

RESEARCH ARTICLE

Pathways to empathy in mental health care providers

Lindsay L. Benster^{1*} Neal R. Swerdlow¹

Abstract: Stigmatization contributes to morbidity associated with mental illness, impeding treatment-from recognition and help-seeking, to recovery and resocialization. In contrast, empathy in mental health clinical practice is associated with less stigmatization and better outcomes. Among providers, empathy may be under-utilized as a positive therapeutic tool, and levels of empathy may be diminished by heavy clinical workloads. Strategies for “teaching empathy” have been proposed, and different forms of empathy training for medical and mental health professionals have been evaluated. This review summarizes the effectiveness of the most studied forms of formal empathy training - communication skills, simulation, audiotape analyses, perspective-taking and mindfulness training - as well as informal empathy training achieved by increased exposure to relevant populations. Effectiveness, assessed by a variety of metrics, was detected for several training approaches, applied to different cohorts of clinical providers and trainees, with effect sizes ranging from smaller to large. Despite the substantial variations in designs and target cohorts, the evidence suggests that empathy can be taught effectively to mental health providers, in a manner that should enhance clinician awareness and utilization of empathy as a tool to reduce stigmatization and improve life quality among patients with mental illness.

Keywords: empathy, training, mental health, mental illness, clinicians

1 Introduction

Neuropsychiatric disorders are the leading cause of disability worldwide^[1]; approximately 20% of adults in the United States experience a diagnosable mental illness each year^[2]. An estimated 56% of individuals with mental illness fail to receive treatment, primarily due to stigma or lack of resources^[3].

These stigma, prejudicial attitudes and discriminatory behavior, often reflect misconceptions about mental illness. Stigma impede help-seeking and treatment adherence, and contribute to impairments in social, scholastic and employment function; they are associated with lower quality of life, increased depression and suicidal ideation, symptom exacerbation and ultimately self-stigmatization^[4-10]. Prejudicial attitudes towards the mentally ill make it less likely for these individuals to obtain housing and jobs, and more likely for them to be arrested with longer periods of incarceration compared to indi-

viduals without mental illness^[5,7-10]. Individuals with mental illness are at increased risk for developing medical illnesses, yet are less likely to receive necessary and appropriate medical treatments^[11-13].

In contrast to the damaging effects of negative stigma, individuals with mental illness can benefit significantly from *empathy*. Like stigma, empathy can be viewed as an outward manifestation of internal attitudes; within individuals, higher levels of empathy are associated with lower levels of stigma^[14]. Generally defined as the ability to assume another individual’s perspective and share perceived or reactionary emotion, empathy among clinicians is associated with superior clinician-patient relationships, greater patient well-being and decreased symptom severity^[15]. In empathy-induced circumstances, treatment improves, and biases diminish^[16]. Importantly, mental health clinicians are often unaware of the limits in their empathic competencies^[17] and thus may not fully utilize empathy as a tool for improving patient health, safety and prognosis. In fact, among physicians, empathic behavior towards the mentally ill may be declining, due in part to high work demands and levels of “burnout”^[18,19]. Conceivably, by enhancing empathy among clinicians, it will be possible to blunt the negative consequences of mental health stigmatization, and ultimately enhance the quality of life of individuals with mental illness.

The goal of this systematic literature review is to identify methods for increasing empathy in clinical settings,

Received: March 16, 2020; Accepted: April 21, 2020; Published: April 24, 2020

* Correspondence to: Lindsay L. Benster, Department of Psychiatry, UCSD School of Medicine, 9500 Gilman Drive, La Jolla, CA 92093-0804, USA; Email: lindsaybenster@ucsd.edu

¹ Department of Psychiatry, UCSD School of Medicine, 9500 Gilman Drive, La Jolla, CA 92093-0804, USA

Citation: Benster LL and Swerdlow NR. Pathways to empathy in mental health care providers. *Adv Health Behav*, 2020, 3(1): 125-135.

Copyright: © 2020 Lindsay L. Benster, et al. This is an open access article distributed under the terms of the [Creative Commons Attribution License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

and to characterize their efficacy.

Empathy in a colloquial sense is the ability to vicariously feel or appreciate another individual's experience from his or her perspective. Because of its multidimensional nature, systematic studies of empathy have employed a variety of definitions and measurement strategies. For the purpose of this review, empathy is operationally defined as "the emotional and cognitive reactions of an individual in response to observed, shared or discussed experiences of another." Empathy or its correlates can be measured through physiological recordings, observations or global ratings based on self-reports. Scales commonly used for quantifying empathy or its properties are seen in Table 1.

Table 1 Examples of scales used to quantify empathy or its properties

Scale	Abbr.	Citation
Jefferson Scale of Physician Empathy	JSPE	[20]
Interpersonal Reactivity Index	IRI	[21]
Accurate Empathy Scale	AES	[22]
Emotional Empathy Scale	EES	[23]
Communication Skills Attitudes Scale	CSAS	[24]
Carkhuff Empathic Understanding Scale	CEUS	[25]
Empathy Construct Rating Scale	ECRS	[26]
Global Rating Scale	GRS	[27]
Hogans Empathy Scale	HES	[28]
Recognition Assessment-Empathy	RA-E	[29]
Empathy Quotient	EQ	[30]
Empathy Communication Coding System	ECCS	[31]
Empathic Tendency Scale	ETS	[32]

Innate empathy is present to varying degrees in all individuals, and is thought to stem from the evolutionary impact of altruism, as a mechanism and motivating factor for achieving return-benefits^[33]. Even within an individual, basic empathy fluctuates. For instance, empathic behavior is greater towards individuals considered to be a close relation or who share identified commonalities^[34]. Empathy can also be *trained*^[35], though the degree to which any individual can acquire empathy from experience or teaching may also reflect innate characteristics.

Affective or *emotional* empathy is the vicarious experience of shared emotions, in part responsible for motivating altruistic behavior^[36–38]. Social bonding, such as that between a parent and child, relies heavily on emotional empathy^[39]. *Cognitive* empathy is the process of assuming the perspective of another individual; it promotes understanding and enhances social functioning in navigating a complex social world. A third form of empathy is described as *behavioral* or somatic empathy^[40].

Via either nonverbal physiological responses or body language^[41], or verbal expressions of empathic attitudes^[42], behavioral empathy is a critical element in forming functional and supportive physician-patient relationships^[40,43]. These three types of empathy are interconnected and typically operate in a sequential fashion: experiences elicit an affective response, which in turn elicits cognitive empathy, which manifests itself in the observed or detected behavioral response. These forms of empathy may be differentially sensitive to training interventions, as discussed below.

We conducted a systematic review of studies investigating the impact of empathy trainings, using methodology described below.

2 Methods

2.1 Search strategies and identification of search terms

To identify relevant papers, searches were conducted through open access databases including *pubmed* and *psycnet*, for studies published between 1978 and 2020. Studies were also evaluated for validity and relevance to the primary topic of empathy training. Empathy training presented as 1 of 5 forms: communication skills, simulation, audiotape analyses, perspective taking or mindfulness training. The keywords in searches were divided into 2 categories: (1) empathy training and (2) mental health professionals. Search terms regarding empathy training included: empathy, attitudes, communication skills, mental illness, training. Search terms for mental health professionals included: mental health workers, clinicians, clinical professionals, physicians, clinicians. Searches were conducted July-August of 2018 and updated April of 2020.

2.2 Inclusion and exclusion criteria

Reports (Table 2) were included if published in peer-reviewed journal, accessible in English, and available in the full-text version. Studies involved: (1) health professionals; (2) an outcome assessing empathy or subcomponents of empathy; and (3) a comparison group and/or baseline assessment to evaluate differences. Papers were excluded if they were not relevant to empathy or mental health professionals as determined by reviewing abstracts for key terminology and methods.

Data was extracted from the included studies and effect sizes (*d*; Table 2) were calculated based on values for group means and standard deviations, as reported in tables or extrapolated from data figures, and ranged from 0.12 to 10.08, across 43 studies. Where data were inadequate or unsuitable for the calculation of effect sizes, other evidence of effectiveness (levels of statistical significance,

Table 2 Literature captured via this systematic review

Source	Intervention Type/Structure	Population sampled	Empathy measures	Sample Size	Summary of Findings	Effect Size
[27]	CST	Physicians	GRS and ECCS	160	Global empathy scores and empathic expression significantly improved from baseline after 18 hours of training divided into six 3-hour workshops	0.2-0.47
[44]	CST	Medical residents and physicians	Custom scale	59	Significant increase in attitudes towards clinical patients after 20-hour workshop	NA
[45]	CST	Social work students	EES	51	Significant improvement in experimental group mean empathy scores after 40-hour training across 5 months	4.74
[46]	CST	Medical students and residents	JSPE	203	Significant improvement in communication skills in participants receiving 25 hours of training compared to no improvement in the control group	0.78
[47]	CST	Medical students	AES	43	Significant empathic changes after 12-hour training intervention split up over 8 weeks	NA ($p \leq 0.001$)
[29]	CST	Mental health students	RA-E	47	Empathic sensitivity increased immediately after 10-week, 70-hour training and persisted over time	NA ($p < 0.001$)
[48]	CST	Medical students	CSAS and ETS	59	Empathic tendency increased but positive attitudes towards communication skills decreased after 30 hours of training	0.28-0.94
[49]	CST	Medical students	Observer Ratings	40	Participating in 15-hour skills workshop had a positive effect whereas being taught from others who participated yielded no significant effect	1.52-2.42
[50]	CST	Therapists	Observer Ratings	23	Notable improvement in empathic behavior after 56 hours of training	NA
[51]	CST	Social work students	CEUS	78	Significant increase in communication skills after 50-hour training intervention	1.57
[52]	CST	Therapy and counseling students	IRI	14	No significant change in reported empathic abilities, but significant changes in multicultural competencies (related to empathy) after 6-week intervention	0.33
[53]	Exposure	Psychiatric hospital staff	Likert scale	710	Psychiatrists and nurses with exposure to psychiatric patients demonstrated fewer negative views, compared to providers with less exposure to these patients	0.20
[54]	Exposure	Nurses	HES	54	Psychiatric nurses indicated higher empathy scores than surgical nurses	0.75-1.13
[55]	Exposure	Medical students	Custom Scale	1181	Exposure to educational activities in empathy correlated with higher empathy scores	0.18-0.43
[56]	Exposure	Physicians	Observer Ratings	1199	Perceived pain diminishes among more experienced physicians. Those who experience both compassion satisfaction and fatigue perceive more pain and suffer more distress.	2.23
[57]	Exposure	Practitioners, medical and nonmedical students	IRI, Empathy Quotient	100	Clinical practice, but not medical education, impacts empathy development and is instrumental in maintaining empathetic skills against the general trend of declining empathic accuracy with age	0.54
[58]	Exposure	Physicians	JSPE	704	Statistically significant differences were found in empathy scores among physicians in different specialties	0.62-1.17
[59]	Exposure	Psychiatric nursing and mental health students	Revised EES	204	Mental health educational experience improved nursing student's empathy towards patients	0.12-0.26
[60]	Exposure	Healthcare professionals	IRI	1109	Mental health workers exhibited higher empathic concern and discomfort for other's suffering	0.51-1.03
[61]	Exposure	Nursing students	JSPE (Nurses)	111	Both methods of contact-based education and commitment-based therapy were effective in increasing empathy towards patients with mental illnesses	0.56
[62]	Exposure	Psychologists, social workers, psychiatric and medical nurses	20-item scale	342	Professionals with training reported more positive empathy, less negative attitudes and greater perceived knowledge/competence	0.29-1.90

continued on next page - - -

--- continued from previous page

Source	Intervention Type/Structure	Population sampled	Empathy measures	Sample Size	Summary of Findings	Effect Size
[63]	ST	Medical students	JSPE	150	Empathy scores increased after simulated auditory hallucinations	0.36
[64]	ST	Psychiatric nursing students	5-point Likert empathy scale	67	Empathy scores increase after simulated auditory hallucinations	3.22
[65]	ST	Nursing students	Observer ratings	52	Significant differences in attitudes towards patients after experiencing voice simulation	NA
[66]	ST	Psychology students	12-item index	112	Virtual simulation and written empathy induction induced greater empathy towards patients with schizophrenia	2.8-7.6
[67]	ST	Medical students	AES	40	No significant difference between simulated or real patients for training purposes	NS ($d \leq 0.1$)
[68]	ST	Medical students	JSPE	247	Significant increase in empathy scores after intervention involving simulated patients	0.64
[69]	ST	Medical students	OSCE and JSPE	158	Intervention group demonstrated higher levels of empathy post-simulation. No significant difference between groups in self-rated empathy	0.8-1.0
[70]	ST	Psychology and undergraduate students	7-point likert scale	50	Significant increase in knowledge, attitudes and empathetic understanding post intervention	0.69-2.57
[71]	ST	Clinical Psychologists	Observer ratings	25	Significant increase in subjective clinical understanding, compassion and confidence	0.37-0.58
[72]	MT	Graduate health students	JSPE	28	Significant increases in empathy after 8 weeks of training	NA ($p < 0.01$)
[73]	MT	Nursing students	Observer ratings, IRI	16	No significant gains in primary empathy measure. MT associated with downward trends in personal distress and fantasy (two dimensions of empathy)	NA
[74]	MT	Counseling graduate students	IRI	179	Mindfulness positively associated with empathy	NA ($p < 0.01$)
[75]	MT	Counseling graduate students	Observer Ratings	33	Qualitative increase in capacity for empathy after mindfulness practice	NA
[76]	MT	Medical and premedical students	ECRS	200	Reduction in reported stress and anxiety increase in empathy levels	0.33
[77]	MT	Psychiatry students	HRQ	7	Significant increase in empathy and downward trend in burnout subscales after 8 weeks of training	NA
[78]	MT	Psychology Students and Professional Caregivers	IRI	37	Significant increase in empathy factors including: perspective taking, identification of one's own emotions and emotional acceptance after 8 weeks of training. No significant increase in empathic concern	0.24-1.39
[79]	AA	Physicians	Observer Ratings	8	Physicians missed 70% of identifiable empathic opportunities. Individual feedback from recorded interviews may improve physician performance	NA
[80]	AA	Medical students	AES	45	Empathy levels increased significantly after training. 3-year follow-up empathy levels remained higher than prior to training	2.35-10.08
[81]	AA	Medical students	AES	135	Significant increase in empathy levels assessed in interview after training program	NA
[82]	PTT	Medical students	Observer Ratings	608	Induced empathy via perspective taking significantly increased patient satisfaction	0.16-0.31
[83]	PTT	Medical students	CEUS	pilot	Significant increase in empathy, both self-reported and from observer ratings after training	NA
[84]	PTT	Medical students	OSCE/ Observer ratings	92	Significant increase in "overall empathy and insight rating", though no significant change in "empathy for patient"	NA (overall: $p < 0.04$; patient: NS)

Note: 1. Different empathy training types are indicated by middle lines

2. Key: NA = not available; NS = not statistically significant; CST = Communication Skills Training; ST = Simulation Training; AA = Audiotape Analyses, PTT = Perspective Taking Training; MT = Mindfulness Training; GRS = Global Rating Scale; OSCE = Objective Structured Clinical Examination; ECRS = Empathy; HRQ = Helpful Responses Questionnaire

qualitative assessments, *etc.*) are reported.

2.3 Specific forms of empathy training and empathy metrics

Due to the importance of empathy in clinical practice and the deficiencies in empathy across mental health workers, various methods of empathy training have been employed and evaluated. The studies in this review reported on the effectiveness of communication skills training (11 studies), exposure (10 studies), simulation training (9 studies), mindfulness training (7 studies), audiotape analysis training (3 studies), and perspective taking intervention (3 studies). To quantify empathy (Table 1), studies used various combinations of the following tools: 10 studies employed some form of observer ratings, 7 used the JSPE, 7 used an unspecified or custom scale, 6 used the IRI, 4 studies used the AES, 2 used the CEUS, 2 used the EES, 2 used OSCE, 1 used both the CSAS and the ETS, 1 used the HRQ, 1 used the ECRS, 1 used HES, 1 used GRS and ECCS and 1 used the RA-E. The sample sizes in these studies ranged from 7 to 1199.

All studies investigated either professionals or professionals in-training who interact with the mental health field in some capacity. Most studies (22) were conducted with medical or nursing students; of the remaining studies, 11 involved students in counseling, psychology, social work or mental health programs, 6 involved therapists, psychologists or other health professionals and 4 involved physicians.

3 Results

3.1 Communication skills training

Communication skill training was conducted using a variety of methodologies. Interventions typically were didactic in nature and contained a prominent lecture component; some utilized videos and role-play to provide practice opportunities.

Trainings ranged from 12 to 70 hours in duration^[29,47] and varied in frequency from 5 sessions to 20-week trainings^[45,46]. The various trainings shared 3 activities: (1) describe skills to be attained; (2) demonstrate effectiveness and importance; (3) teach necessary skills with opportunities to practice. The communication skills that were targeted in didactics and demonstrations included: empathy, two-way communication, respect, controlled reactions, active listening, values and goals, understanding the situation, problems and feelings, and non-verbal and verbal expression. All 11 studies reported an increase in empathic abilities after training. Empathy scores, including empathic sensitivity, empathic tendency, empathic behavior and global empathy, increased significantly among trained individual *vs.* a non-trained control group, or

compared to pre-training baseline levels, in 10 out of 11 studies^[27,29,44-51]. One study found a significant increase in empathy after training, but also demonstrated a decrease in positive attitudes towards communication skills^[48]. The remaining studies supported the notion that empathy training, focused on building communication skills, leads to greater empathy – both self-rated and rated by others. Effect sizes for studies employing communication skills training to enhance empathy (7) ranged from 0.2 to 4.74 (average $d = 1.61$).

3.2 Exposure

There are two main routes to increasing empathy through learning: explicit training (as with communication skills training) and exposure. Exposure consists of contact or experience with individuals with mental illness. Increased exposure to these individuals is associated with a heightened understanding of mental illness and less stigmatized attitudes, ultimately allowing more frequent and effective displays of empathy^[85].

Individuals with experience interacting with those diagnosed with mental illness demonstrate more positive attitudes and prosocial reactions towards the mentally ill^[86,87]; this positive impact of experience on empathy reflects changes in attitude towards mental illness^[88,89]. The effects on empathy of increased exposure to individuals with mental illness have been assessed in 9 studies: 3 compared across various psychiatric staff^[53,59,60,62], 3 compared health professionals and physicians of differing specialties^[54,56,58], 1 compared the immediate effect in mental health workers after an experience with psychiatric patients^[61], 1 compared medical professionals against nonmedical professionals^[57] and 1 compared empathy levels across physicians at various points in their careers^[55]. The sample sizes for exposure studies ranged from 54 to 1199 participants and typically involved an established self-report measure of empathy.

Among medical students, experienced clinicians, and age-matched non-clinician controls, clinical experience was the strongest predictor of empathic accuracy, empathic concern, greater perceived knowledge and competence, and discomfort for the suffering of others^[54,57,60,62]. Clinicians who specialize in treating mental illness have more empathy and less stigma towards those patients than do other medical professionals^[58,59]. Clearly, the causal relationship between experience and empathy could be bidirectional: greater levels of patient exposure might produce more empathy, and individuals who are more empathic towards the mentally ill might self-select for a career in Psychiatry. Even among individuals who self-select work with the mentally ill, their level of exposure is associated with their empathy and attitudes:

Bodner *et al.*^[53] found that nurses and psychiatrists reported more interactions with psychiatric patients, and more empathy and fewer negative attitudes towards these patients, compared to psychologists and social workers. Among psychiatric nurses, more education about mental illness is associated with greater empathy towards patients with mental illness^[91].

The relationship between the amount of experience and empathy is not necessarily linear: in some individuals, high levels of experience - particularly if it is associated with “secondary traumatic stress” - can lead to “burnout” and a loss of empathy^[19]. Some individuals with high basal levels of empathy may be vulnerable to experiential “burnout”, though some level of basal empathy may also be needed for the positive impact of experience on empathy and job satisfaction^[19].

Clinical experience, and not medical education per se, impacts empathy development and plays a critical role in maintaining empathic skills^[57]. With progression through medical school, as students get more clinical experience, stigma declines and positive perceptions of the mentally ill increase, though empathic behavior as exhibited by social distance remains unchanged^[92].

Effect sizes for all studies examining the relationship of the amount of exposure to measures of empathy (10) ranged from 0.12 to 2.23 (average $d = 0.77$).

3.3 Simulation training

Nine studies involved either a simulated patient (SP) or an immersive simulated patient symptom experience. SP training combines features of exposure and targeted skills training. In SP scenarios, either professional actors or medical professionals act as patients. Participants interview SPs while being observed or videotaped by the instructor, who provide feedback related to empathic behaviors and empathic opportunities^[67–69]. In symptom simulations, participants listen to a voice recording that mimics auditory hallucinations, while attempting to execute various tasks^[63–65, 70, 71]. In three studies, simulations were used together with didactic emphasis on the importance of empathy and how to convey it^[67–69]. Simulation studies generally reported significant increases in observed empathy levels as well as attitudes towards patients; one exception^[69] reported that self-assessed empathy did not increase after symptom simulation. Sanson-Fisher and Poole^[67] explored the potential for extrapolation of SPs by comparing medical students’ ability to empathize with SPs to genuine patients and found no significant difference, indicating trainings targeting empathy using such tools can be applied to real-world situations, in line with previous findings^[93]. Effect sizes for studies employing simulation training (7) to enhance empathy

ranged from 0.36 to 7.6 (average $d = 1.78$).

3.4 Mindfulness

Mindfulness is an intentional attitude characterized by openness and acceptance of experience^[94]; it promotes self-compassion, which in turn enhances one’s ability to treat others compassionately. Seven studies examined the use of mindfulness training to enhance empathy, focusing on interventions such as increasing awareness of one’s own body sensations, thoughts and emotions. Mindfulness training has been shown to reduce perceived stress, increase effectiveness of care^[95] and increase empathic behavior and attitudes^[96].

One specific application for mindfulness training may be to blunt the effects of “compassion fatigue” or “burnout”. Compassion fatigue results from repeated stressful clinical interactions; it is associated with a desensitization to suffering and therefore reduced empathy^[56]. Stress reduction trainings, including mindfulness, can combat provider burnout, leading to higher patient satisfaction and perceived empathy^[97]. A similar training - compassion training - may also be effective in reducing burnout and its effects on provider empathy^[98].

Seven studies of mindfulness training reported an increase in empathic behavior. Greason *et al.*, 2009^[74] reported that counselors who practiced mindfulness techniques also exhibited greater empathy. Five studies assessed the impact of mindfulness interventions, all incorporating some form of meditation^[73, 75–78]; four studies used 8-week courses of weekly guided meditation^[72, 75–77] and one study used a 15-week mindfulness-based stress reduction course employing yoga, meditation and Qigong exercises^[75]. All seven studies reported gains in a dimension of empathy; only two effect sizes were available ranging from 0.24-1.39 ($d = 0.57$).

3.5 Audiotape training

Three studies examined the use of audiotapes to enhance empathy. These studies shared similar design features to the simulation training studies, except that interviews with real patients were taped. Taped sessions were analyzed and empathic opportunities were identified. Easter 2004^[79] found that physicians missed 70 percent of actionable empathic opportunities through analysis of patient interviews. Poole and Sanson-Fisher 1980^[80] and Sanson-Fisher and Poole 1978^[81] both demonstrated that the use of audiotapes and coaching on empathic opportunities can increase empathy skills for up to 1 year^[80]. Only one study employing audiotape analysis to enhance empathy provided calculable effect sizes, which ranged from 2.35 to 10.08, depending on the training cohort^[80].

3.6 Perspective taking

Perspective taking studies primarily enhance cognitive empathy. Participants either interview a patient or hear a medical history, and are asked to discuss the emotions that the patient was likely to be experiencing. All 3 studies of perspective taking found the training to be effective. In Blatt *et al.* 2010^[82], patients reported higher satisfaction with their experience with physicians who had been trained in perspective taking, *vs.* an untrained comparison group. In the 2 other studies, trained providers had a significant increase in both observed and self-reported empathy^[83,84]. Effect sizes for studies employing perspective taking to enhance empathy (1) ranged from 0.16 to 0.31 (average $d = 0.24$) depending on cohort^[82].

4 Discussion

A growing literature suggests that it is possible to foster among various different types of health providers more positive attitudes and empathic behavior towards individuals with mental illness. Empirical findings with communication skills, exposure, simulation training and mindfulness training all support gains in empathy, in many cases with medium-to-large effect sizes. Even within any given form of training, the wide variety of interventions, study methodologies and study cohorts make it impossible to systematically identify factors that moderate the success of empathy training. Many other important factors, such as the clinical impact of the gained empathy (*e.g.* whether all forms of trained empathy translate to better clinical outcomes), the durability of these empathy gains, and the specificity of these effects for particular cohorts or cultures, remain to be fully addressed.

Collectively, the literature suggests that there are many different pathways to acquiring empathy towards individuals with mental illness. Among the studies reviewed here, gains in empathy were evident in response to interventions that included both active and passive features: (1) actively targeting specific skill sets (communication); (2) “spending time” in clinical settings without an explicit goal of becoming more empathic (exposure); (3) combining experience and skills training (via simulation with instruction); or (4) gaining self-awareness as a primary goal, with gains in empathy as a secondary or emergent outcome (mindfulness). We do not know whether the empathy gained via these different pathways is comparable in terms of its clinical impact (*e.g.* as perceived by patients), generalizability or longevity, or whether certain individuals might be more or less predisposed to learn empathy via particular approaches. For clinical trainees in exposure-rich medical schools, nursing schools, graduate schools or Residency training programs, adding either

skill-based or introspection-based interventions, or both, would appear to be viable ways to enhance empathy that complement the impact of clinical exposure.

While the literature generally is supportive of the notion that empathy can be trained or at least systematically acquired via exposure, there are clearly limitations that might temper this conclusion. Many studies employed self-report measures or observer ratings, which may not be fully reliable^[19,49,50,65,71,73,75,79,82,84]. Several studies reported qualitative or anecdotal results; even among those that reported quantitative results, the use of 12 different empathy scales (across the studies reviewed here) makes it likely that meaningful comparisons across interventions would be complicated by differences in scale sensitivity, or even in the particular constructs of empathy being assessed by these scales. Some studies involved prospective controlled tests of a specific intervention^[27,29,44–52,61–66,68–73,75–78,80–84], while others reported cross-sectional data applying specific scales to cohorts that differed in their history of clinical exposure to mentally ill patients. Thus, while the consistent theme from this literature is that “empathy training works”, the field is not yet positioned to select among the many training approaches ones that will be most effective for particular cohorts to address particular clinical needs.

As noted above, it is also challenging to understand the potential role of self-selection in many studies of empathy training among mental health providers. Mental health professionals demonstrate greater empathic behavior and attitudes towards mentally ill patients, compared to non-psychiatric physicians and non-clinical workers^[53,57,60,94]. Within particular cohorts (*e.g.* physicians-in-training), more clinical exposure is associated with greater empathy. While these patterns could certainly reflect the positive impact of both exposure and education on empathy, it is alternatively possible that individuals maintaining more positive attitudes towards mental illness self-select to work in this field, or to pursue more clinical training. Importantly, the findings that empathy can be “taught” via several different approaches, and that gains can be demonstrated among individuals who do not identify as mental health providers (*e.g.* general medical students), suggests that the effectiveness of these approaches may not rely entirely on self-selection, and may generalize across different populations.

In summary, clinician empathy is associated with destigmatization, symptom reduction, treatment response, satisfaction and well-being among patients with mental illness. Clinicians may not be fully aware of their empathic tendencies, and may not fully utilize empathy as a therapeutic tool. Studies have identified opportunities for trainees or providers to increase empathy by learn-

ing specific communication skills, gaining “real world” or simulated clinical experience, or through mindfulness training. Empathy training would appear to be an important part of the curriculum for any future clinicians, and particularly for those who plan to work with patients with mental illness.

Funding

NRS was supported by R25MH101072.

References

- [1] Whiteford HA, Degenhardt L, Rehm J, *et al.* Global burden of disease attributable to mental and substance use disorders: findings from the Global Burden of Disease Study 2010. *The Lancet*, 2013, **382**: 9-15.
[https://doi.org/10.1016/S0140-6736\(13\)61611-6](https://doi.org/10.1016/S0140-6736(13)61611-6)
- [2] Any Mental Illness (AMI) Among Adults.
<http://www.nimh.nih.gov/health/statistics/premental-illness-ami-among-adults.shtml>
- [3] Mental Health America (MHA). The State of Mental Health in America 201.
<http://www.mentalhealthamerica.net/issues/state-mental-health-america>
- [4] Angermeyer MC and Matschinger H. The stigma of mental illness: Effects of labelling on public attitudes towards people with mental disorder. *Acta Psychiatr Scand*, 2003, **108**: 304-309.
<https://doi.org/10.1034/j.1600-0447.2003.00150.x>
- [5] Bordieri JE and Drehmer DE. Hiring decisions for disabled workers: looking at the cause. *Journal of Applied Social Psychology*, 2006, **16**: 197-208.
<https://doi.org/10.1111/j.1559-1816.1986.tb01135.x>
- [6] Corrigan PW. Mental health stigma as social attribution: implications for research methods and attitude change. *Clinical Psychology: Science and Practice*, 2006, **7**: 48-67.
<https://doi.org/10.1093/clipsy.7.1.48>
- [7] Farina A, Thaw J, Lovern JD, *et al.* People’s reactions to a former mental patient moving to their neighborhood. *American Journal of Community Psychology*, 2006, **2**: 108-112.
[https://doi.org/10.1002/1520-6629\(197404\)2:2<108::AID-JCOP2290020204>3.0.CO;2-6](https://doi.org/10.1002/1520-6629(197404)2:2<108::AID-JCOP2290020204>3.0.CO;2-6)
- [8] Sosowsky L. Explaining the increased arrest rate among mental patients: a cautionary note. *American Journal of Psychiatry*, 2006, **137**: 1602-1605.
<https://doi.org/10.1176/ajp.137.12.1602>
- [9] Teplin LA. Criminalizing mental disorder: The comparative arrest rate of the mentally ill. *American Psychologist*, 1984, **39**: 794-803.
<https://doi.org/10.1037/0003-066X.39.7.794>
- [10] Steadman HJ, McCarty DW and Morrissey JP. The mentally ill in jail: Planning for essential services. New York: Guilford, 1989.
- [11] Deegan PE. Spirit breaking: when the helping professions hurt. *Journal of Humanistic Psychology*, 1980, **18**: 301-313.
<https://doi.org/10.1080/08873267.1990.9976897>
- [12] Lawrence D and Kisely S. Review: Inequalities in healthcare provision for people with severe mental illness. *Journal of Clinical Psychopharmacology*, 2010, **24**: 61-68.
<https://doi.org/10.1177/1359786810382058>
- [13] Correll CU, Detraux J, Lepage JD, *et al.* Effects of antipsychotics, antidepressants and mood stabilizers on risk for physical diseases in people with schizophrenia, depression and bipolar disorder. *World Psychiatry*, 2015, **14**: 119-136.
<https://doi.org/10.1002/wps.20204>
- [14] Overton SL and Medina SL. The stigma of mental illness. *Journal of Counseling & Development*, 2008, **86**: 143-151.
<https://doi.org/10.1002/j.1556-6678.2008.tb00491.x>
- [15] Doyle C, Lennox L and Bell D. A systematic review of evidence on the links between patient experience and clinical safety and effectiveness. *BMJ Open*, 2013, **3**: 1-18.
<https://doi.org/10.1136/bmjopen-2012-001570>
- [16] Drwecki BB, Moore CF, Ward SE, *et al.* Reducing racial disparities in pain treatment: The role of empathy and perspective-taking. *Pain*, 2011, **152**: 1001-1006.
<https://doi.org/10.1016/j.pain.2010.12.005>
- [17] O’Connor K, King R, Malone KM, *et al.* Clinical examiners, simulated patients, and student self-assessed empathy in medical students during a psychiatry objective structured clinical examination. *Academic Psychiatry*, 2014, **38**: 451-457.
<https://doi.org/10.1007/s40596-014-0133-8>
- [18] Neumann M, Edelhuser F, Tauschel D, *et al.* Empathy decline and its reasons: a systematic review of studies with medical students and residents. *Academic Medicine*, 2011, **86**: 996-1009.
<https://doi.org/10.1097/ACM.0b013e318221e615>
- [19] Gleichgerricht E and Decety J. The relationship between different facets of empathy, pain perception and compassion fatigue among physicians. *Frontiers in Behavioral Neuroscience*, 2014, **8**: 243.
<https://doi.org/10.3389/fnbeh.2014.00243>
- [20] Hojat M. The Jefferson Scale of Physician Empathy. *Empathy in Patient Care*, 2007, 87-115.
https://doi.org/10.1007/0-387-33608-7_7
- [21] Davis MH. Interpersonal Reactivity Index. *PsycTESTS Dataset* 1980.
<https://doi.org/10.1037/t01093-000>
- [22] Truax CB. A scale for the measurement of accurate empathy. *Psychiatric Institute Bulletin*. Wisconsin: Wisconsin Psychiatric Institute, 1961.
- [23] Mehrabian A and Epstein N. A measure of emotional empathy. *Journal of Personalized Medicine*, 1972, **40**: 52-543.
<https://doi.org/10.1111/j.1467-6494.1972.tb00078.x>
- [24] Rees C, Sheard C and Davies S. Communication Skills Attitude Scale. *Medical Education*, 2002, **36**: 141-147.
<https://doi.org/10.1046/j.1365-2923.2002.01072.x>
- [25] Engram BE and Vandergoot D. Correlation between the Truax and Carkhuff scales for measurement of empathy. *Journal of Counseling Psychology*, 1978, **25**: 349-351.
<https://doi.org/10.1037/0022-0167.25.4.349>
- [26] La Monica EL. Construct validity of an empathy instrument. *Research in Nursing & Health*, 1981, **4**: 389-400.
<https://doi.org/10.1002/nur.4770040406>

- [27] Bonvicini KA, Perlin MJ, Bylund, CL, *et al.* Impact of communication training on physician expression of empathy in patient encounters. *Patient Education and Counseling*, 2009, **75**: 3-10.
<https://doi.org/10.1016/j.pec.2008.09.007>
- [28] Hogan R. Development of an empathy scale. *Journal of Consulting and Clinical Psychology*, 1969, **33**: 307-316.
<https://doi.org/10.1037/h0027580>
- [29] Gantt S, Billingsley D and Giordano JA. Paraprofessional skill: maintenance of empathic sensitivity after training. *Journal of Counseling Psychology*, 1980, **27**: 374-379.
<https://doi.org/10.1037/0022-0167.27.4.374>
- [30] Baron-Cohen S and Wheelwright S. The empathy quotient: an investigation of adults with Asperger syndrome or high functioning autism, and normal sex differences. *Journal of Autism and Developmental Disorders*, 2004, **34**: 163-175.
<https://doi.org/10.1023/B:JADD.0000022607.19833.00>
- [31] Bylund CL and Makoul G. Examining empathy in medical encounters: an observational study using the empathic communication coding system. *Health Communication*, 2005, **18**: 123-140.
https://doi.org/10.1207/s15327027hc1802_2
- [32] Dkmen, . Measuring empathy based on a model and improving it by psychodrama. *Journal of Educational Sciences*, 1988, **6**: 155-190.
- [33] Waal FB. Putting the altruism back into altruism: the evolution of empathy. *Annual Review of Psychology*, 2008, **59**: 279-300.
<https://doi.org/10.1146/annurev.psych.59.103006.093625>
- [34] Coplan, A. Will the real empathy please stand up? A case for a narrow conceptualization. *Southern Journal of Philosophy*, 2011, **49**: 40-65.
<https://doi.org/10.1111/j.2041-6962.2011.00056.x>
- [35] Benbassat J and Bauml R. What is empathy, and how can it be promoted during clinical clerkships? *Academic Medicine*, 2004, **79**: 832-839.
<https://doi.org/10.1097/00001888-200409000-00004>
- [36] Darwin C. *The descent of man, and selection in relation to sex*. London: J. Murray, 1871.
<https://doi.org/10.5962/bhl.title.2092>
- [37] Davis, MH. *Empathy: A Social Psychological Approach*. Colorado: Westview Press, 1994.
- [38] Batson CD. Empathy and altruism. In: *The Oxford Handbook of Hypo-egoic Phenomena*. Oxford: Oxford University Press, 2017.
<https://doi.org/10.1093/oxfordhb/9780199328079.013.11>
- [39] Smith A. Cognitive empathy and emotional empathy in human behavior and evolution. *The Psychological Record*, 2006, **56**: 3-21.
<https://doi.org/10.1007/BF03395534>
- [40] Bylund CL and Makoul G. Empathic communication and gender in the physician-patient encounter. *Patient Education and Counseling*, 2002, **48**: 207-216.
[https://doi.org/10.1016/S0738-3991\(02\)00173-8](https://doi.org/10.1016/S0738-3991(02)00173-8)
- [41] Marci CD, Ham J, Moran E, *et al.* Physiologic correlates of perceived therapist empathy and social-emotional process during psychotherapy. *The Journal of Nervous and Mental Disease*, 2007, **195**: 103-111.
<https://doi.org/10.1097/01.nmd.0000253731.71025.fc>
- [42] Messina I, Palmieri A, Sambin M, *et al.* Somatic underpinnings of perceived empathy: the importance of psychotherapy training. *Psychotherapy Research*, 2013, **23**: 169-177.
<https://doi.org/10.1080/10503307.2012.748940/>
- [43] Winefield HR and Chur-Hansen A. Evaluating the outcome of communication skill teaching for entry-level medical students: does knowledge of empathy increase? *Medical Education*, 2000, **34**: 90-94.
<https://doi.org/10.1046/j.1365-2923.2000.00463.x>
- [44] Briggs GW and Replegle WH. Effect of communication skills training on residents attitudes toward their patients. *Academic Medicine*, 1991, **66**: 243.
<https://doi.org/10.1097/00001888-199104000-00020>
- [45] Erera P. Empathy training for helping professionals. *Journal of Social Work Education*, 1997, **33**: 245-260.
<https://doi.org/10.1080/10437797.1997.10778868>
- [46] Fernandez-Olano C, Montoya-Fernandez J and Salinas-Sanchez AS. Impact of clinical interview training on the empathy level of medical students and medical residents. *Medical Teacher*, 2008, **30**: 322-324.
<https://doi.org/10.1080/01421590701802299>
- [47] Fine VK and Therrien ME. Empathy in the doctor-patient relationship. *Academic Medicine*, 1977, **52**: 752-757.
<https://doi.org/10.1097/00001888-197709000-00005>
- [48] Harlak H, Gemalmaz A, Gurel F, *et al.* Communication skills training: effects on attitudes toward communication skills and empathic tendency. *Education for Health*, 2008, **21**: 62.
- [49] Kramer D, Ber R and Moore M. Increasing empathy among medical students. *Medical Education*, 1989, **23**: 168-73.
<https://doi.org/10.1111/j.1365-2923.1989.tb00881.x>
- [50] Nerdrum P and Rnnestad MH. The trainees' perspective: a qualitative study of learning empathic communication in Norway. *Journal of Counseling Psychology*, 2002, **30**: 609-629.
<https://doi.org/10.1177/00100002030004007>
- [51] Nerdrum P. Maintenance of the effect of training in communication skills: a controlled follow-up study of level of communicated empathy. *The British Journal of Social Work*, 1997, **27**: 705-722.
<https://doi.org/10.1093/oxfordjournals.bjsw.a011261>
- [52] Seto A, Young S, Becker KW, *et al.* Developing multicultural competencies with the triad training model. *Hidden Messages in Culture-Centered Counseling: A Triad Training Model*, 2011, 101-114.
- [53] Bodner E, Cohen-Fridel S, Mashiah M, *et al.* The attitudes of psychiatric hospital staff toward hospitalization and treatment of patients with borderline personality disorder. *BMC Psychiatry* 2015, **15**: 2.
<https://doi.org/10.1186/s12888-014-0380-y>
- [54] Brown NW and Hunter A. Empathy scores of nurses, psychiatrists and hospital administrators on the California Psychological inventory. *Psychological Reports*, 1987, **60**: 295-300.
<https://doi.org/10.2466/pr0.1987.60.1.295>
- [55] DiLalla LF, Hull SK and Dorsey JK. Effect of gender, age, and relevant course work on attitudes toward empathy, patient spirituality, and physician wellness. *Teaching and Learning in Medicine*, 2004, **16**: 165-170.
https://doi.org/10.1207/s15328015tlm1602_8

- [56] Gleichgerricht E and Decety J. Empathy in clinical practice: how individual dispositions, gender, and experience moderate empathic concern, burnout, and emotional distress in physicians. *PLoS One*, 2013, **8**: e61526. <https://doi.org/10.1371/journal.pone.0061526>
- [57] Handford C, Lemon J, Grimm MC, *et al.* Empathy as a function of clinical exposure—reading emotion in the eyes. *PLoS One*, 2013, **8**: e65159. <https://doi.org/10.1371/journal.pone.0065159>
- [58] Hojat M, Gonnella J, Nasca T, *et al.* Physician empathy: definition, components, measurement, and relationship to gender and specialty. *American Journal of Psychiatry*, 2002, **159**: 1563-1569. <https://doi.org/10.1176/appi.ajp.159.9.1563>
- [59] Mousa M. Empathy toward patients with mental illness among baccalaureate nursing students: impact of a psychiatric nursing and mental health educational experience. *Journal of Education and Practice*, 2015, **6**: 98-107.
- [60] Santamara-Garca H, Baez S, Garca AM, *et al.* Empathy for others' suffering and its mediators in mental health professionals. *Scientific Reports*, 2017, **7**. <https://doi.org/10.1038/s41598-017-06775-y>
- [61] Vaghee S, Lotfabadi MK, AS, NV, *et al.* Comparing the effects of contact-based education and acceptance and commitment-based training on empathy toward mental illnesses among nursing students. *Iranian Journal of Psychiatry*, 2018, **13**: 119-127.
- [62] Muehlehnkamp J, Claes L, Quigley K, *et al.* Association of Training on Attitudes Towards Self-Injuring Clients across Health Professionals. *Archives of Suicide Research*, 2013, **17**: 462-468. <https://doi.org/10.1080/13811118.2013.801815>
- [63] Bunn W and Terpstra J. Cultivating empathy for the mentally ill using simulated auditory hallucinations. *Academic Psychiatry*, 2009, **33**: 457-460. <https://doi.org/10.1176/appi.ap.33.6.457>
- [64] Chaffin AJ and Adams C. Creating empathy through use of a hearing voices simulation. *Clinical Simulation In Nursing*, 2013, **9**: 293-304. <https://doi.org/10.1016/j.ecns.2012.04.004>
- [65] Dearing KS and Steadman S. Challenging stereotyping and bias: a voice simulation study. *Journal of Nursing Education*, 2008, **47**: 59-65. <https://doi.org/10.3928/01484834-20080201-07>
- [66] Kalyanaraman SS, Penn DL, Ivory JD, *et al.* The virtual doppelganger: effects of a virtual reality simulator on perceptions of schizophrenia. *The Journal of Nervous and Mental Disease*, 2010, **198**: 437-443. <https://doi.org/10.1097/NMD.0b013e3181e07d66>
- [67] Sanson-Fisher RW and Poole AD. Simulated patients and the assessment of medical students interpersonal skills. *Medical Education*, 1980, **14**: 249-253. <https://doi.org/10.1111/j.1365-2923.1980.tb02269.x>
- [68] Schweller M, Costa FO, Antnio M, *et al.* The impact of simulated medical consultations on the empathy levels of students at one medical school. *Academic Medicine*, 2014, **89**: 632-637. <https://doi.org/10.1097/ACM.000000000000175>
- [69] Wndrich M, Schwartz C, Feige B, *et al.* Empathy training in medical students - a randomized controlled trial. *Medical Teacher*, 2017, **39**: 1096-1098. <https://doi.org/10.1080/0142159X.2017.1355451>
- [70] Formosa NJ, Morrison BW, Hill G, *et al.* Testing the efficacy of a virtual reality-based simulation in enhancing users' knowledge, attitudes, and empathy relating to psychosis. *Australian Journal of Psychology*, 2018, **70**: 57-68. <https://doi.org/10.1111/ajpy.12167>
- [71] Riches S, Khan F, Kwieder S, *et al.* Impact of an auditory hallucinations simulation on trainee and newly qualified clinical psychologists: A mixed-methods cross-sectional study. *Clinical Psychology and Psychotherapy*, 2019, **26**: 277-290. <https://doi.org/10.1002/cpp.2349>
- [72] Barbosa P, Raymond G, Zlotnick, C, *et al.* Mindfulness-based stress reduction training is associated with greater empathy and reduced anxiety for graduate healthcare students. *Education for Health*, 2013, **26**: 9-14. <https://doi.org/10.4103/1357-6283.112794>
- [73] Beddoe AE, Murphy SO. Does mindfulness decrease stress and foster empathy among nursing students? *Journal of Nursing Education and Practice*, 2004, **43**: 305-312. <https://doi.org/10.3928/01484834-20040701-07>
- [74] Greason PB, Cashwell CS. Mindfulness and counseling self-efficacy: the mediating role of attention and empathy. *Counselor Education and Supervision*, 2009, **49**: 2-19. <https://doi.org/10.1002/j.1556-6978.2009.tb00083.x>
- [75] Schure MB, Christopher J and Christopher S. Mind-body medicine and the art of self-care: teaching mindfulness to counseling students through yoga, meditation, and Qigong. *Journal of Counseling & Development*, 2008, **86**: 47-56. <https://doi.org/10.1002/j.1556-6678.2008.tb00625.x>
- [76] Bentley PG, Kaplan SG and Mokonogho J. Relational mindfulness for psychiatry residents: a pilot course in empathy development and burnout prevention. *Academic Psychiatry*, 2018, **42**: 668-73. <https://doi.org/10.1007/s40596-018-0914-6>
- [77] Lamothe M, Mcduff P, Pastore YD, *et al.* Developing professional caregivers' empathy and emotional competencies through mindfulness-based stress reduction (MBSR): results of two proof-of-concept studies. *BMJ Open*, 2018, **8**: e018421. <https://doi.org/10.1136/bmjopen-2017-018421>
- [78] Shapiro SL, Schwartz GE and Bonner G. Effects of mindfulness-based stress reduction on medical and premedical students. *Journal of Behavioral Medicine*, 1998, **21**: 581-599. <https://doi.org/10.1023/A:1018700829825>
- [79] Easter D and Beach W. Competent patient care is dependent upon attending to empathic opportunities presented during interview sessions. *Journal of Current Surgery*, 2004, **61**: 313-318. <https://doi.org/10.1016/j.cursur.2003.12.006>
- [80] Poole AD and Sanson-Fisher RW. Long-term effects of empathy training on the interview skills of medical students. *Patient Education and Counseling*, 1980, **2**: 125-127. [https://doi.org/10.1016/S0738-3991\(80\)80053-X](https://doi.org/10.1016/S0738-3991(80)80053-X)
- [81] Sanson-Fisher RW and Poole AD. Training medical students to empathize: an experimental study. *The Medical Journal of Australia*, 1978, **1**: 473-476. <https://doi.org/10.5694/j.1326-5377.1978.tb112562.x>

- [82] Blatt B, Lelacheur SF, Galinsky AD, *et al.* Does perspective-taking increase patient satisfaction in medical encounters? *Academic Medicine*, 2010, **85**: 1445-1452.
<https://doi.org/10.1097/ACM.0b013e3181eae5ec>
- [83] Feighny KM, Monaco M and Arnold L. Empathy training to improve physician-patient communication skills. *Academic Medicine*, 1995, **70**: 435-436.
<https://doi.org/10.1097/00001888-199505000-00031>
- [84] Shapiro J, Rucker L, Boker J, *et al.* Point-of-view writing: a method for increasing medical students empathy, identification and expression of emotion, and insight. *Education for Health: Change in Learning & Practice*, 2006, **19**: 96-105.
<https://doi.org/10.1080/13576280500534776>
- [85] Couture SM and Penn DL. Interpersonal contact and stigma of mental illness: A review of the literature. *Journal of Mental Health*, 2003, **12**: 291-305.
<https://doi.org/10.1080/09638231000118276>
- [86] Angermeyer MC and Matschinger H. The effect of personal experience with mental illness on the attitude towards individuals suffering from mental disorders. *Social Psychiatry and Psychiatric Epidemiology*, 1996, **31**: 321-326.
<https://doi.org/10.1007/BF00783420>
- [87] Peris TS, Teachman BA and Nosek BA. Implicit and explicit stigma of mental illness. *The Journal of Nervous and Mental Disease*, 2008, **196**: 752-760.
<https://doi.org/10.1097/NMD.0b013e3181879dfd>
- [88] Jelencic M. The relationship between attitudes towards people with mental illness, empathy and belief in a just world. Diploma Thesis. Filozofski fakultet u Zagrebu: Department of Psychology, 2013.
- [89] Batson D, Chang J, Orr R, *et al.* Empathy, attitudes and action: can feeling for a member of a stigmatized group motivate one to help the group? *Personality and Social Psychology Bulletin*, 2002, **28**: 1656-1656.
<https://doi.org/10.1177/014616702237647>
- [90] Sandhu HS, Arora A, Brasch J, *et al.* Mental health stigma: explicit and implicit attitudes of Canadian undergraduate students, medical school students, and psychiatrists. *The Canadian Journal of Psychiatry*, 2018, **64**: 209-217.
<https://doi.org/10.1177/0706743718792193>
- [91] Hamdan-Mansour A and Wardam L. Attitudes of Jordanian mental health nurses toward mental illness and patients with mental illness. *Issues in Ment Health Nurs*, 2009, **30**: 705-711.
<https://doi.org/10.1080/01612840903131792>
- [92] Ono S, Hanya M, Tanaka H, *et al.* Changes in Attitudes of Japanese Pharmacy Students towards Mental Illness during the didactic portion of the Curriculum. *Pharmacy Education*, 2013, **13**: 145-150.
- [93] Kameg K, Mitchell AM, Clochesy J, *et al.* Communication and human patient simulation in psychiatric nursing. *Issues Ment Health Nurs*, 2009, **30**: 503-508.
<https://doi.org/10.1080/01612840802601366>
- [94] Brown KW and Ryan RM. The benefits of being present: mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, 2003, **84**: 822-848.
<https://doi.org/10.1037/0022-3514.84.4.822>
- [95] Germer CK and Neff KD. Self-compassion in clinical practice. *Journal of Clinical Psychology*, 2013, **69**: 856-867.
<https://doi.org/10.1002/jclp.22021>
- [96] Beitel M, Ferrer E and Cecero JJ. Psychological mindedness and awareness of self and others. *Journal of Clinical Psychology*, 2004, **61**: 739-750.
<https://doi.org/10.1002/jclp.20095>
- [97] Shanafelt TD. Enhancing meaning in work. *JAMA* 2009, **302**: 1338.
<https://doi.org/10.1001/jama.2009.1385>
- [98] Klimecki OM, Leiberg S, Ricard M, *et al.* Differential pattern of functional brain plasticity after compassion and empathy training. *Social Cognitive and Affective Neuroscience*, 2013, **9**: 873-879.
<https://doi.org/10.1093/scan/nst060>