for empathy within practitioner–patient interactions, undoubtedly, medical

schools will continue to advance their training programs to support the teaching of empathy. However, the need to ensure empathy related training within medical curricula may be somewhat more difficult to achieve for the shorter-in-duration Physician Assistant training programs. Reassuringly, the results of this review suggest significant enhancements in empathy can be achieved with interventions that require relatively short time frames to administer which are encouraging for the successful integration into Physician Assistant curricula. As previously demonstrated, Physician Assistant students also undergo a similar dip in empathy levels during the transition from didactic training to clinical rotations (22), suggesting a need for program updates. The first step in achieving this goal is of course awareness of the problem suggesting the need for formal evaluation of all students on the subject of empathy. Next would be the adjustment of educational programs to ensure the training of empathetic practitioners. Thus, the findings of this review suggest the following for successful enhancement of empathetic ability for students: 1) Provide students with appropriate readings about empathy, to clearly define it and as examples of what to do and what not to do, be it text or pictographically. 2) Provide students with the opportunity to experience real life examples of empathy requiring situations, either as the interviewer or as an observer of an experienced practitioner leading the interview, ideally with real patients. 3) Provide students with the opportunity to discuss the events of the aforementioned interviews with the mentor to ensure an acquired appreciation for the complexity that is curing with compassionate caring.

Acknowledgements:

I would like to thank my thesis mentor Dr. Jeff Sisler MD for his time and effort in this project; for both his valuable insight and advice. I thank the MPAS faculty and staff for their support. Most importantly, I would like to express my utmost gratitude for unrelenting family

support by my life partners Denise and Jordann, and my three wonderful children, William, Emily and Grace, for without their encouragement and support this could not have been possible.

Thank you all.

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