Content and outcomes of narrative medicine programmes: a systematic review of the literature through 2019

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ABSTRACT

Objectives: Narrative medicine (NM) incorporates stories into health sciences paradigms as fundamental aspects of the human experience. The aim of this systematic review is to answer the research question: how effective is the implementation and evaluation of NM programmes in academic medicine and health sciences? We documented objectives, content and evaluation outcomes of NM programming to provide recommendations for future narrative-based education.

Methods: We conducted a systematic review of literature published through 2019 using five major databases: PubMed, Embase, PsycINFO, ERIC and MedEdPORTAL. Eligible NM programming included textual analysis/close reading of published literature and creative/reflective writing. Qualifying participants comprised individuals from academic medicine and health sciences disciplines. We reviewed and categorised programme goals, content and evaluation activities to assess participant satisfaction and programme efficacy. Two members of the research team assessed the risk of bias, independently screening records via a two-round, iterative process to reach consensus on eligibility.

Results: Of 1569 original citations identified, we selected 55 unique programmes (described in 61 records). In all, 41 (75%) programmes reported a form of evaluation; evaluation methods lacked consistency. Twenty-two programmes used quantitative evaluation (13 well described), and 33 programmes used qualitative evaluation (27 well described). Well-described quantitative evaluations relied on 32 different measures (7 validated) and showed evidence of high participant satisfaction and pre-post improvement in competencies such as relationship-building, empathy, confidence/personal accomplishment, pedagogical skills and clinical skills. An average of 88.3% of participants agreed or strongly agreed that the programme had positive outcomes. Qualitative evaluation identified high participant satisfaction and improvement in competencies such as relationship-building, empathy, perspective-taking/reflection, resilience and burnout detection/mitigation, confidence/personal accomplishment, narrative competence, and ethical inquiry.

Conclusion: Evaluation suggests that NM programming leads to high participant satisfaction and positive outcomes across various competencies. We suggest best practices and innovative future directions for programme implementation and evaluation.

INTRODUCTION

Narrative medicine (NM) is a framework for medicine and health sciences that values individuals’ stories and experiences as integral aspects of the lived experience of health and illness. Historically, the fields of knowledge associated with medicine/science and narrative/humanities were more integrated until about the 19th century. 1 Likewise, the proliferation of specialisation within medicine is a relatively modern conceptualisation that has necessitated advanced technical training, leaving less space in educational curricula for the cultivation of humanistic disciplines. 2 Significantly, whereas the recommendations of the 1910 Flexner Report pertaining to science-focused premedical and medical curricula reform have been heeded, its implications related to the importance of broader, humanities-focused training for aspiring physicians have gone largely neglected. 4, 5 However, with the rapid evolution of 20th-century medical technology, educational paradigms must shift to prepare well-rounded clinical and research professionals. 4, 6, 7 In contemporary health-care models, which sometimes fail to deliver holistic, patient-centred care, the core tenets of NM have emerged as a means of enhancing clinical care and promoting wellness.
Scholarly discussion of literature and medicine surfaced in academic literature in the 1970s. By 1995, one-third of American medical schools had incorporated literature courses into their curricula. Rita Charon introduced the term narrative medicine into the medical lexicon in 2001. NM continues to evolve as a framework for healthcare based on Charon’s assertion that: ‘The effective practice of medicine requires narrative competence, that is, the ability to acknowledge, absorb, interpret, and act on the stories and plights of others. Medicine practiced with narrative competence, called narrative medicine, is proposed as a model for humane and effective medical practice’. The philosophical and theoretical framework of NM has been reviewed comprehensively by Charon et al in The Principles and Practice of Narrative Medicine. The integration of narrative and medicine offers benefits to healthcare providers as well as to patients, since NM draws on literature’s unique ability to augment clinical competencies, enhance the moral imagination and foster interpersonal understanding. Narrative-based education shows promise for promoting communication, cultural competence, empathy and professionalism, as well as for enhancing vitality and mitigating burnout. To reap the benefits associated with NM, many academic medical institutions have implemented humanities-based educational initiatives into the curricula. Most NM programmes use a combination of activities, including reading literary narratives, participating in group discussion, engaging in writing exercises, workshopping peer narratives, interviewing patients and creating portfolios.

To date, however, few studies exist that examine and interpret efficacy trends in NM programming as a whole, and the current literature does not assess overarching unmet needs. We report a systematic review of the objectives, contents and evaluation outcomes of existing NM programmes as a means of answering the research question: how effective is the implementation and evaluation of NM programmes in academic medicine and health sciences? We also provide best-practice recommendations and new directions for future narrative-based programming.

Several prior systematic reviews have considered specific aspects of NM. Barber and Moreno-Leguizamon examined whether NM education fosters compassionate care for adult patients and determined that, while the literature suggests that NM may be beneficial in this context, the data were insufficient to draw more robust conclusions. Chen and Forbes concluded that reflective writing—one component of NM—may enhance empathy in medical students and thus could warrant inclusion in medical school curricula. Fioretti et al focused on the experience of patients and their caregivers through a lens of NM and indicated a need for clarity and specificity in NM research protocols. Lasko et al considered narrative interventions within the specific setting of palliative care and recommended the adoption of more consistency across pedagogical frameworks and potential outcomes.

**METHODS**

**Criteria for selecting studies for this review**

To be eligible for inclusion in the systematic review, a record had to document NM programming implemented within academic health sciences worldwide. We excluded articles, abstracts, commentary or perspective pieces focused exclusively on NM theory, since an examination of the philosophical and theoretical principles of the NM framework is beyond the scope of this review.

Record eligibility also was contingent on the constituencies to which NM programming was offered. We considered a broad target audience consisting of one or more of the following: 1) graduate medical, dental or health sciences students, including candidates for MD, DMD, PharmD, PhD, MS and MPH degrees; 2) undergraduate or graduate nursing and allied health students; 3) medical, dental, nursing or health sciences trainees, including residents, clinical fellows and research fellows; 4) nurses; 5) allied health professionals; 6) faculty in the medical, dental and health sciences and 7) non-faculty physicians.

A third inclusion criterion involved the educational components of NM training. The history of literature and medicine is grounded in both literary analysis and narrative writing, although some scholars consider reflective/creative writing to be a relatively recent addition to NM programming. Nevertheless, writing is a singularly effective means of fostering reflection. Therefore, we specified that, to be eligible for the systematic review, NM trainings had to include both essential components of NM imbedded in the programmatic core: 1) textual analysis/close reading of published literature (eg, poetry, fiction, creative non-fiction) and 2) creative/reflective writing.

**Search methods for identification of studies**

We consulted the Boston University School of Medicine Assistant Director of Library and Information...
Management Education to design a search strategy for the systematic review. Our information sources included five major databases: PubMed, Embase, PsycINFO, ERIC and MedEdPORTAL. PubMed—an online repository of the US National Library of Medicine, National Institutes of Health—is home to over 29 million citations in the realm of biomedical literature. Likewise, Embase indexes significant biomedical literature from across the globe. PsycINFO, the expansive database of the American Psychological Association, focuses on up-to-date behavioural and social science research. ERIC represents the US Department of Education’s Institute of Education Sciences online research library. MedEdPORTAL is a database of programme curricula provided by the Association of American Medical Colleges. Strategies were optimised for each database to make the best use of that resource’s specific controlled vocabulary or preferred search syntax, and we chose our search terms carefully in order to strike the optimal balance between sensitivity and precision. This is a best practice endorsed by and documented in the Cochrane Handbook for Systematic Reviews for Interventions.31 The databases were searched in their entirety through October 2019. A table documenting our electronic search strategy is presented in online supplemental digital appendix 1.

**Data collection and analysis**

We assessed the records identified during the literature search using a two-round, iterative process to reach consensus on eligibility (figure 1),32 independently screening the 1569 record abstracts after the removal of duplicates. If an abstract was unavailable, the article text was consulted when possible. To be considered eligible, records had to meet all inclusion criteria. Based on the first round of screening, 164 records qualified for full-text assessment.

During the second screening stage, we read the full texts of records, identifying a further 109 records to exclude due to our discovering on full-text review that they did not meet our established eligibility criteria (figure 1). Following the full-text screening, 61 records qualified for review.15 22 33–89 However, we discovered that several qualifying records addressed identical NM programming efforts at the same institution: that is, 12

![Figure 1](http://bmjopen.com/) Record search and screening process for narrative medicine (NM) systematic review, through 2019.
records represented 6 programmes. We considered programmes represented by more than one publication type together, thus resulting in 55 unique NM programmes being included in the systematic review.

We performed the data collection independently, analysing the 55 eligible programmes to identify significant information and classifying relevant data for assessing the overall effectiveness of NM in academic medical and health sciences centres. We then cross-checked our results for reliability. Initially, we extracted verbatim data according to date(s) of publication; institution type; geographic location; participant information; programme goals according to date(s) of publication; institution type; geographic location; participant information; programme goals; and programme activities evaluation methods (table 1); well-described evaluation outcomes (table 2, online supplemental digital appendix 2) and evaluation competencies (figure 2). We coded and synthesised the verbatim data regarding programme context, design, goals and evaluation according to broad themes (online supplemental digital appendix 3).

Since we were particularly interested in identifying the outcomes, as well as the curricular content and goals of NM education, we paid special attention to categorising evaluation methodology used for assessing programme evaluations. We assessed the quality of reporting for all 55 programmes included in the systematic review, classifying programmes according to whether or not they were evaluated, and then differentiating the evaluated programmes according to evaluation design and method. Fourteen (25.5%) programmes did not report any evaluation methods. For the remaining 41 (74.5%) programmes, we systematically approached the assessment of programme evaluations according to specific criteria which were applied to all studies in order to ascertain whether the reporting of evaluation methods was adequately or inadequately described.

Quantitative evaluations were deemed ‘well described’ if they reported the evaluation questions or measures used and the results (including the N) to the extent that our study team could interpret the acquisition of NM-related competencies and/or professional growth among programme participants. Qualitative evaluations were deemed ‘well described’ if they reported the method used to collect qualitative data (eg, content analysis, focus group, open-ended survey) and analysed data from which our study team could interpret whether programme participants had acquired specific NM-related competencies and/or achieved professional growth. Programmes were deemed as ‘not well described’ if they did not include full details regarding evaluation methods to identify whether the evaluation was conducted in a systematic way.

We stratified programme evaluation based on the type of methods used (qualitative vs quantitative), the thoroughness of the description of the evaluation, including whether the methods and analysis strategy were discussed, and results reported. In regard to evaluation design, programmes were categorised as: 1) cross-sectional, including all programmes with postprogramme

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Descriptive statistics of 55 programmes in narrative medicine systematic review</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Publication year</strong></td>
<td>2016 [2012–2018]*</td>
</tr>
<tr>
<td><strong>Publication type†</strong></td>
<td>Article 36‡ (59.0)</td>
</tr>
<tr>
<td></td>
<td>Abstract 18‡ (29.5)</td>
</tr>
<tr>
<td></td>
<td>Curriculum 4‡ (6.6)</td>
</tr>
<tr>
<td></td>
<td>Unpublished theses 2 (3.3)</td>
</tr>
<tr>
<td></td>
<td>Book chapter 1 (1.6)</td>
</tr>
<tr>
<td><strong>Programme location</strong></td>
<td>USA/Canada 46 (83.7)</td>
</tr>
<tr>
<td></td>
<td>Europe 5 (9.0)</td>
</tr>
<tr>
<td></td>
<td>South/Western Asia 3 (5.5)</td>
</tr>
<tr>
<td></td>
<td>South America 1 (1.8)</td>
</tr>
<tr>
<td><strong>Number of participants</strong></td>
<td>26.5 [12–47.25]</td>
</tr>
<tr>
<td><strong>Constituency§</strong></td>
<td>Medical students 23 (41.8)</td>
</tr>
<tr>
<td></td>
<td>Trainees (residents/fellows) 22 (40.0)</td>
</tr>
<tr>
<td></td>
<td>Faculty/Physician non-faculty 17 (30.9)</td>
</tr>
<tr>
<td></td>
<td>Other staff (eg, administrators, paramedical personnel, community workers) 9 (16.4)</td>
</tr>
<tr>
<td></td>
<td>Nurses/Nursing students 9 (16.4)</td>
</tr>
<tr>
<td></td>
<td>Other students (eg, graduate students) 2 (3.6)</td>
</tr>
<tr>
<td><strong>Programme goals§</strong></td>
<td>Narrative goals§</td>
</tr>
<tr>
<td></td>
<td>Reflection 23 (41.8)</td>
</tr>
<tr>
<td></td>
<td>Empathy 22 (40.0)</td>
</tr>
<tr>
<td></td>
<td>Communication/Attentive listening/Narrative competence 20 (36.4)</td>
</tr>
<tr>
<td></td>
<td>Resilience/Burnout detection/Mitigation 9 (16.4)</td>
</tr>
<tr>
<td></td>
<td>Cultural competence 3 (5.5)</td>
</tr>
<tr>
<td></td>
<td>Wellness 3 (5.5)</td>
</tr>
<tr>
<td></td>
<td>Writing 3 (5.5)</td>
</tr>
<tr>
<td></td>
<td>Narrative skills for pedagogy 2 (3.6)</td>
</tr>
<tr>
<td><strong>Clinical/Medical skills§</strong></td>
<td>Clinical competence 13 (23.6)</td>
</tr>
<tr>
<td></td>
<td>Professionalism and vocation 13 (23.6)</td>
</tr>
<tr>
<td></td>
<td>Medical team functioning 9 (16.4)</td>
</tr>
<tr>
<td><strong>Number of sessions</strong></td>
<td>5 (3–11.5)</td>
</tr>
<tr>
<td><strong>Hours in programme</strong></td>
<td>8 (3–17)</td>
</tr>
<tr>
<td><strong>Programme activities‡</strong></td>
<td>Reading published narratives and writing reflectively 55 (100)</td>
</tr>
<tr>
<td></td>
<td>Group discussion 46 (83.6)</td>
</tr>
<tr>
<td></td>
<td>Sharing/Workshopping writing 29 (52.7)</td>
</tr>
<tr>
<td></td>
<td>Other (eg, interviews, observations, portfolios, writing a patient’s story, online forum) 18 (32.7)</td>
</tr>
</tbody>
</table>

Continued
Table 1

<table>
<thead>
<tr>
<th>Publication year</th>
<th>2016 [2012–2018]*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Programme evaluation methods†</td>
<td></td>
</tr>
<tr>
<td>Quantitative—well described</td>
<td>13 (23.6)</td>
</tr>
<tr>
<td>Quantitative—incomplete description</td>
<td>9 (16.4)</td>
</tr>
<tr>
<td>Qualitative—well described</td>
<td>27 (49.1)</td>
</tr>
<tr>
<td>Qualitative—incomplete description</td>
<td>6 (10.9)</td>
</tr>
<tr>
<td>None/Not specified</td>
<td>14 (25.5)</td>
</tr>
</tbody>
</table>

Data are N and interquartile range (Q1–Q3) or percent (%).
*Two studies in the same year counted as one programme; two studies in different years counted as two programmes.
†Percentages are calculated based on 61 records.
‡Programme was represented by more than one publication type (eg, article and curriculum).
§Responses are not mutually exclusive, so percentages are over 100%.
¶Fourteen studies used a mixed methods, with both qualitative and quantitative outcomes reported, so percentages are over 100%.

RESULTS

Descriptive statistics

Table 1 summarises the descriptive statistics of all 55 programmes included in our review. The programmes included a variety of evaluation strategies, with quantitative and qualitative methods being the most common. The table also highlights the thematic groupings of programme outcomes, which include relationship-building, empathy, perspective-taking/reflection, resilience and burnout detection/mitigation, confidence/personal accomplishment, narrative competence, ethical inquiry, pedagogical skills, clinical skills, relevance to work, institutional impact, and cultural competence.

Figure 2: Competencies evaluated in narrative medicine (NM) programmes in systematic review. Results of some evaluations were not well described, not mentioned or not statistically significant. Thus, not all results in online supplementary appendix 2 are included in the description of positive NM programme outcomes discussed in the text of our review.
included in our review were documented and disseminated through a variety of media, including articles (n=36), abstracts (n=18), MedEdPORTAL curricula (n=4), unpublished theses (n=2) and a book chapter (n=1). Publication dates were from 2005 to 2019, with the median year of publication being 2016.

NM programming efforts reported in the literature were concentrated in relatively high-resource settings. The bulk of trainings occurred in North America (n=46, 83.7%), followed by Europe (n=5, 9.0%), Asia (n=3, 5.5%) and South America (n=1, 1.8%). See online supplemental digital appendix 4 for a map of NM programme locations.

NM programme participants and size varied. Programming was offered for medical students (n=23, 41.8%), resident and fellow clinical trainees (n=22, 40.0%), faculty and non-faculty physicians (n=17, 30.9%), nurses and nursing students (n=9, 16.4%), other staff (n=9, 16.4%) and other students (n=9, 3.6%). Some programmes were open to more than one of the above constituencies. Number of participants ranged from 5 to 350 individuals (median 26.5; IQR 12–47.25); for 15 programmes, participant constituency and/or participant numbers were not provided.

The number of sessions offered by NM programme was highly heterogeneous, running the gamut from a single workshop or seminar to as many as 40 half-hour sessions offered over the course of a year.52 The median number of sessions offered was 5 (IQR 3–11.5). The number of hours of programming offered was similarly highly variable, ranging from 1 to 60, with 8 being the median (IQR 3–17).

NM programmes specified one or several educational objectives related to both narrative and clinical/medical skills. We grouped programmatic goals involving narrative skills into several categories, including the cultivation of reflection (n=23, 41.8%); empathy (n=22, 40.0%); communication, attentive listening and narrative competence (n=20, 36.4%); resilience and burnout detection and/or reduction (n=9, 16.4%); cultural competence (n=3, 5.5%); wellness (n=3, 5.5%); writing (n=3, 5.5%) and narrative skills for pedagogy (n=2, 3.6%). Programmatic goals related to clinical/medical skills sought to employ NM to foster clinical competence (n=13, 23.6%); enhanced sense of professionalism and vocation (n=13, 23.6%) and successful medical team functioning (n=9, 16.4%).

In order to achieve the stated programming goals, NM curricula relied on a combination of activities, including engaging with literary readings and writing reflectively (n=55, 100%); group discussion (n=46, 83.6%); sharing and/or workshopping participants’ writing as a group (n=29, 52.7%) and other narrative-based exercises (n=18, 32.7%), such as conducting patients’ interviews and writing patients’ stories, creating portfolios, participating in an online forum and even presenting a play.

**NM programme evaluation**

The reporting of NM programme evaluations varied across programme and publication types. Fourteen (25.5%) programmes did not report any evaluation activities. For programme reporting quantitative evaluations, we identified 13 as well described and 9 that reported some quantitative methods but were not thoroughly described. As mentioned previously, programmes were deemed as ‘not well described’ if they did not include full details regarding evaluation methods. See table 2 for explanations for programmes deemed as well described; incomplete quantitative and qualitative programme evaluations are recorded in online supplemental digital appendix 5. For programmes reporting qualitative evaluations, we identified 27 as well described and 6 that were not described thoroughly. Only six NM programmes were deemed as having both quantitative and qualitative evaluation methods that were well described.49 50 52 53 77 84 85

Evaluation designs varied across NM programmes and included the use of cross-sectional designs, case-control designs, pre-post designs and randomised step-wedge designs. Of the evaluations we identified as well described, 31 evaluations used a cross-sectional design with a post-test only. Of the evaluations using a cross-sectional design, most had only an immediate post-test (n=29), one had an immediate post-test and a long-term post-test (1.5 years later)35 and one had a long-term post-test only (1.5 years).90 One evaluation did not report the timing of the post-test.52 One evaluation used a case-control design where participants were randomised into the treatment condition or the control condition.87 Of the seven evaluations that used a pre-post design, six did a pre-test and immediate post-test, and one did a pre-test and long-term post-test (1 year).22 70 One evaluation used a randomised step-wedge design in which participants were randomised into two groups, and the groups participated in the programme at different times.41 42 Post-tests of programme participants were compared with pre-tests of those who had not yet participated in the programme.

Overall, the quantitative and qualitative evaluations demonstrated that NM programming can have a variety of positive impacts on healthcare providers, showing evidence for modest gains in a variety of competencies, including relationship-building, empathy, perspective-taking/reflection, resilience and burnout mitigation/detection, confidence/personal accomplishment, narrative competence, ethical inquiry, pedagogical skills and clinical skills (table 2 and figure 2). In addition to evaluating the impact of the programme on participants, many evaluation strategies focused on evaluating participants’ satisfaction with the programme. NM satisfaction scores were reported to be high, with the combined per cent agree or strongly agree to the satisfaction measures as 87.9% (our calculation). However, satisfaction outcomes were not necessarily indicative of subsequent changes in the behaviour or experiences of health sciences professionals who engaged in the programming.
Table 2  Quantitative and qualitative well-described evaluations of narrative medicine programme in systematic review*

2A. Quantitative evaluations—well described

<table>
<thead>
<tr>
<th>Study</th>
<th>New or validated outcome</th>
<th>Outcome</th>
<th>Outcomes—thematic grouping</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>Premean (SD)</td>
</tr>
<tr>
<td>Bhavaraju and Miller38</td>
<td>New</td>
<td>Confidence in writing and leading writing exercises</td>
<td>Confidence/Personal accomplishment</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Confidence in leading literary discussions</td>
<td>Confidence/Personal accomplishment</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Integration of tools gained in training into teaching</td>
<td>Pedagogical skills</td>
</tr>
<tr>
<td>Harrison and Chiota-McCollum85</td>
<td>New</td>
<td>Listening skills</td>
<td>Clinical skills</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Visual observation skills</td>
<td>Clinical skills</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Understanding of narrative medicine</td>
<td>Narrative competence</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Value of the arts in medical education</td>
<td>Pedagogical skills</td>
</tr>
<tr>
<td>Holub55</td>
<td>Validated</td>
<td>JSPE—control group</td>
<td>Empathy</td>
</tr>
<tr>
<td></td>
<td>Validated</td>
<td>JSPE—treatment group</td>
<td>Empathy</td>
</tr>
<tr>
<td>Rivlin and Westhoff87</td>
<td>Validated</td>
<td>Objective structured clinical examination—control group</td>
<td>Clinical skills</td>
</tr>
<tr>
<td></td>
<td>Validated</td>
<td>Objective structured clinical examination—treatment group</td>
<td>Clinical skills</td>
</tr>
<tr>
<td>Winkel70 and Winkel et al 82</td>
<td>Validated</td>
<td>Maslach burnout inventory: emotional exhaustion</td>
<td>Resilience and burnout Detection/Mitigation</td>
</tr>
<tr>
<td></td>
<td>Validated</td>
<td>Maslach burnout inventory: depersonalisation</td>
<td>Resilience and burnout Detection/Mitigation</td>
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<td></td>
<td>Validated</td>
<td>Maslach burnout inventory: personal accomplishment</td>
<td>Confidence/Personal accomplishment</td>
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<tr>
<td></td>
<td>Validated</td>
<td>Interpersonal reactivity: empathic concern</td>
<td>Empathy</td>
</tr>
<tr>
<td></td>
<td>Validated</td>
<td>Interpersonal reactivity: perspective taking</td>
<td>Perspective-taking/Reflection</td>
</tr>
<tr>
<td>Yang et al 82</td>
<td>Validated</td>
<td>Jefferson Scale of Empathy—control group</td>
<td>Empathy</td>
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<tr>
<td></td>
<td>Validated</td>
<td>Jefferson Scale of Empathy—treatment (NM only) group</td>
<td>Empathy</td>
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<tr>
<td></td>
<td>Validated</td>
<td>Jefferson Scale of Empathy—treatment (NM+reflective writing) group</td>
<td>Empathy</td>
</tr>
</tbody>
</table>

Continued
## Table 2

### Quantitative studies using a cross-sectional design with a post-test only

<table>
<thead>
<tr>
<th>Study</th>
<th>New or validated outcome</th>
<th>Outcome</th>
<th>Outcomes — thematic grouping</th>
<th>N</th>
<th>Postmean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goupy et al(^{51})</td>
<td>New</td>
<td>Interest of topic</td>
<td>Satisfaction</td>
<td>41</td>
<td>1.84 (0.82)</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Satisfaction with choice of theme</td>
<td>Satisfaction</td>
<td>41</td>
<td>2.13 (0.72)</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Satisfaction of discussion related to theme</td>
<td>Satisfaction</td>
<td>41</td>
<td>2.30 (0.62)</td>
</tr>
<tr>
<td>Whitesides et al(^{59})</td>
<td>New</td>
<td>Quality of sessions</td>
<td>Satisfaction</td>
<td>44</td>
<td>4.5</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Usefulness of writing component</td>
<td>Satisfaction</td>
<td>44</td>
<td>3.9</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Usefulness of the group discussion</td>
<td>Satisfaction</td>
<td>44</td>
<td>4.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Study</th>
<th>New or validated outcome</th>
<th>Outcome</th>
<th>Outcomes — thematic grouping</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gowda et al(^{64})and Gowda et al(^{62})</td>
<td>New</td>
<td>Participant would recommend training</td>
<td>Satisfaction</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Participant would continue participating</td>
<td>Satisfaction</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Programme’s ability to facilitate interprofessional dialogue</td>
<td>Satisfaction</td>
<td>50</td>
</tr>
<tr>
<td>Goodrich et al(^{49})</td>
<td>New</td>
<td>Usefulness of the training</td>
<td>Satisfaction</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Interest of the training</td>
<td>Satisfaction</td>
<td>48</td>
</tr>
<tr>
<td>Hinyard et al(^{77})</td>
<td>New</td>
<td>Writing about own experiences helped develop communication skills</td>
<td>Relationship-building</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Listening to stories helped develop communication skills</td>
<td>Relationship-building</td>
<td>24</td>
</tr>
<tr>
<td>Moss et al(^{63})</td>
<td>New</td>
<td>Satisfaction of training</td>
<td>Satisfaction</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Relevance of training to work</td>
<td>Relevance to work</td>
<td>27</td>
</tr>
<tr>
<td>Walker et al(^{69})</td>
<td>New</td>
<td>Total satisfaction with course</td>
<td>Satisfaction</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Appropriateness of activities</td>
<td>Satisfaction</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>New</td>
<td>Overall experience with instructors</td>
<td>Satisfaction</td>
<td>32</td>
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</table>

### 2B. Qualitative evaluations—well described†

<table>
<thead>
<tr>
<th>Study</th>
<th>Design</th>
<th>Timing</th>
<th>Methods</th>
<th>Outcome improved — thematic grouping</th>
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</thead>
<tbody>
<tr>
<td>Adamson et al(^{74})</td>
<td>Pretest and post-test</td>
<td>Pretest, immediate post-test</td>
<td>Interviews</td>
<td>▶ Empathy</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>▶ Relationship-building</td>
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<td></td>
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<td></td>
<td></td>
<td>▶ Confidence/Personal accomplishment</td>
</tr>
<tr>
<td>Arntfield et al(^{33})</td>
<td>Post-test</td>
<td>Immediate, 1.5 years later</td>
<td>Open-ended surveys; focus group</td>
<td>▶ Confidence/Personal accomplishment</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>▶ Relevance to work</td>
</tr>
<tr>
<td>Balmer and Richards(^{37})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Ethnography, content analysis, interviews</td>
<td>▶ Institutional impact</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td>▶ Pedagogical skills</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>▶ Relationship-building</td>
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<td></td>
<td>▶ Perspective-taking/Reflection</td>
</tr>
<tr>
<td>Birigwa et al(^{39})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Surveys</td>
<td>▶ Relationship-building</td>
</tr>
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<td></td>
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<td></td>
<td></td>
<td>▶ Resilience and burnout detection/Mitigation</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>▶ Perspective-taking/Reflection</td>
</tr>
<tr>
<td>Bobb(^{30})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Ethnography, interviews</td>
<td>▶ Perspective-taking/Reflection</td>
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<td>▶ Relationship-building</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>▶ Confidence/Personal accomplishment</td>
</tr>
<tr>
<td>Boudreau et al(^{41}) and Liben et al(^{42})</td>
<td>Randomised step wedge</td>
<td>Immediate</td>
<td>Interviews</td>
<td>▶ Narrative competence</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>▶ Satisfaction</td>
</tr>
<tr>
<td>Brigley and Jasper(^{33})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Observation, focus groups, interviews</td>
<td>▶ Relationship-building</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>▶ Perspective-taking/Reflection</td>
</tr>
<tr>
<td>Chretien et al(^{44}) and Chretien et al(^{45})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Focus groups, patient interviews</td>
<td>▶ Relationship-building</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>▶ Narrative competence</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>▶ Relationship-building</td>
</tr>
</tbody>
</table>

Continued
Of quantitative programmes deemed as well described, six reported high satisfaction \( ^{49} 51 52 63 69 84 89 \) while modest and positive but not statistically significant impacts were reported on: pedagogical skills (n=2), relevance to professional work (n=1), \( ^{63} \) resilience and burnout detection/mitigation (n=1) \( ^{22} 70 \), and confidence/increased sense of personal accomplishment (n=2). \( ^{22} 38 70 \) Programmes that reported statistically significant programmatic

### Table 2 Continued

<table>
<thead>
<tr>
<th>Authors</th>
<th>Test Phase</th>
<th>Time Frame</th>
<th>Methodologies</th>
<th>Outcomes</th>
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<tr>
<td>Cunningham et al (^{58})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Content analysis of essays</td>
<td>Empathy, Perspective-taking/Reflection</td>
</tr>
<tr>
<td>DasGupta et al (^{16})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Focus groups, resident evaluations</td>
<td>Cultural competence, Relationship-building, Empathy</td>
</tr>
<tr>
<td>Goodrich et al (^{59})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Focus group; programme evaluation survey</td>
<td>Empathy, Ethical inquiry, Narrative competence, Relationship-building</td>
</tr>
<tr>
<td>Gordon (^{50})</td>
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<td>Immediate</td>
<td>Content analysis of essays</td>
<td>Resilience and burnout detection/Mitigation</td>
</tr>
<tr>
<td>Goupy et al (^{51})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Open-ended survey</td>
<td>Satisfaction</td>
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<tr>
<td>Gowda et al (^{62})</td>
<td>Pretest,</td>
<td>Observational</td>
<td>Pretest, midpoint-test, immediate post-test</td>
<td>Perspective-taking/Reflection, Relationship-building, Satisfaction</td>
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<tr>
<td>Gowda et al (^{64})</td>
<td>midpoint-test and post-test</td>
<td></td>
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<tr>
<td>Harrison and Chiota-McCollum (^{55})</td>
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<td>Immediate</td>
<td>Open-ended survey</td>
<td>Perspective-taking/Reflection, Relationship-building, Satisfaction</td>
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<td>Hinyard et al (^{77})</td>
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<td>Immediate</td>
<td>Open-ended survey</td>
<td>Empathy, Perspective-taking/Reflection, Relationship-building</td>
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<td>Holub (^{59})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Focus groups</td>
<td>Empathy</td>
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<tr>
<td>Kennedy and Sgro (^{58})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Open-ended survey</td>
<td>Satisfaction</td>
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<tr>
<td>Murrinson (^{64})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Content analysis of responses</td>
<td>Empathy, Ethical inquiry, Perspective-taking/Reflection</td>
</tr>
<tr>
<td>Polvani et al (^{65})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Patient and family interviews; video-recorded patient-doctor interactions,</td>
<td>Relationship-building</td>
</tr>
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<td></td>
<td></td>
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<td>document review of letters of complaint</td>
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</tr>
<tr>
<td>Small et al (^{66})</td>
<td>Post-test</td>
<td>1.5 years later</td>
<td>Interviews</td>
<td>Relationship-building, Empathy, Resilience and burnout detection/Mitigation</td>
</tr>
<tr>
<td>Spike (^{31})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Open-ended survey</td>
<td>Satisfaction</td>
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<tr>
<td>Walker et al (^{69})</td>
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<td>Immediate</td>
<td>Open-ended survey</td>
<td>Satisfaction</td>
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<tr>
<td>Wesley et al (^{81})</td>
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<td>Immediate</td>
<td>Open-ended survey</td>
<td>Empathy, Relationship-building, Resilience and burnout detection/Mitigation</td>
</tr>
<tr>
<td>Winkel et al (^{71})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Questionnaire</td>
<td>Satisfaction</td>
</tr>
<tr>
<td>Wohmann and Halstein (^{72})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Open-ended survey</td>
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<tr>
<td>Zohouri et al (^{73})</td>
<td>Post-test</td>
<td>Immediate</td>
<td>Content analysis of essays</td>
<td>Empathy, Relationship-building, Perspective-taking/Reflection</td>
</tr>
</tbody>
</table>

*All quantitative evaluations—well-described report evaluation at the end of the programme except for Winkel et al and Winkel. \(^{22} 70\)
†See online supplementary appendix 2 for outcomes/findings.
N/A, not available; N.R., not reported.
impacts examined increased empathy (n=3), increased perspective-taking/reflection (n=1), and increased perspective-taking/reflection (n=1).

Our research builds on the current literature to reveal a broad range of NM benefits. Our findings demonstrate that NM has shown potential for enhancing communication and team-building skills, encouraging perspective-taking and reflection, promoting empathic behaviour, detecting/mitigating burnout, cultivating narrative competence, augmenting pedagogical and clinical skills, and fostering ethical inquiry.

Based on our analysis and interpretation of the programmes reviewed, we recommend considering the inclusion of narrative-based education in curricula for medical/health sciences students, trainees and faculty. We also suggest several best practices and new directions for future NM programming efforts as a means of increasing efficacy and providing broader accessibility.

Recommended best practices and future directions for NM

Enhanced programme evaluation methods

Our research has noted that a substantial number of NM programmes did not report any evaluation activities, while others only evaluated general participant satisfaction. Furthermore, in programmes that were evaluated, evaluation design was highly variable, with the majority lacking assessment of long-term impact. Without carefully evaluating the short-term and long-term outcomes of educational programming for gaining particular skills and competencies, it is difficult to continue assessing accurately whether NM programming addresses the unique needs of health sciences professionals in academic medicine and health sciences. Given the intense time constraints of the constituency, we submit that programme evaluation is critical to ensure that time spent in an NM programme is used effectively.

Quantifying the long-term impact of NM objectives, such as fostering empathy and ethical decision-making, is challenging—and certainly complicates the integration of NM training into continuing medical education curricula. Nevertheless, education experts contend that medical ethics and humanities training, including narrative-based reasoning, is fundamental to the professional development of healthcare practitioners. Ensuring the integration of relevant NM programming into educational curricula for the next generation of health sciences professionals requires strategic planning, thorough evaluation and ongoing analysis. We have constructed a basic checklist for developing, implementing, evaluating and disseminating an NM training, regardless of individual programme focus (online supplemental digital appendix 6).

Focus on narrative writing skills

Narrative writing has the potential to leverage storytelling as an aspect of personal and professional growth. The literature supports that faculty writing groups and workshops can promote publications and presentations, improve writing skills and bolster confidence in writing. However, we identified only one NM
intervention that reported the development of writing skills as a programme goal,\textsuperscript{34} rather than the use of writing as a means towards achieving other stated outcomes, such as the cultivation of reflection or empathy skills. While no programme reported evaluation of writing-related competencies in a manner deemed well described, participants did report valuing the opportunity to improve their writing skills\textsuperscript{36} and augment self-efficacy in writing/leading writing exercises.\textsuperscript{38}

NM programming that includes training in writing competencies and self-efficacy represents an innovative educational model for accomplishing both the traditional goals of NM—for example, empathy, communication, professionalism, resilience—and the additional outcome of fostering writing competencies for academic growth. We recommend expanding future NM programme objectives to include the development of enhanced writing skills and self-efficacy related to the writing process as measurable learning outcomes. Such a goal may be accomplished through a blend of expert-led instruction in literary theory, close reading of published literary texts and workshopping of peer narratives, with the goal of coaching faculty to generate perspective pieces, advocacy narratives, creative writing projects and educational texts for submission to peer-reviewed journals.

NM for scientists
To date, a dearth of research exists regarding the occurrence and effectiveness of NM programming for scientists, and we submit that this knowledge gap should be addressed by the implementation and evaluation of narrative-based education for this constituency. The NM programmes analysed in the current review were overwhelmingly geared towards clinical professionals, including physicians, nurses, clinical fellows, residents, medical students and clinically-oriented staff. However, many of the programmes’ positive outcomes may be equally valuable for research faculty, postdoctoral fellows and graduate students in the health sciences, who may benefit from narrative-based training to enhance communication and relationship-building skills, writing and teaching competencies, cross-cultural awareness, understanding of ethical inquiry and behaviour, cross-disciplinary understanding, and professional identity formation.

While much attention has been given to clinician stress and burnout, NM also may prove beneficial for researchers navigating the stressors of a historically challenging funding climate. The inclusion of both clinical and research-focused professionals in NM programming has potential to foster interdisciplinary understanding, build affinity and offer collaborative opportunities to groups who tend to operate in silos.

NM for detecting and mitigating burnout
Given current concerns surrounding stress and burnout among professionals in medicine and health sciences,\textsuperscript{100-105} a need exists to identify and implement sustainable programming for cultivating resilience. Five well-described programmes evaluated the impact of NM education on resilience and burnout detection and/or mitigation.\textsuperscript{22 39 50 79 81 90} While in one case quantitative evaluations of burnout after NM training (incomplete description) did not demonstrate statistical significance,\textsuperscript{71} other programmes suggested positive results regarding the use of NM for burnout identification and reduction.

Although NM programmes offer a promising initial step towards employing narrative-based education for resilience, additional research is needed to demonstrate the potential impact of NM education on physician and scientist wellness, particularly in specialties and contexts with high burnout rates. While preliminary studies have explored how narrative practice and reflective practice may constitute effective interventions for frontline medical responders working in the burnout-prone context of international humanitarian frameworks,\textsuperscript{106,107} reports on research, development and implementation of NM programming for such constituencies are scarce. Therefore, we suggest further development and evaluation of narrative-based education focused on burnout detection and mitigation—with the potential for adapting successful NM programming to burnout-prone healthcare contexts beyond academic medicine, including among humanitarian and military frontline medical providers.

NM for cultural competence
Several programmes included in our review expressed increased cultural competence, communication and/or sensitivity as primary or secondary goals.\textsuperscript{13 46 58 64 66} Given the power of literature for developing empathy\textsuperscript{108} and expanding the moral imagination,\textsuperscript{109} it is probable that NM programming could serve a unique role in fostering cultural sensitivity and illuminating implicit bias, particularly since literature has been posited as a powerful vehicle for exploring themes of racial justice within medicine.\textsuperscript{109} We therefore recommend additional research into NM education as a vehicle for promoting cultural competence,\textsuperscript{110} which might be accomplished in a variety of ways, including by imbedding narrative-based learning modules into unconscious bias trainings already taking place within academic health sciences.

NM for low-resource settings
From a global perspective, NM programming efforts to date have been based primarily in high-resourced medical areas. There are opportunities for educational partnerships among institutions located in disparate geographic and socioeconomic settings both within the USA and abroad. Certainly the appearance of NM programming worldwide demonstrates a burgeoning global interest in the field, with 20% (n=11) of training having been implemented outside the USA in recent years: Nepal in 2009,\textsuperscript{57} the UK in 2010,\textsuperscript{43} Canada and Chile in 2012,\textsuperscript{11,12,60} France in 2013,\textsuperscript{51} Italy in 2014,\textsuperscript{65} Germany and Portugal in 2016,\textsuperscript{61,72} Iran in 2017,\textsuperscript{73} and Canada and China in 2018.\textsuperscript{74,82}

The increasing interest in NM education on a global level, including in some low-resource settings, offers potential for development of scalable curricula that can be shared with resource-limited locations where humanities and medicine training curricula may still be scarce, as was reported to be the case in Nepal. One potential strategy for implementing NM programming in low-resource settings would be to create curricula for blended online and in-person educational modules. This type of programme could leverage videoconferencing technology to connect first-time course implementers with more experienced facilitators, possibly located in higher-resource settings, allowing for peer mentoring using NM as both a healthcare framework and an educational tool.

**Limitations**

We acknowledge several limitations to our systematic review. Because the scope of this review was focused on the implementation, components and evaluation of NM programmes, as opposed to the theory and philosophy underpinning NM as a conceptual framework for health, we did not extend our search to include humanities-based journals such as *Narrative*, *PMLA* and *Poetics Today*. Furthermore, we did not systematically analyse the philosophical and theoretical orientations of the specific NM programmes surveyed, and it is possible that doing so may have helped to inform our understanding of choices made in terms of programme components and evaluations.

Since the conceptual framework of NM generated in the USA—although the framework is firmly rooted in an older, global tradition of medical and health humanities—to some extent the vocabulary and definitions associated with NM programming tends to reflect a particularly American viewpoint on academic health sciences education. We attempted to render our analysis of the records more globally inclusive by including programmes that did not specifically employ NM language (some refer instead to ‘storytelling’, ‘medical humanities’, etc), but still met our stated selection criteria.

Our results are inevitably subject to potential publication bias, since programmes with positive results are more likely to have been submitted and selected for publication. While the NM records made little mention of negative or neutral aspects of NM programming, such factors undoubtedly exist, including institutional funding limitations, faculty unfamiliarity with NM theory and participant time constraints. Furthermore, we noted the stated definition of NM to be inconsistent even within publications/programmes that met our inclusion criteria, a factor which may have led to some lack of consistency within reports of programme objectives, evaluations, and outcomes.

Eighteen qualifying records were abstracts, which by nature provide far less information than articles, curricula, unpublished theses or book chapters. Additionally, we recognise the inevitable complexities and potential pitfalls of synthesising mixed data from educational evaluations that have used varying methodologies. In particular, given our reliance on qualitative analysis when synthesising the data, there is inevitably some element of subjectivity involved in data reporting and interpretation. Although we have made a good faith effort in our work, we do recognise that a degree of subjectivity is inevitable. In a discursive way, our review also raises questions regarding the need for further study on best practices for performing quantitative studies of qualitative endeavours such as NM programming and other social science variables.

Finally, while we have provided discussion regarding ways in which the general thematic schema of NM programme effectiveness may be transferable to future educational efforts, nevertheless we are aware that it is unclear how transferable the results of any specific programme may be, since many dimensions influence the impact of NM programming, including the unique participants, facilitator, curriculum and frequency/duration of sessions. To a great extent, however, this challenge supersedes NM and remains ubiquitous to medical and health sciences education as a whole.

**CONCLUSION**

Despite being a relative newcomer to contemporary medical education, NM programming already has resulted in a range of positive outcomes for health sciences professionals, including enhancing narrative competence, communication and empathy; detecting and mitigating burnout; fostering reflection with regard to professional identity formation; promoting team-building and facilitating teaching competencies. Although a plethora of positive outcomes may stem from NM, its foundational competencies—as is implied by the very word *humanities*, from which NM draws its essential core—involves an ongoing exploration of what it means to understand reality and pursue human good, as this relates to our interactions with ourselves, others and the world.

There are doubtless institutional barriers to overcome in implementing NM programming, including obtaining sufficient institutional or outside funding, augmenting conceptual understanding with medical education committees regarding the positive outcomes of narrative-based education and providing protected time for faculty/trainee participation in NM curricula. Nevertheless, NM education shows promise for addressing some of the most pressing concerns for today’s health sciences professionals, including high suicide rates as well as depression and burnout, compounded with declining research funding, shorter patient visit times, mounting paperwork and decreased job satisfaction. Such challenges necessitate innovative solutions—and NM may prove to be a highly resource-effective solution.

**Implications for research**

We advise that NM programming best practices and future directions should include the use of robust evaluation mechanisms; inclusion of writing training as an additional learning outcome; and the development and implementation of NM for researchers, burnout-prone
to help people improve their health and share their health information in real time with health care providers’. Columbia University 2018–2019 Narrative Medicine Fellowship: ‘Peer-led Narrative Medicine Workshops for First and Second Year Medical Students’ (US$2000 awarded to BU medical student John Carlo Pasco, coauthor).

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