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The influence of Narrative Medicine on Western and Traditional medicine medical students' readiness for holistic care practice: A protocol for a realist synthesis of the evidence

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Keywords:	medical education, narrative medicine, holistic care, western medicine, traditional medicine, realist synthesis

The influence of Narrative Medicine on Western and Traditional medicine medical students' readiness for holistic care practice: A protocol for a realist synthesis of the evidence

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Running head: Narrative medicine's influence on holistic care

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Key words: Medical Education, Narrative Medicine, Holistic Care, Western Medicine, Traditional Medicine, Realist Synthesis, Systematic Review

ABSTRACT

Introduction

Narrative medicine is medicine performed with narrative skill and has been offered as a model for humanism and effective medical practice. Narrative medicine interventions have been associated with physicians' increased empathy, and more meaningful interactions with patients about managing their illness and preventative medicine. Holistic health care considers the whole person – their body, mind, spirit, and emotions – and has been associated with narrative medicine practice. While there is some evidence that certain groups are more open to narrative practices (e.g. Traditional vs Western medical students), the extent to which narrative medicine interventions during undergraduate medical education impacts on students' readiness for holistic care, and the underlying reasons why, are unknown.

Methods and analysis

Realist review is a theory-driven approach to evaluate complex interventions. It focuses on understanding how interventions and programs work (or do not work) in their contextual setting. This realist synthesis aims to assess the evidence around the influence of Narrative Medicine on Western and Traditional medicine medical students' readiness for holistic care practice. We will follow the five steps identified by Pawson: locate existing theories, search strategy, study selection, data extraction, data analysis and synthesis. The results of the synthesis will be written according to the RAMESES standard for reporting realist syntheses.

Ethics and Dissemination

Ethics approval was obtained from the Chang Gung Memorial Hospital for the wider study. The findings of this review will provide useful information for academics and policymakers, who will be able to apply the findings in their context when deciding whether and how to introduce Narrative Medicine programmes into medical students' curricula. We will publish our findings in peer-reviewed journals and international conferences.

Registration

The study has been registered with the international prospective register of systematic reviews, PROSPERO 2018, ID number CRD42018115447

Article Summary

Strengths and limitations of this study

- This study is one of the first study to examine preparedness for holistic care as a general concept as an outcome to NM intervention.
- The use of a systematic approach to identifying the literature around outcomes

relating to holistic care arising from narrative medicine interventions is a study strength

- The application of a realist approach to understanding the contexts in which Narrative Medicine prepares different types of students for holistic care practice, and how, is another strength
- One concern for this study is that there might be a limited number of studies that have examined holistic care as an outcome to Narrative Medicine interventions
- One further concern is that the reporting of Narrative Medicine intervention outcomes might predominately focus on reactions to the intervention rather than providing deeper understandings of the mechanisms that might promote/inhibit holistic care

BACKGROUND

Holistic health care is a form of healing that considers the whole person – body, mind, spirit, and emotions – in the quest for optimal health and wellness[1, 2]. It is essentially synonymous with Engel's biopsychosocial model[3]. The biopsychosocial approach to illness consists of four systems within the person: the organs, the whole person, their behaviour, and their social roles. There are also four contextual factors that influence these systems: personal factors, physical environment, social environment, and time[2]. It asserts that the patient is a person, not a disease. Thus, treatment involves treating the underlying cause of the condition, rather than just alleviating the symptoms[1, 2].

Recent research have identified individual attributes in providing holistic care. Key personality traits such as sociability, compassion, sensitivity contributes to the provision of holistic care, identifying and satisfying patients' needs were identified as motivational factors that encourage and facilitate holistic care and develop relationship with patients [4]. In post-acute health care settings, defining attributes include holistic (whole-person), individualized (specific to the person and their needs), respectful (as an individual's 'right'), and empowering (to facilitate autonomy and self-confidence in the context of feeling disempowered) [5]. Providing holistic care is understand how the illness affects the whole person and how to respond to their needs [6]. Individualized care consider of the person health and patients' personal needs provide individualized and customized care [5, 7, 8]. Respectful means as patients have the right to choose their care, make decisions and respect their basic choice in daily routines [5, 6]. Empowering encourage autonomy and self-confidence, support individual obtain information and enhance effective communication are needed for individual to feel empowered to make medical treatment decision [9, 10].

Narrative Medicine method enhances the personality trait and attributes of healthcare providers deliver holistic care practice. Narrative Medicine has been promoted as a way for physicians to understand the personal connections between themselves and their patients [11], helping them to recognize, interpret, and be moved to action by the problems of others[12], provide new opportunities for learning more about respectful, empathic, and nourishing medical care [13-15]. The narrative concept has been advocated as a framework for practice and proposed ideal care, while providing the means to gain competence. It is unsurprising therefore that medical schools around the world have introduced Narrative Medicine as part of their medical humanities programmes in the undergraduate curricula[16]. However, evidence for the benefit of Narrative Medicine interventions is disparate, with suggestions that such interventions can enhance empathy, observation skills and emotional awareness[16]. Furthermore, recent research has begun to unpack the

differential engagement and outcomes across study cohorts. For example, when considering the outcomes of a Narrative Medicine course in Asia, students on the Chinese medicine track reported a greater emotional, reflective and self-development outcomes in comparison to students on the Western medicine track [17].

As we can see, there are a range of components to the concepts of both Narrative Medicine and Holistic Care that suggest that healthcare students' and professionals' readiness for Holistic Care should improve following a Narrative Medicine intervention. However, although previous research has suggested that Narrative Medicine interventions facilitate aspects of Holistic Care [18], no direct evidence for the underlying processes for this link have been provided: thus they draw on elements of Holistic Care to make their assertions (e.g. empathy) without illuminating the mechanisms through which this might have come about. Furthermore, this is not the first time that a systematic review of the literature on Narrative Medicine has been proposed. For example, Fioretti et al.'s study examining outcomes for patients found Narrative Medicine to be efficacious for decreasing pain, for increasing well-being (related to illness), confidence and co-operation, and for decreasing stress and feelings of alienation [19]. However, an understanding of *why* this is the case and *for whom* is missing.A previous literature review that examined the importance of NM in the medical teaching curricula, concluded that this method supports students' communication skills, deepens critical thinking, and reflective practice [20]. Therefore, understand the underlying mechanisms thatenhance such an outcome of NM programmes, alongside the necessary consitions for them doing is, is crucial for curricula designers (the beneficiaries of this research).

To our knowledge this is the first systematic review to focus on the impact of a Narrative Medicine intervention on medical students' preparedness for Holistic Care, with the explicit aim of unpacking the 'black box' of the intervention itself, by asking the following broad research question: under what circumstances and for whom does a Narrative Medicine intervention in an undergraduate medical curriculum influence medical students' readiness for Holistic Care.

REALIST REVIEW METHODOLOGY

Realist review is a theory-driven approach to evaluate complex interventions that focuses on understanding how interventions and programs work (or do not work) in their contextual setting; so rather than simply measuring outcomes, they explain why interventions work [21-24]. Thus, realist review attempts to explain "How does it work?", "why does it work", "for whom does it work" and "in what circumstances does it work?" [25].

The hallmark of realist methodology is the generative model of causality: to infer the outcome (O), there is a need to understand the underlying mechanism (M) that connect to the context (C) in which the intervention occurs, resulting in one or more outcomes [25].

Realist methodology does not assume a linear causal relationship, but attempts to explain complex interventions through program theory [26]. As the name suggests, it is an approach grounded in Realism [21], a school of philosophy asserting that both the material and the social worlds are 'real', that they can have real effects on stakeholders, and that it is possible to work towards a closer understanding of what causes change. Realist methodology belongs to a family of theory-based evaluation approaches. It is used to evaluate the impact of an intervention through three key elements and their complex interactions: the **C**ontext in which reality unfolds, the **M**echanisms that trigger the **O**utcome following the intervention (or C-M-O model) [24].

We assert that a realist methodology can create an understanding about the context and mechanisms required to develop Holistic Care (the desired outcome). A realist approach should be able to look into the 'black box' (mechanisms), which facilitate Narrative Medicine and develop a programme theory to explain what facilitates students' readiness to undertake Holistic Care. Furthermore, we will be able to understand the differences (if any) that exist between Traditional and Western medicine readiness for Holistic Care and why this might be the case.

REVIEW AIM AND OBJECTIVES

The study aims to identify the impact of Narrative Medicine interventions during undergraduate medical curricula (both Western and Traditional) on medical students' readiness to deliver Holistic Care in order to develop a programme theory (a theoretical model) of what works, for whom, and why.

Objectives

1. To explore how a Narrative Medicine intervention can facilitate medical students' readiness for Holistic Care.
2. To develop a programme theory that explains how Narrative Medicine interventions can facilitate Holistic Care.
3. To develop a questionnaire to assess medical students' readiness for Holistic Care practice.

MAIN RESEARCH QUESTIONS

RQ1： What are the contextual factors of Narrative Medicine interventions, and underlying the mechanisms, that impact on medical students' readiness for Holistic Care practice?

METHODS

The study design is based on a Pawson's five stages (Figure 1) [25].

Stage 1: Locate existing theories

We will begin by identifying the relevant theories associated with Narrative Medicine and its' influence on holistic care practice to develop our initial programme theory that begin to explain how Narrative Medicine might influence students' readiness for holistic care practice. This stage involves identifying potential theories by searching the relevant literature to facilitate our understanding and theorizing about *how* Narrative Medicine might influence students' readiness for holistic care practice in different contexts. This involves a search using electronic published resources (Web of Science, Medline, Scopus, Embase) as well as books. The search will comprise a scoping search, which will be developed using search terms focused on the intervention (Narrative Medicine, Narrative-based Medicine, narrative medical, narrative training) and the outcome (preparedness or readiness for holistic care). Books and articles will be examined theoretically and any identified theories will be used to build up the initial programme theory. This initial theory will be tested against the studies included in the review. This stage has already begun, and so far we have identified the biopsychosocial theoretical perspective and are examining research around facilitators and barriers to 'becoming' biopsychosocial.

Step 2: Search strategy

The second stage involves developing our search strategy that will essentially comprise two phases. We will begin by using the electronic search in the Web of Science, Medline, Scopus and Embase database to find relevant articles for the study. The search terms will be developed, tested iteratively and discussed across the research team (See Appendix 1 for our initial progress). During the second phase of searching, we will seek additional relevant documents for testing and refinement our programme theory.

Step 3: Study selection

During the searching process, titles and abstracts will be imported to Endnote and screened using the inclusion and exclusion criteria below.

Inclusion criteria:

- DATE RANGE: Articles between: 1st January 2008 – 10th September 2018
- POPULATION: medical student [clerks, Interns], medical teachers [trainers, educators]
- FOCUS: Narrative Medicine interventions, holistic care (and its' components), patient centredness
- OUTCOME: holistic care practice [and its components]
- LANGUAGE: English, Mandarin
- GEOGRAPHIC LOCATION: any

Exclusion criteria:

- DATE RANGE: Articles outside our date range
- POPULATION: other healthcare students, other healthcare teachers, non-healthcare students, non-healthcare teachers
- FOCUS: other medical humanities aspects, narrative data outside of Narrative Medicine interventions
- LANGUAGE: other than English and Mandarin
- GEOGRAPHIC LOCATION: no exclusions

Step 4: Data extraction and quality appraisal

In realist reviews, data extraction of the selected studies comprises a number of phases. First, we will use a data extraction form to record study identification details: basic information (author, title, year of publication), document details (aim, design, method, findings), population, and intervention [26]. At this point we will then take our selection of articles for the programme theory development and appraise them for their relevance and rigour, marking them up as conceptually rich (high), moderate and low. All documents that are deemed to contribute to theory testing and refinement, will also be assessed for credibility and trustworthiness.

Following this, we will identify initial contexts, mechanisms, and outcomes for the programme theory development. This will be undertaken in collaboration with the team. Each team member will read a subset of the articles individually before discussing our individual findings in a group. A list of contexts, mechanisms and outcomes will be developed – with full descriptions. All data (identified articles) will be imported into the software ATLAS.ti and coded accordingly. New contexts, mechanisms and outcomes will be developed throughout this process as and when they are identified.

All data extraction will be undertaken by one reviewer and the extracted data will be review by the other team members regularly. Any differences in opinions will be

discussed during project team meetings and agreements on any new codes will be made together.

Step 5: Data analysis and synthesis

Data analysis from step 4 will be synthesised to refine the programme theory which will identify the contexts and mechanisms that are key for readiness for holistic care practice, highlighting what works for whom, and why. Specifically, we will infer the mechanisms that triggered the desired outcomes [26, 27].

These findings will be systematically considered to test and refine the programme theory using the following conceptual tools [28]:

- Jutaposing: when the study provides process data to understand the outcome model mentioned in another study;
- Reconciling: identifying the differences between contradictory sets of findings;
- Adjudicating the data: quality consideration between research;
- Consolidating: inference of mechanism for different outcome;
- Situating: explain differing outcomes of intervention and complete the context-mechanism-outcome configurations;

The results of the synthesis will be written according to RAMESES standards for reporting realist syntheses [29].

ETHICS and DISSEMINATION

Ethical approval for the wider study (including qualitative interviews at Stage 2, not included in this protocol), was obtained from Chang Gung Memorial Hospital (201601857B0C601).

This study will draw from published literature to describe context-mechanism-outcome configurations on how Narrative Medicine interventions impact on medical students' readiness for holistic care practice. By identifying the causal mechanisms around the influence of Narrative Medicine interventions on holistic care practice readiness, it may be possible to design Narrative Medicine programmes that are effective for specific medical students across different cultural and organizational/curricula contexts. The findings of this review will be submitted for publication to key medical education journals, core international medical education conferences as well as being offered for download as a 'top tips' resource via our research centre website in order to provide useful information for academics and policymakers, who will be able to apply the findings in their context for the improvement of medical students' learning.

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Contributors

The review was conceived by LVM and CDH. Data extraction was carried out by YH, with support from LVM and CDH. YH wrote the first draft of the manuscript. All authors contributed to revising the manuscript and approved the final version.

Conflicts of Interest

None.

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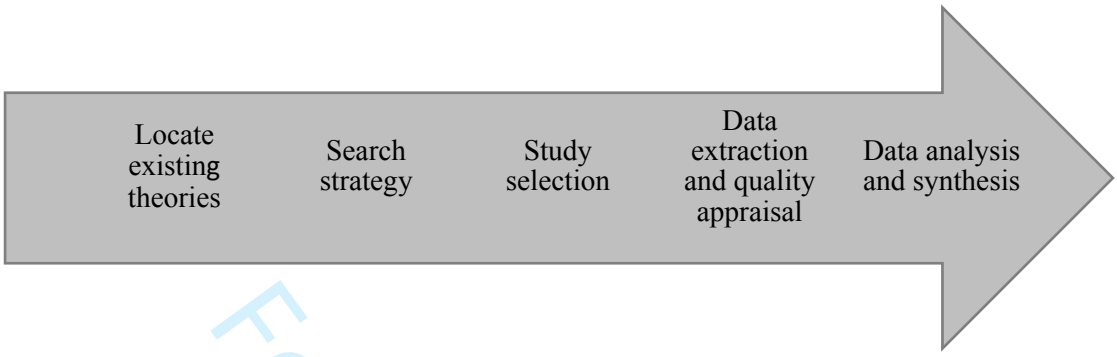
Appendix 1: Search Strategy

1. TOPIC: (“medical student*”)
2. TOPIC: (“intern”)
3. TOPIC: (“clerk*”)
4. TOPIC: (“residen*”)
5. TOPIC: (“postgraduate trainee*”)
6. TOPIC: (“postgraduate year”)
7. TOPIC: OR/ 1-6
8. TOPIC: (“patient-center*”)
9. TOPIC: (“patient-centre*”)
10. TOPIC: (“person-center*”)
11. TOPIC: (“person-centre*”)
12. TOPIC: (“holistic health”)
13. TOPIC: (“holistic medicine”)
14. TOPIC: (“holistic car*”)
15. TOPIC: (“holistic practic*”)
16. TOPIC: (“biopsychosocial”)
17. TOPIC: (“holistic need”)
18. TOPIC: (“whole-patient car*”)
19. TOPIC: (“total-patient car*”)
20. TOPIC: (holistic AND “medical educat*”)
21. TOPIC: (“empath*”)
22. TOPIC: (“compassion*”)
23. TOPIC: (“sensitiv*”)
24. TOPIC: (“social*”)
25. TOPIC: (“listener”)
26. TOPIC: (“individual*”)
27. TOPIC: (“respect*”)
28. TOPIC: (“empower*”)
29. TOPIC: (“communicat*”)
30. TOPIC: (“reflect*”)
31. TOPIC: OR/ 8-30
32. TOPIC: (“narrative medicine”)
33. TOPIC: (“narrative medical”)
34. TOPIC: (“narrative train*”)
35. TOPIC: (“narrative medicine train*”)
36. TOPIC: (narrative AND “medical educat*”)
37. TOPIC: OR/ 32-36

38. TOPIC: 7 AND 31 AND 37
39. Limit 39 to (yr= “2008-2018”)

Limit 40 to language English and Mandarin

FIGURE 1: FIVE STAGES OF THE REALIST SYNTHESIS



PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	P.1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	P.2-3
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	P.4-5
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	N/A
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	N/A
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	P.7
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	N/A
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	Appedix P. 13-14
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	N/A
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	N/A
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	N/A
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	P.9
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	N/A
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	N/A

PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	N/A
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	N/A
RESULTS			N/A
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	
DISCUSSION			N/A
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	P.10

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ABSTRACT

Introduction

Holistic health care considers the whole person – their body, mind, spirit, and emotions – and has been associated with narrative medicine practice. Narrative medicine is medicine performed with narrative skill and has been offered as a model for humanism and effective medical practice. Narrative medicine interventions have been associated with physicians' increased empathy, and more meaningful interactions with patients about managing their illness and preventative medicine. However, while there is some evidence that certain groups are more open to narrative practices (e.g. Traditional vs Western medical students), the extent to which narrative medicine interventions during undergraduate medical education impacts on students' readiness for holistic care, and the underlying reasons why, are unknown.

Methods and analysis

Realist review is a theory-driven approach to evaluate complex interventions. It focuses on understanding how interventions and programs work (or not) in their contextual setting. This realist synthesis aims to assess the evidence around the influence of Narrative Medicine medical students' readiness for holistic care practice. We will follow the five steps identified by Pawson: locate existing theories, search strategy, study selection, data extraction, data analysis and synthesis. Electronic databases to be used in this study are Web of Science, Medline, Scopus, Embase. Results will be written according to the RAMESES standard for reporting realist syntheses.

Ethics and Dissemination

Ethics approval was obtained from the Chang Gung Memorial Hospital for the wider study. The findings of this review will provide useful information for academics and policymakers, who will be able to apply the findings in their context when deciding whether and how to introduce Narrative Medicine programmes into medical students' curricula. We will publish our findings in peer-reviewed journals and international conferences.

Registration

The study has been registered with the international prospective register of systematic reviews, PROSPERO 2018, ID number CRD42018115447

Article Summary

Strengths and limitations of this study

- This study is one of the first to examine preparedness for holistic care as an outcome to Narrative Medicine interventions.

- The use of a systematic approach to identifying the literature around outcomes relating to holistic care arising from narrative medicine interventions is a study strength
- The application of a realist approach to understanding the contexts in which Narrative Medicine prepares different types of students for holistic care practice, and how, is another strength
- One concern for this study is that there might be a limited number of studies that have examined holistic care and its' associated components as an outcome to Narrative Medicine interventions
- One further concern is that the reporting of Narrative Medicine intervention outcomes might predominately focus on reactions to the intervention rather than providing deeper understandings of the mechanisms that might promote/inhibit holistic care

BACKGROUND

Holistic health care is a form of healing that considers the whole person – body, mind, spirit, and emotions – in the quest for optimal health and wellness [1, 2]. It is essentially synonymous with Engel's biopsychosocial model [3]. The biopsychosocial approach to illness comprises four systems within the person: the organs, the whole person, their behaviour, and their social roles. There are also four contextual factors that influence these systems: personal factors, physical environment, social environment, and time [2]. Holistic care asserts that the patient is a person, not a disease. Thus, treatment involves treating the underlying cause of the condition, rather than just alleviating the symptoms [1, 2].

Recent research has identified individual attributes of clinicians that are optimal for providing holistic care. For example, key personal attributes such as sociability, compassion, respectfulness, patient-centredness and sensitivity are all thought to facilitate holistic care provision [4]. Furthermore, being able to identify and satisfy patients' needs have also been identified as motivational factors that enable healing relationships with patients to develop, thereby encouraging an holistic care approach [4]. Finally, having the foresight and ability to facilitate autonomy and self-confidence in patients, to support individuals in obtaining relevant information about their condition, and to enhance effective communication, all contribute towards individuals' sense of empowerment around making medical treatment decisions [5, 6]. As such, providing holistic care means understanding how an illness affects the whole person and how to respond to their specific needs [7].

However, the development of an holistic approach to care is not straightforward. For example, in recent years, medical schools across the world have become increasingly concerned around the issue of empathy decline in their students [8, 9], especially during the clinical years [10]. This is likely due to the prevalence of so-called *professionalism dilemmas*, situations in which medical students witness or participate in something they believe to be unethical, unprofessional or 'wrong' [11, 12]. Common professionalism dilemma events for healthcare students that give rise to conflicts between their formal professionalism learning and what they witness during work based placements include: student abuse, patient dignity and safety issues [12, 13]. While experiencing such situations might lead some students to strongly reject these negative role models, it can also lead to diminishing empathy and professional identity disruption[14, 15]. Thus, medical schools are seeking ways to design more effective curricula to cultivate positive character development and professionalism in their students. Indeed, more broadly the medical humanities, which includes Narrative Medicine, has been heralded as an antidote to experiences of negative role-modelling, and is thought to facilitate compassionate care [16-18].

Narrative Medicine and its' links to holistic care

The concept of Narrative Medicine was first introduced by Rita Charon and refers to clinical practice that is fortified by a narrative competence [19-21]. Narrative Medicine is thought to enhance the attributes of healthcare providers to facilitate the delivery of holistic care practice. In particular it has been promoted as a way for physicians to: understand the personal connections between themselves and their patients [20]; help them to recognize, interpret, and be moved to action by the problems of others [21]; and to provide new opportunities for greater learning about respectful, empathic, and nourishing medical care [22-24]. The narrative concept therefore has been advocated as a framework for practice and proposed ideal (holistic) care, while providing the means to gain competence. It is unsurprising therefore that medical schools around the world have introduced Narrative Medicine as part of their medical humanities programmes in their undergraduate curricula [18].

Evidence for the benefit of Narrative Medicine interventions suggests that it can enhance empathy, observational skills, emotional awareness, communication skills, deepen critical thinking and reflective practice, and other factors associated with holistic care [18, 25, 26]. Furthermore, a systematic review of the literature on Narrative Medicine has found the outcomes for patients to be efficacious in terms of decreasing pain, increasing well-being (related to illness), confidence and co-operation, and for decreasing stress and feelings of alienation [27]. Additionally, Narrative Medicine educational interventions are not always efficacious. Indeed, recent research has begun to unpack the differential engagement and outcomes across study cohorts. For example, when considering the outcomes of a Narrative Medicine course in Asia, students on a Chinese medicine track reported a greater emotional, reflective and self-development outcomes in comparison to students on a Western medicine track [28].

As we can see, despite there being a link between the desired outcomes of a Narrative Medicine course and requirements for holistic care practice that suggests healthcare students' and professionals' readiness for holistic care should improve following a Narrative Medicine intervention, evidence is inconclusive. Additionally, to date, no direct evidence unpacking the underlying processes for this link has been provided: thus prior research draws on elements of holistic care to make their assertions (e.g. empathy) without illuminating the contexts and mechanisms through which this might have come about. Therefore, understand the underlying mechanisms that enhance such an outcome of Narrative Medicine programmes, alongside the necessary conditions for them doing is, is crucial for curricula designers (the beneficiaries of this research).

To our knowledge this is the first systematic review to focus on the impact of a Narrative Medicine intervention on medical students' preparedness for holistic care, with the explicit aim of unpacking the 'black box' of the intervention itself, by asking the following broad research question: under what circumstances and for whom does a Narrative Medicine intervention in an undergraduate medical curriculum influence medical students' readiness for holistic care.

REALIST REVIEW METHODOLOGY

Realist review is a theory-driven approach to evaluate complex interventions that focuses on understanding how interventions and programs work (or do not work) in their contextual setting; so rather than simply measuring outcomes, they explain why interventions work [29-32]. Standard systematic reviews focus on measuring and reporting on the effectiveness of a program, but provide little or no clues as to why the intervention works or not when applied in different contexts, deployed by different stakeholders, or used for different objectives [33]. Thus, realist reviews attempt to explain "How does it work?" , "Why does it work?", "For whom does it work?" and "In what circumstances does it work?" [33]. Furthermore, standard reviews follow a relatively straightforward formula whereby databases are searched systematically in a uniform manner. However, realist reviews have an iterative approach to searching the literature: having developed an initial search of the core literature, further searches of other literature can be undertaken in the pursuit of other 'lines of enquiry'[34].

The hallmark of a realist methodology is the generative model of causality: to infer the outcome(s) (O), there is a need to understand the underlying mechanism (M) that connects to the context (C) in which the intervention occurs [33]. Realist methodology does not assume a linear causal relationship, but attempts to explain complex interventions through program theory [35]. As the name suggests, it is an approach grounded in Realism [29], a school of philosophy asserting that both the material and the social worlds are 'real', that they can have real effects on stakeholders, and that it is possible to work towards a closer understanding of what causes change. Realist methodology belongs to a family of theory-based evaluation approaches. It is used to evaluate the impact of an intervention through three key elements and their complex interactions: the **C**ontext in which reality unfolds, the **M**echanisms that trigger the **O**utcome following the intervention (or C-M-O model) [32].

There are, of course, limitations to realist reviews. For example, it is intellectually challenging and there is no simple 'formula' as with more traditional systematic reviews. It also requires advanced theoretical understanding drawn from the social

sciences, and competencies to design research questions suitable for a Context-Mechanism-Outcome analysis [29-32]. Despite these limitations, we believe that a realist methodology can facilitate our understanding of the interplay between contexts and mechanisms that might facilitate or inhibit students' readiness to undertake holistic care (the desired outcome).

REVIEW AIM AND OBJECTIVES

The study aims to identify the impact of Narrative Medicine interventions during undergraduate medical curricula on medical students' readiness to deliver holistic care in order to develop a programme theory (a theoretical model) of what works, for whom, and why.

Objectives

1. To explore how a Narrative Medicine intervention can facilitate medical students' readiness for holistic care.
2. To develop a programme theory that explains how Narrative Medicine interventions can facilitate holistic care.
3. To develop a questionnaire to assess medical students' readiness for holistic care practice.

MAIN RESEARCH QUESTION

RQ: What are the contextual factors (including Traditional and Western medicine contexts) of Narrative Medicine interventions, and underlying the mechanisms, that impact on medical students' readiness for holistic care practice?

METHODS

The study design is based on a Pawson's five stages (Figure 1) [33].

Stage 1: Locate existing theories

We will begin by identifying the relevant theories associated with Narrative Medicine and its' influence on holistic care practice to develop our initial programme theory around how Narrative Medicine might influence students' readiness for holistic care practice. This stage involves identifying potential theories by searching the relevant literature to facilitate our understanding, and theorizing about *how* Narrative Medicine might influence students' readiness for holistic care practice in different contexts. This involves a search using electronic published resources (Web of Science, Medline, Scopus, Embase) as well as books. The search will comprise a scoping search, which will be developed using search terms focused on the intervention (e.g. Narrative Medicine, Narrative-based Medicine, narrative medical, narrative training, parallel

charts) and the outcome (e.g. preparedness or readiness for holistic care, attributes of holistic care practitioners). Books and articles will be examined and any identified theories will be used to build up the initial programme theory. This initial theory will be tested against the studies included in the review. This stage has already begun, and so far we have identified the biopsychosocial theoretical perspective and are examining research around facilitators and barriers to *becoming* biopsychosocial.

Step 2: Search strategy

The second stage involves developing our search strategy that will essentially comprise two phases. We will begin by searching the Web of Science, Medline, Scopus and Embase databases to find relevant articles for the study. The search terms will be developed, tested iteratively and discussed across the research team (See Appendix 1 for our initial progress). During the second phase of searching, we will seek additional relevant documents for testing and refinement our programme theory which may come from the Grey Literature (e.g. policy documents, conference proceedings and other work not necessarily subjected to peer review).

Step 3: Study selection

During the searching process, titles and abstracts will be imported to Endnote and screened using the inclusion and exclusion criteria below.

Inclusion criteria:

- DATE RANGE: Articles between: 1st January 2008 – 10th September 2018
- POPULATION: medical student [clerks, Interns], medical teachers [trainers, educators]
- FOCUS: Narrative Medicine interventions, holistic care (and its' components), patient centredness
- OUTCOME: holistic care practice [and its components]
- LANGUAGE: English, Mandarin
- GEOGRAPHIC LOCATION: any

Exclusion criteria:

- DATE RANGE: Articles outside our date range
- POPULATION: other healthcare students, other healthcare teachers, non-healthcare students, non-healthcare teachers
- FOCUS: other medical humanities aspects, narrative data outside of Narrative Medicine interventions
- LANGUAGE: other than English and Mandarin
- GEOGRAPHIC LOCATION: no exclusions

Step 4: Data extraction and quality appraisal

In realist reviews, data extraction of the selected studies comprise a number of phases. First, we will use a data extraction form to record study details: basic information (author, title, year of publication), document details (aim, design, method, findings), population, and intervention [35]. At this point we will take our selection of articles for the programme theory development and appraise them for their relevance and rigour, marking them up as conceptually rich (high), moderate and low. All documents that are deemed to contribute to theory testing and refinement, will also be assessed for credibility and trustworthiness.

Following this, we will identify initial contexts, mechanisms, and outcomes for the programme theory development. This will be undertaken in collaboration with the team. Each team member will read a subset of the articles individually before discussing our individual findings in a group. A list of contexts, mechanisms and outcomes will be developed – with full descriptions. All data (identified articles) will be imported into the software ATLAS.ti8 and coded accordingly. New contexts, mechanisms and outcomes will be developed throughout this process as and when they are identified.

All data extraction will be undertaken by one reviewer and the extracted data will be reviewed by the other team members regularly. Any differences in opinions will be discussed during project team meetings and agreements on any new codes will be made together.

We will follow the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to improve the conduct of systematic reviews and quality of the protocol (see Appendix 2).

Step 5: Data analysis and synthesis

Data analysis from Step 4 will be synthesised to refine the programme theory which will identify the contexts and mechanisms that are key for students' readiness for holistic care practice, highlighting what works for whom, and why. Specifically, we will infer the mechanisms that trigger the desired outcomes [35, 36].

These findings will be systematically considered in order to test and refine the programme theory using the following conceptual tools [37]:

- Jutaposing: when the study provides process data to understand the outcome model mentioned in another study;
- Reconciling: identifying the differences between contradictory sets of findings;
- Adjudicating the data: quality consideration between research;
- Consolidating: inference of a mechanism for a different outcome;

- Situating: explain differing outcomes of intervention and complete the context-mechanism-outcome configurations;

The results of the synthesis will be written according to RAMESES standards for reporting realist syntheses [38].

Patient and Public Involvement

This protocol is a systematic review to focus on the impact of a Narrative Medicine intervention on medical students' preparedness for holistic care, thus this research didn't involve patients and public involvement.

ETHICS and DISSEMINATION

Ethical approval for the wider study (including qualitative interviews at Stage 2, not included in this protocol), was obtained from Chang Gung Memorial Hospital (201601857B0C601). This study will draw from published literature to describe context-mechanism-outcome configurations regarding how Narrative Medicine interventions impact on medical students' readiness for holistic care practice. By identifying the causal mechanisms around the influence of Narrative Medicine interventions on holistic care practice readiness, it may be possible to design Narrative Medicine programmes that are effective for specific medical students across different cultural and organizational/curricula contexts. The findings of this review will be submitted for publication to key medical education journals, core international medical education conferences as well as being offered for download as a 'top tips' resource via our research centre website in order to provide useful information for academics and policymakers, who will be able to apply the findings in their context for the improvement of medical students' learning.

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Contributors

The review was conceived by LVM and CDH. Data extraction was carried out by YH, with support from LVM and CDH. YH wrote the first draft of the manuscript with

comments and review by LVM. All authors contributed to revising the manuscript and approved the final version.

Conflicts of Interest

None.

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Figure Legends

Figure 1: Five stages of a realist synthesis study design (from Pawson)

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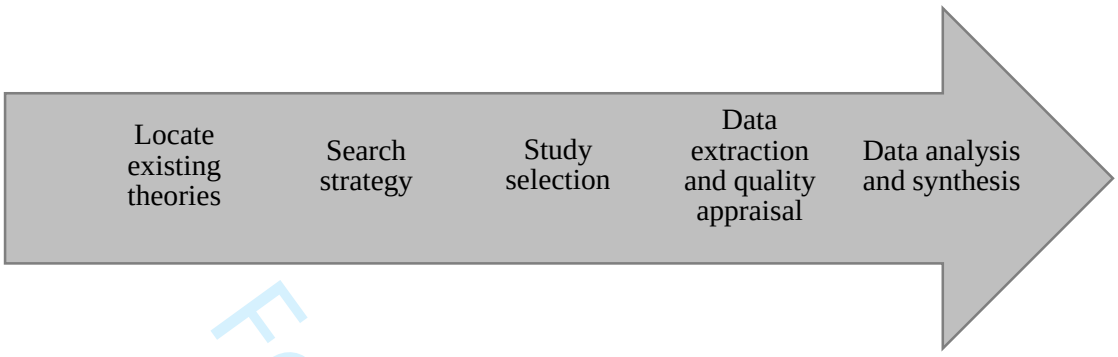
FIGURE 1: FIVE STAGES OF THE REALIST SYNTHESIS



Appendix 1: Search Strategy

1. TOPIC: (“medical student*”)
2. TOPIC: (“intern”)
3. TOPIC: (“clerk*”)
4. TOPIC: (“residen*”)
5. TOPIC: (“postgraduate trainee*”)
6. TOPIC: (“postgraduate year”)
7. TOPIC: OR/ 1-6
8. TOPIC: (“patient-center*”)
9. TOPIC: (“patient-centre*”)
10. TOPIC: (“person-center*”)
11. TOPIC: (“person-centre*”)
12. TOPIC: (“holistic health”)
13. TOPIC: (“holistic medicine”)
14. TOPIC: (“holistic car*”)
15. TOPIC: (“holistic practic*”)
16. TOPIC: (“biopsychosocial”)
17. TOPIC: (“holistic need”)
18. TOPIC: (“whole-patient car*”)
19. TOPIC: (“total-patient car*”)
20. TOPIC: (holistic AND “medical educat*”)
21. TOPIC: (“empath*”)
22. TOPIC: (“compassion*”)
23. TOPIC: (“sensitiv*”)
24. TOPIC: (“social*”)
25. TOPIC: (“listener”)
26. TOPIC: (“individual*”)
27. TOPIC: (“respect*”)
28. TOPIC: (“empower*”)
29. TOPIC: (“communicat*”)
30. TOPIC: (“reflect*”)
31. TOPIC: OR/ 8-30
32. TOPIC: (“narrative medicine”)
33. TOPIC: (“narrative medical”)
34. TOPIC: (“narrative train*”)
35. TOPIC: (“narrative medicine train*”)
36. TOPIC: (narrative AND “medical educat*”)
37. TOPIC: OR/ 32-36

38. TOPIC: 7 AND 31 AND 37
39. Limit 39 to (yr= “2008-2018”)
40. Limit 39 to language English and Mandarin

PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol*

Section and topic	Item No	Checklist item	(Page No.#)
ADMINISTRATIVE INFORMATION			
Title:			
Identification	1a	Identify the report as a protocol of a systematic review	1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	N/A
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number	2
Authors:			
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author	1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	10
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	N/A
Support:			
Sources	5a	Indicate sources of financial or other support for the review	10
Sponsor	5b	Provide name for the review funder and/or sponsor	N/A
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	N/A
INTRODUCTION			
Rationale	6	Describe the rationale for the review in the context of what is already known	4-6
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	7
METHODS			
Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review	7-9
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage	7-8
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	8 Appendix 1

Study records:			
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	8-9
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	8
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	8-9
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications	8-9
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	N/A
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	N/A
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised	N/A
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I^2, Kendall's τ)	
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	N/A
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	N/A

- **It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**
- **N/A: not available**

From: Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart L, PRISMA-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. BMJ. 2015 Jan 2;349(jan02 1):g7647.

BMJ Open

The influence of Narrative Medicine on medical students' readiness for holistic care practice: A realist synthesis protocol

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The influence of Narrative Medicine on medical students' readiness for holistic care practice: A realist synthesis protocol

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Key words: Medical Education, Narrative Medicine, holistic care, Western Medicine, Traditional Medicine, Realist Synthesis, Systematic Review

ABSTRACT

Introduction

Holistic health care considers the whole person – their body, mind, spirit, and emotions – and has been associated with narrative medicine practice. Narrative medicine is medicine performed with narrative skill and has been offered as a model for humanism and effective medical practice. Narrative medicine interventions have been associated with physicians' increased empathy, and more meaningful interactions with patients about managing their illness and preventative medicine. However, while there is some evidence that certain groups are more open to narrative practices (e.g. Traditional vs Western medical students), the extent to which narrative medicine interventions during undergraduate medical education impacts on students' readiness for holistic care, and the underlying reasons why, are unknown.

Methods and analysis

Realist review is a theory-driven approach to evaluate complex interventions. It focuses on understanding how interventions and programs work (or not) in their contextual setting. This realist synthesis aims to formulate a theory around the influence of Narrative Medicine medical students' readiness for holistic care practice. We will follow Pawson's five steps: locate existing theories, search strategy, study selection, data extraction, data analysis and synthesis. Electronic databases to be used are Web of Science, Medline, Scopus, Embase. Articles between January 2008-September 2018 will be included. Results will be written according to the RAMESES standard for reporting realist syntheses.

Ethics and Dissemination

Ethics approval was obtained from the Chang Gung Memorial Hospital for the wider study. The findings of this review will provide useful information for academics and policymakers, who will be able to apply the findings in their context when deciding whether and how to introduce Narrative Medicine programmes into medical students' curricula. We will publish our findings in peer-reviewed journals and international conferences.

Registration

The study has been registered with the international prospective register of systematic reviews, PROSPERO 2018, ID number CRD42018115447

Article Summary

Strengths and limitations of this study

- This study is one of the first to examine preparedness for holistic care as an outcome to Narrative Medicine interventions.

- The use of a systematic approach to identifying the literature around outcomes relating to holistic care arising from narrative medicine interventions is a study strength
- The application of a realist approach to understanding the contexts in which Narrative Medicine prepares different types of students for holistic care practice, and how, is another strength
- One concern for this study is that there might be a limited number of studies that have examined holistic care and its' associated components as an outcome to Narrative Medicine interventions
- One further concern is that the reporting of Narrative Medicine intervention outcomes might predominately focus on reactions to the intervention rather than providing deeper understandings of the mechanisms that might promote/inhibit holistic care

BACKGROUND

Holistic health care is a form of healing that considers the whole person – body, mind, spirit, and emotions – in the quest for optimal health and wellness[1 2]. It is essentially synonymous with Engel's biopsychosocial model[3]. The biopsychosocial approach to illness comprises four systems within the person: the organs, the whole person, their behaviour, and their social roles. There are also four contextual factors that influence these systems: personal factors, physical environment, social environment, and time[2]. Holistic care asserts that the patient is a person, not a disease. Thus, treatment involves treating the underlying cause of the condition, rather than just alleviating the symptoms[1 2].

Recent research has identified individual attributes of clinicians that are optimal for providing holistic care. For example, key personal attributes such as sociability, compassion, respectfulness, patient-centredness and sensitivity are all thought to facilitate holistic care provision [4]. Furthermore, being able to identify and satisfy patients' needs have also been identified as motivational factors that enable healing relationships with patients to develop, thereby encouraging an holistic care approach [4]. Finally, having the foresight and ability to facilitate autonomy and self-confidence in patients, to support individuals in obtaining relevant information about their condition, and to enhance effective communication, all contribute towards individuals' sense of empowerment around making medical treatment decisions [5 6]. As such, providing holistic care means understanding how an illness affects the whole person and how to respond to their specific needs [7].

However, the development of an holistic approach to care is not straightforward. For example, in recent years, medical schools across the world have become increasingly concerned around the issue of empathy decline in their students[8 9], especially during the clinical years [10]. This is possibly due to students' reactions to so-called *professionalism dilemmas*: situations in which medical students witness or participate in something they believe to be unethical, unprofessional or 'wrong' [11 12]. Common professionalism dilemma events for healthcare students that give rise to conflicts between their formal professionalism learning and what they witness during work based placements include: student abuse, patient dignity and safety issues [12 13]. While experiencing such situations might lead some students to strongly reject these negative role models, it can also lead to diminishing empathy and professional identity disruption[14 15]. Thus, medical schools are seeking ways to design more effective curricula to cultivate positive character development and professionalism in their students. Indeed, more broadly the medical humanities, which includes Narrative Medicine, has been heralded as an remedy to experiences of negative role-modelling, and is thought to facilitate compassionate care [16-18].

Narrative Medicine and holistic care

The concept of Narrative Medicine was first introduced by Rita Charon and refers to clinical practice that is fortified by a narrative competence.[19-21] Narrative Medicine is thought to enhance the attributes of healthcare providers to facilitate the delivery of holistic care practice. In particular it has been promoted as a way for physicians to: understand the personal connections between themselves and their patients [20]; help them to recognize, interpret, and be moved to action by the problems of others[21]; and to provide new opportunities for greater learning about respectful, empathic, and nourishing medical care [22-24]. The narrative concept therefore has been advocated as a framework for practice and proposed ideal (holistic) care, while providing the means to gain competence. It is unsurprising therefore that medical schools around the world have introduced Narrative Medicine as part of their medical humanities programmes in their undergraduate curricula[18].

Evidence for the benefit of Narrative Medicine interventions suggests that it can enhance empathy, observational skills, emotional awareness, communication skills, deepen critical thinking and reflective practice, and other factors associated with holistic care [18] [25] [26]. Furthermore, a systematic review of the literature on Narrative Medicine has found the outcomes for patients to be efficacious in terms of decreasing pain, increasing well-being (related to illness), confidence and co-operation, and for decreasing stress and feelings of alienation [27]. Additionally, Narrative Medicine educational interventions are not always efficacious. Indeed, recent research has begun to unpack the differential engagement and outcomes across study cohorts. For example, when considering the outcomes of a Narrative Medicine course in Asia, students on a Chinese medicine track reported a greater emotional, reflective and self-development outcomes in comparison to students on a Western medicine track [28].

As we can see, despite the appearance of a link between the desired outcomes of a Narrative Medicine course and requirements for holistic care practice that suggests healthcare students' and professionals' readiness for holistic care should improve following a Narrative Medicine intervention, evidence is inconclusive. Additionally, to date, no direct evidence unpacking the underlying processes for this potential link has been provided: thus prior research draws on elements of holistic care to make their assertions (e.g. empathy) without illuminating the contexts and mechanisms through which this might have come about. Therefore, understand the underlying mechanisms that enhance such an outcome of Narrative Medicine programmes, alongside the necessary conditions for them doing is, is crucial for curricula designers (the beneficiaries of this research).

To our knowledge this is the first systematic review to focus on the impact of a Narrative Medicine intervention on medical students' preparedness for holistic care, with the explicit aim of unpacking the 'black box' of the intervention itself, by asking the following broad research question: under what circumstances and for whom does a Narrative Medicine intervention in an undergraduate medical curriculum influence medical students' readiness for holistic care.

REALIST REVIEW METHODOLOGY

Realist review is a theory-driven approach to evaluate complex interventions that focuses on understanding how interventions and programs work (or do not work) in their contextual setting; so rather than simply measuring outcomes, they explain why interventions work [29-32]. Standard systematic reviews focus on measuring and reporting on the effectiveness of a program, but provide little or no clues as to why the intervention works or not when applied in different contexts, deployed by different stakeholders, or used for different objectives[33]. Thus, realist reviews attempt to explain "How does it work?" , "Why does it work?", "For whom does it work?" and "In what circumstances does it work?" [33]. Furthermore, standard reviews follow a relatively straightforward formula whereby databases are searched systematically in a uniform manner. However, realist reviews have an iterative approach to searching the literature: having developed an initial search of the core literature, further searches of other literature can be undertaken in the pursuit of other 'lines of enquiry'[34].

The hallmark of a realist methodology is the generative model of causality: to infer the outcome(s) (O), there is a need to understand the underlying mechanism (M) that connects to the context (C) in which the intervention occurs [33]. Realist methodology does not assume a linear causal relationship, but attempts to explain complex interventions through program theory [35]. As the name suggests, it is an approach grounded in Realism [29], a school of philosophy asserting that both the material and the social worlds are 'real', that they can have real effects on stakeholders, and that it is possible to work towards a closer understanding of what causes change. Realist methodology belongs to a family of theory-based evaluation approaches. It is used to evaluate the impact of an intervention through three key elements and their complex interactions: the **C**ontext in which reality unfolds, the **M**echanisms that trigger the **O**utcome following the intervention (or C-M-O model) [32].

There are, of course, limitations to realist reviews. For example, it is intellectually challenging and there is no simple 'formula' as with more traditional systematic reviews. It also requires advanced theoretical understanding drawn from the social sciences, and competencies to design research questions suitable for a Context-Mechanism-Outcome analysis [29-32]. Despite these limitations, we believe that a

realist methodology can facilitate our understanding of the interplay between contexts and mechanisms that might facilitate or inhibit students' readiness to undertake holistic care (the desired outcome).

REVIEW AIM AND OBJECTIVES

The study aims to identify the impact of Narrative Medicine interventions during undergraduate medical curricula on medical students' readiness to deliver holistic care in order to develop a programme theory (a theoretical model) of what works, for whom, and why.

Objectives

1. To explore how a Narrative Medicine intervention can facilitate medical students' readiness for holistic care.
2. To develop a programme theory that explains how Narrative Medicine interventions can facilitate holistic care.

MAIN RESEARCH QUESTION

RQ: What are the contextual factors (including Traditional and Western medicine contexts) of Narrative Medicine interventions, and underlying the mechanisms, that impact on medical students' readiness for holistic care practice?

METHODS

The study design is based on a Pawson's five stages (Figure 1) 33.

Stage 1: Locate existing theories

We will begin by identifying the relevant theories associated with Narrative Medicine and its' influence on holistic care practice to develop our initial programme theory around how Narrative Medicine might influence students' readiness for holistic care practice. This stage involves identifying potential theories by searching the relevant literature to facilitate our understanding, and theorizing about *how* Narrative Medicine might influence students' readiness for holistic care practice in different contexts. This involves a search using electronic published resources (Web of Science, Medline, Scopus, Embase) as well as books. The search will comprise a scoping search, which will be developed using search terms focused on the intervention (e.g. Narrative Medicine, Narrative-based Medicine, narrative medical, narrative training, parallel charts) and the outcome (e.g. preparedness or readiness for holistic care, attributes of holistic care practitioners). Books and articles will be examined, and any identified theories will be used to build up the initial programme theory. This initial theory will be examined against the studies included in the review. This stage has

already begun, and so far we have identified the biopsychosocial theoretical perspective and are examining research around facilitators and barriers to *becoming* biopsychosocial.

Step 2: Search strategy

The second stage involves developing our search strategy that will essentially comprise two phases. We will begin by searching the Web of Science, Medline, Scopus and Embase databases to find relevant articles for the study. The search terms will be developed, tested iteratively and discussed across the research team (See Appendix 1 for our initial progress). During the second phase of searching, we will seek additional relevant documents for testing and refinement our programme theory which may come from the Grey Literature (e.g. policy documents, conference proceedings and other work not necessarily subjected to peer review).

Step 3: Study selection

During the searching process, titles and abstracts will be imported to Endnote and screened using the inclusion and exclusion criteria below.

Inclusion criteria:

- DATE RANGE: Articles between: 1st January 2008 – 10th September 2018
- POPULATION: medical student [clerks, Interns], medical teachers [trainers, educators]
- FOCUS: Narrative Medicine interventions, holistic care (and its' components), patient centredness
- OUTCOME: holistic care practice [and its components]
- LANGUAGE: English, Mandarin
- GEOGRAPHIC LOCATION: any

Exclusion criteria:

- DATE RANGE: Articles outside our date range
- POPULATION: other healthcare students, other healthcare teachers, non-healthcare students, non-healthcare teachers
- FOCUS: other medical humanities aspects, narrative data outside of Narrative Medicine interventions
- LANGUAGE: other than English and Mandarin
- GEOGRAPHIC LOCATION: no exclusions

Step 4: Data extraction and quality appraisal

In realist reviews, data extraction of the selected studies comprise a number of phases. First, we will use a data extraction form to record study details: basic information (author, title, year of publication), document details (aim, design, method, findings), population, and intervention [35]. At this point we will take our selection of articles for the programme theory development and appraise them for their relevance and rigour, marking them up as conceptually rich (high), moderate and low. All documents that are deemed to contribute to theory testing and refinement, will also be assessed for credibility and trustworthiness.[36] Here we will consider the quality of arguments and theory-use, not just at the level of the data, which will enable us to draw on relevant manuscripts for our programme theory development.[37]

Following this, we will identify initial contexts, mechanisms, and outcomes for the programme theory development. This will be undertaken in collaboration with the team. Each team member will read a subset of the articles individually before discussing our individual findings in a group. A list of contexts, mechanisms and outcomes will be developed – with full descriptions. All data (identified articles) will be imported into the software ATLAS.ti8 and coded accordingly. New contexts, mechanisms and outcomes will be developed throughout this process as and when they are identified.

All data extraction will be undertaken by one reviewer and the extracted data will be reviewed by the other team members regularly. Any differences in opinions will be discussed during project team meetings and agreements on any new codes will be made together.

We will follow the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) guidelines to improve the conduct of systematic reviews and quality of the protocol (see Appendix 2).

Step 5: Data analysis and synthesis

Data analysis from Step 4 will be synthesised to refine the programme theory which will identify the contexts and mechanisms that are key for students' readiness for holistic care practice, highlighting what works for whom, and why. Specifically, we will infer the mechanisms that trigger the desired outcomes [35] [38].

These findings will be systematically considered in order to test and refine the programme theory using the following conceptual tools [39]:

- Juxtaposing: when the study provides process data to understand the outcome model mentioned in another study;
- Reconciling: identifying the differences between contradictory sets of findings;
- Adjudicating the data: quality consideration between research;
- Consolidating: inference of a mechanism for a different outcome;

- Situating: explain differing outcomes of intervention and complete the context-mechanism-outcome configurations;

The results of the synthesis will be written according to RAMESES standards for reporting realist syntheses 36.

. **Patient and Public Involvement**

This protocol is a systematic review to focus on the impact of a Narrative Medicine intervention on medical students' preparedness for holistic care, thus this research didn't involve patients and public involvement

ETHICS and DISSEMINATION

Ethical approval for the wider study (including qualitative interviews at Stage 2, not included in this protocol), was obtained from Chang Gung Memorial Hospital (201601857B0C601). This study will draw from published literature to describe context-mechanism-outcome configurations regarding how Narrative Medicine interventions impact on medical students' readiness for holistic care practice. By identifying the causal mechanisms around the influence of Narrative Medicine interventions on holistic care practice readiness, it may be possible to design Narrative Medicine programmes that are effective for specific medical students across different cultural and organizational/curricula contexts. The findings of this review will be submitted for publication to key medical education journals, core international medical education conferences as well as being offered for download as a 'top tips' resource via our research centre website in order to provide useful information for academics and policymakers, who will be able to apply the findings in their context for the improvement of medical students' learning.

Acknowledgements

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Contributors

The review was conceived by LVM and CDH. Data extraction was carried out by YH, with support from LVM and CDH. YH wrote the first draft of the manuscript with

comments and review by LVM. All authors contributed to revising the manuscript and approved the final version.

Conflicts of Interest

None.

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Figure Legends

Figure 1: Five stages of a realist synthesis study design (from Pawson)

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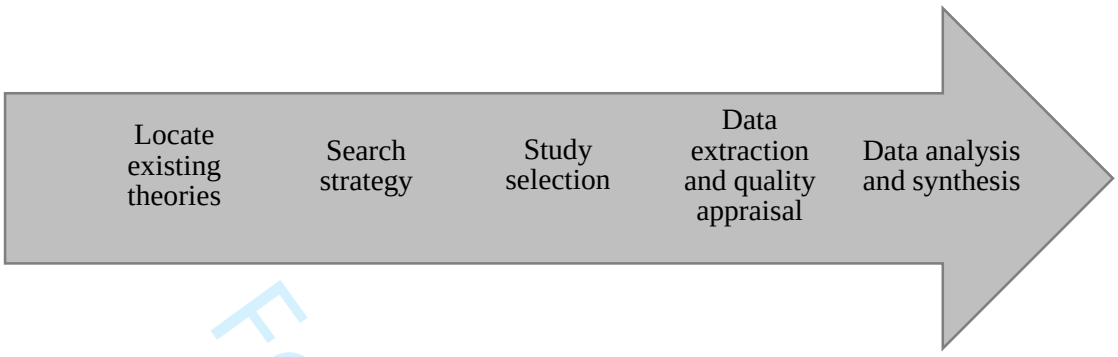
Secondary The RAMESES projects. 2013 http://www.ramesesproject.org/
2013.

FIGURE 1: FIVE STAGES OF THE REALIST SYNTHESIS



Appendix 1: Search Strategy

1. TOPIC: (“medical student*”)
2. TOPIC: (“intern”)
3. TOPIC: (“clerk*”)
4. TOPIC: (“residen*”)
5. TOPIC: (“postgraduate trainee*”)
6. TOPIC: (“postgraduate year”)
7. TOPIC: OR/ 1-6
8. TOPIC: (“patient-center*”)
9. TOPIC: (“patient-centre*”)
10. TOPIC: (“person-center*”)
11. TOPIC: (“person-centre*”)
12. TOPIC: (“holistic health”)
13. TOPIC: (“holistic medicine”)
14. TOPIC: (“holistic car*”)
15. TOPIC: (“holistic practic*”)
16. TOPIC: (“biopsychosocial”)
17. TOPIC: (“holistic need”)
18. TOPIC: (“whole-patient car*”)
19. TOPIC: (“total-patient car*”)
20. TOPIC: (holistic AND “medical educat*”)
21. TOPIC: (“empath*”)
22. TOPIC: (“compassion*”)
23. TOPIC: (“sensitiv*”)
24. TOPIC: (“social*”)
25. TOPIC: (“listener”)
26. TOPIC: (“individual*”)
27. TOPIC: (“respect*”)
28. TOPIC: (“empower*”)
29. TOPIC: (“communicat*”)
30. TOPIC: (“reflect*”)
31. TOPIC: OR/ 8-30
32. TOPIC: (“narrative medicine”)
33. TOPIC: (“narrative medical”)
34. TOPIC: (“narrative train*”)
35. TOPIC: (“narrative medicine train*”)
36. TOPIC: (narrative AND “medical educat*”)
37. TOPIC: OR/ 32-36

38. TOPIC: 7 AND 31 AND 37
39. Limit 39 to (yr= “2008-2018”)
40. Limit 39 to language English and Mandarin

PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol*

Section and topic	Item No	Checklist item	(Page No.#)
ADMINISTRATIVE INFORMATION			
Title:			
Identification	1a	Identify the report as a protocol of a systematic review	1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	N/A
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number	2
Authors:			
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author	1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	10
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	N/A
Support:			
Sources	5a	Indicate sources of financial or other support for the review	10
Sponsor	5b	Provide name for the review funder and/or sponsor	N/A
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	N/A
INTRODUCTION			
Rationale	6	Describe the rationale for the review in the context of what is already known	4-6
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	7
METHODS			
Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review	7-9
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage	7-8
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	8 Appendix 1

Study records:			
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	8-9
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	8
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	8-9
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications	8-9
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	N/A
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	N/A
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised	N/A
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I^2, Kendall's τ)	
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	N/A
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	N/A

- **It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**
- **N/A: not available**

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The influence of Narrative Medicine on medical students' readiness for holistic care practice: A realist synthesis protocol

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Key words: Medical Education, Narrative Medicine, holistic care, Western Medicine, Traditional Medicine, Realist Synthesis, Systematic Review

ABSTRACT

Introduction

Holistic health care considers the whole person – their body, mind, spirit, and emotions – and has been associated with narrative medicine practice. Narrative medicine is medicine performed with narrative skill and has been offered as a model for humanism and effective medical practice. Narrative medicine interventions have been associated with physicians' increased empathy, and more meaningful interactions with patients about managing their illness and preventative medicine. However, while there is some evidence that certain groups are more open to narrative practices (e.g. Traditional vs Western medical students), the extent to which narrative medicine interventions during undergraduate medical education impacts on students' readiness for holistic care, and the underlying reasons why, are unknown.

Methods and analysis

Realist review is a theory-driven approach to evaluate complex interventions. It focuses on understanding how interventions and programs work (or not) in their contextual setting. This realist synthesis aims to formulate a theory around the influence of Narrative Medicine medical students' readiness for holistic care practice. We will follow Pawson's five steps: locate existing theories, search strategy, study selection, data extraction, data analysis and synthesis. Electronic databases to be used are Web of Science, Medline, Scopus, Embase. Articles between January 2008-September 2018 will be included. Results will be written according to the RAMESES standard for reporting realist syntheses.

Ethics and Dissemination

Ethics approval was obtained from the Chang Gung Memorial Hospital for the wider study. The findings of this review will provide useful information for academics and policymakers, who will be able to apply the findings in their context when deciding whether and how to introduce Narrative Medicine programmes into medical students' curricula. We will publish our findings in peer-reviewed journals and international conferences.

Registration

The study has been registered with the international prospective register of systematic reviews, PROSPERO 2018, ID number CRD42018115447

Article Summary

Strengths and limitations of this study

- This study is one of the first to examine preparedness for holistic care as an outcome to Narrative Medicine interventions.

- The use of a systematic approach to identifying the literature around outcomes relating to holistic care arising from narrative medicine interventions is a study strength
- The application of a realist approach to understanding the contexts in which Narrative Medicine prepares different types of students for holistic care practice, and how, is another strength
- One concern for this study is that there might be a limited number of studies that have examined holistic care and its' associated components as an outcome to Narrative Medicine interventions
- One further concern is that the reporting of Narrative Medicine intervention outcomes might predominately focus on reactions to the intervention rather than providing deeper understandings of the mechanisms that might promote/inhibit holistic care

BACKGROUND

Holistic health care is a form of healing that considers the whole person – body, mind, spirit, and emotions – in the quest for optimal health and wellness[1 2]. It is essentially synonymous with Engel's biopsychosocial model[3]. The biopsychosocial approach to illness comprises four systems within the person: the organs, the whole person, their behaviour, and their social roles. There are also four contextual factors that influence these systems: personal factors, physical environment, social environment, and time[2]. Holistic care asserts that the patient is a person, not a disease. Thus, treatment involves treating the underlying cause of the condition, rather than just alleviating the symptoms[1 2].

Recent research has identified individual attributes of clinicians that are optimal for providing holistic care. For example, key personal attributes such as sociability, compassion, respectfulness, patient-centredness and sensitivity are all thought to facilitate holistic care provision [4]. Furthermore, being able to identify and satisfy patients' needs have also been identified as motivational factors that enable healing relationships with patients to develop, thereby encouraging an holistic care approach [4]. Finally, having the foresight and ability to facilitate autonomy and self-confidence in patients, to support individuals in obtaining relevant information about their condition, and to enhance effective communication, all contribute towards individuals' sense of empowerment around making medical treatment decisions [5 6]. As such, providing holistic care means understanding how an illness affects the whole person and how to respond to their specific needs [7].

However, the development of an holistic approach to care is not straightforward. For example, in recent years, medical schools across the world have become increasingly concerned around the issue of empathy decline in their students[8 9], especially during the clinical years [10]. This is possibly due to students' reactions to so-called *professionalism dilemmas*: situations in which medical students witness or participate in something they believe to be unethical, unprofessional or 'wrong' [11 12]. Common professionalism dilemma events for healthcare students that give rise to conflicts between their formal professionalism learning and what they witness during work based placements include: student abuse, patient dignity and safety issues [12 13]. While experiencing such situations might lead some students to strongly reject these negative role models, it can also lead to diminishing empathy and professional identity disruption[14 15]. Thus, medical schools are seeking ways to design more effective curricula to cultivate positive character development and professionalism in their students. Indeed, more broadly the medical humanities, which includes Narrative Medicine, has been heralded as an remedy to experiences of negative role-modelling, and is thought to facilitate compassionate care [16-18].

Narrative Medicine and holistic care

According to Rita Charon, a major proponent of Narrative Medicine, Narrative Medicine refers to clinical practice that is fortified by a narrative competence[19-21.] Narrative Medicine is thought to enhance the attributes of healthcare providers to facilitate the delivery of holistic care practice. In particular it has been promoted as a way for physicians to: understand the personal connections between themselves and their patients [20]; help them to recognize, interpret, and be moved to action by the problems of others[21]; and to provide new opportunities for greater learning about respectful, empathic, and nourishing medical care [22-24]. The narrative concept therefore has been advocated as a framework for practice and proposed ideal (holistic) care, while providing the means to gain competence. It is unsurprising therefore that medical schools around the world have introduced Narrative Medicine as part of their medical humanities programmes in their undergraduate curricula[18].

Evidence for the benefit of Narrative Medicine interventions suggests that it can enhance empathy, observational skills, emotional awareness, communication skills, deepen critical thinking and reflective practice, and other factors associated with holistic care [18] [25] [26]. Furthermore, a systematic review of the literature on Narrative Medicine has found the outcomes for patients to be efficacious in terms of decreasing pain, increasing well-being (related to illness), confidence and co-operation, and for decreasing stress and feelings of alienation [27]. Additionally, Narrative Medicine educational interventions are not always efficacious. Indeed, recent research has begun to unpack the differential engagement and outcomes across study cohorts. For example, when considering the outcomes of a Narrative Medicine course in Asia, students on a Chinese medicine track reported a greater emotional, reflective and self-development outcomes in comparison to students on a Western medicine track [28].

As we can see, despite the appearance of a link between the desired outcomes of a Narrative Medicine course and requirements for holistic care practice that suggests healthcare students' and professionals' readiness for holistic care should improve following a Narrative Medicine intervention, evidence is inconclusive. Additionally, to date, no direct evidence unpacking the underlying processes for this potential link has been provided: thus prior research draws on elements of holistic care to make their assertions (e.g. empathy) without illuminating the contexts and mechanisms through which this might have come about. Therefore, understand the underlying mechanisms that enhance such an outcome of Narrative Medicine programmes, alongside the necessary conditions for them doing is, is crucial for curricula designers (the beneficiaries of this research).

To our knowledge this is the first systematic review to focus on the impact of a Narrative Medicine intervention on medical students' preparedness for holistic care, with the explicit aim of unpacking the 'black box' of the intervention itself, by asking the following broad research question: under what circumstances and for whom does a Narrative Medicine intervention in an undergraduate medical curriculum influence medical students' readiness for holistic care.

REALIST REVIEW METHODOLOGY

Realist review is a theory-driven approach to evaluate complex interventions that focuses on understanding how interventions and programs work (or do not work) in their contextual setting; so rather than simply measuring outcomes, they explain why interventions work [29-32]. Standard systematic reviews focus on measuring and reporting on the effectiveness of a program, but provide little or no clues as to why the intervention works or not when applied in different contexts, deployed by different stakeholders, or used for different objectives[33]. Thus, realist reviews attempt to explain "How does it work?" , "Why does it work?", "For whom does it work?" and "In what circumstances does it work?" [33]. Furthermore, standard reviews follow a relatively straightforward formula whereby databases are searched systematically in a uniform manner. However, realist reviews have an iterative approach to searching the literature: having developed an initial search of the core literature, further searches of other literature can be undertaken in the pursuit of other 'lines of enquiry'[34].

The hallmark of a realist methodology is the generative model of causality: to infer the outcome(s) (O), there is a need to understand the underlying mechanism (M) that connects to the context (C) in which the intervention occurs [33]. Realist methodology does not assume a linear causal relationship, but attempts to explain complex interventions through program theory [35]. As the name suggests, it is an approach grounded in Realism [29], a school of philosophy asserting that both the material and the social worlds are 'real', that they can have real effects on stakeholders, and that it is possible to work towards a closer understanding of what causes change. Realist methodology belongs to a family of theory-based evaluation approaches. It is used to evaluate the impact of an intervention through three key elements and their complex interactions: the **C**ontext in which reality unfolds, the **M**echanisms that trigger the **O**utcome following the intervention (or C-M-O model) [32].

There are, of course, limitations to realist reviews. For example, it is intellectually challenging and there is no simple 'formula' as with more traditional systematic reviews. It also requires advanced theoretical understanding drawn from the social sciences, and competencies to design research questions suitable for a Context-Mechanism-Outcome analysis [29-32]. Despite these limitations, we believe that a

realist methodology can facilitate our understanding of the interplay between contexts and mechanisms that might facilitate or inhibit students' readiness to undertake holistic care (the desired outcome).

MAIN RESEARCH QUESTION

RQ: What are the contextual factors (including Traditional and Western medicine contexts) of Narrative Medicine interventions, and underlying the mechanisms, that impact on medical students' readiness for holistic care practice?

REVIEW AIM AND OBJECTIVES

The study aims to identify the impact of Narrative Medicine interventions during undergraduate medical curricula on medical students' readiness to deliver holistic care in order to develop a programme theory (a theoretical model) of what works, for whom, and why.

Objectives

1. To explore how a Narrative Medicine intervention can facilitate medical students' readiness for holistic care.
2. To develop a programme theory that explains how Narrative Medicine interventions can facilitate holistic care.

METHODS

The study design is based on a Pawson's five stages (Figure 1) 33.

Stage 1: Locate existing theories

We will begin by identifying the relevant theories associated with Narrative Medicine and its' influence on holistic care practice to develop our initial programme theory around how Narrative Medicine might influence students' readiness for holistic care practice. This stage involves identifying potential theories by searching the relevant literature to facilitate our understanding, and theorizing about *how* Narrative Medicine might influence students' readiness for holistic care practice in different contexts. This involves a search using electronic published resources (Web of Science, Medline, Scopus, Embase) as well as books. The search will comprise a scoping search, which will be developed using search terms focused on the intervention (e.g. Narrative Medicine, Narrative-based Medicine, narrative medical, narrative training, parallel charts) and the outcome (e.g. preparedness or readiness for holistic care, attributes of holistic care practitioners). Books and articles will be examined, and any identified theories will be used to build up the initial programme theory. This initial theory will be examined against the studies included in the review. This stage has

already begun, and so far we have identified the biopsychosocial theoretical perspective and are examining research around facilitators and barriers to *becoming* biopsychosocial.

Step 2: Search strategy

The second stage involves developing our search strategy that will essentially comprise two phases. We will begin by searching the Web of Science, Medline, Scopus and Embase databases to find relevant articles for the study. The search terms will be developed, tested iteratively and discussed across the research team (See Appendix 1 for our initial progress). During the second phase of searching, we will seek additional relevant documents for testing and refinement of our programme theory which may come from the Grey Literature (e.g. policy documents, conference proceedings and other work not necessarily subjected to peer review).

Step 3: Study selection

During the searching process, titles and abstracts will be imported to Endnote and screened using the inclusion and exclusion criteria below.

Inclusion criteria:

- DATE RANGE: Articles between: 1st January 2008 – 10th September 2018
- POPULATION: medical student [clerks, Interns], medical teachers [trainers, educators]
- FOCUS: Narrative Medicine interventions, holistic care (and its' components), patient centredness
- OUTCOME: holistic care practice [and its components]
- LANGUAGE: English, Mandarin
- GEOGRAPHIC LOCATION: any

Exclusion criteria:

- DATE RANGE: Articles outside our date range
- POPULATION: other healthcare students, other healthcare teachers, non-healthcare students, non-healthcare teachers
- FOCUS: other medical humanities aspects, narrative data outside of Narrative Medicine interventions
- LANGUAGE: other than English and Mandarin
- GEOGRAPHIC LOCATION: no exclusions

Step 4: Data extraction and quality appraisal

In realist reviews, data extraction of the selected studies comprise a number of phases. First, we will use a data extraction form to record study details: basic information (author, title, year of publication), document details (aim, design, method, findings), population, and intervention [35]. At this point we will take our selection of articles for the programme theory development and appraise them for their relevance and rigour, marking them up as conceptually rich (high), moderate and low. All documents that are deemed to contribute to theory testing and refinement, will also be assessed for credibility and trustworthiness.[36] Here we will consider the quality of arguments and theory-use, not just at the level of the data, which will enable us to draw on relevant manuscripts for our programme theory development.[37]

Following this, we will identify initial contexts, mechanisms, and outcomes for the programme theory development. This will be undertaken in collaboration with the team. Each team member will read a subset of the articles individually before discussing our individual findings in a group. A list of contexts, mechanisms and outcomes will be developed – with full descriptions. All data (identified articles) will be imported into the software ATLAS.ti8 and coded accordingly. New contexts, mechanisms and outcomes will be developed throughout this process as and when they are identified.

All data extraction will be undertaken by one reviewer and the extracted data will be reviewed by the other team members regularly. Any differences in opinions will be discussed during project team meetings and agreements on any new codes will be made together.

We will follow the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) guidelines to improve the conduct of systematic reviews and quality of the protocol (see Appendix 2).

Step 5: Data analysis and synthesis

Data analysis from Step 4 will be synthesised to refine the programme theory which will identify the contexts and mechanisms that are key for students' readiness for holistic care practice, highlighting what works for whom, and why. Specifically, we will infer the mechanisms that trigger the desired outcomes [35] [38].

These findings will be systematically considered in order to test and refine the programme theory using the following conceptual tools [39]:

- Juxtaposing: when the study provides process data to understand the outcome model mentioned in another study;
- Reconciling: identifying the differences between contradictory sets of findings;
- Adjudicating the data: quality consideration between research;
- Consolidating: inference of a mechanism for a different outcome;

- Situating: explain differing outcomes of intervention and complete the context-mechanism-outcome configurations;

The results of the synthesis will be written according to RAMESES standards for reporting realist syntheses 36.

. **Patient and Public Involvement**

This protocol is a systematic review to focus on the impact of a Narrative Medicine intervention on medical students' preparedness for holistic care, thus this research didn't involve patients and public involvement

ETHICS and DISSEMINATION

Ethical approval for the wider study (including qualitative interviews at Stage 2, not included in this protocol), was obtained from Chang Gung Memorial Hospital (201601857B0C601). This study will draw from published literature to describe context-mechanism-outcome configurations regarding how Narrative Medicine interventions impact on medical students' readiness for holistic care practice. By identifying the causal mechanisms around the influence of Narrative Medicine interventions on holistic care practice readiness, it may be possible to design Narrative Medicine programmes that are effective for specific medical students across different cultural and organizational/curricula contexts. The findings of this review will be submitted for publication to key medical education journals, core international medical education conferences as well as being offered for download as a 'top tips' resource via our research centre website in order to provide useful information for academics and policymakers, who will be able to apply the findings in their context for the improvement of medical students' learning.

Acknowledgements

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Contributors

The review was conceived by LVM and CDH. Data extraction was carried out by YH, with support from LVM and CDH. YH wrote the first draft of the manuscript with

comments and review by LVM. All authors contributed to revising the manuscript and approved the final version.

Conflicts of Interest

None.

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Figure Legends

Figure 1: Five stages of a realist synthesis study design (from Pawson)

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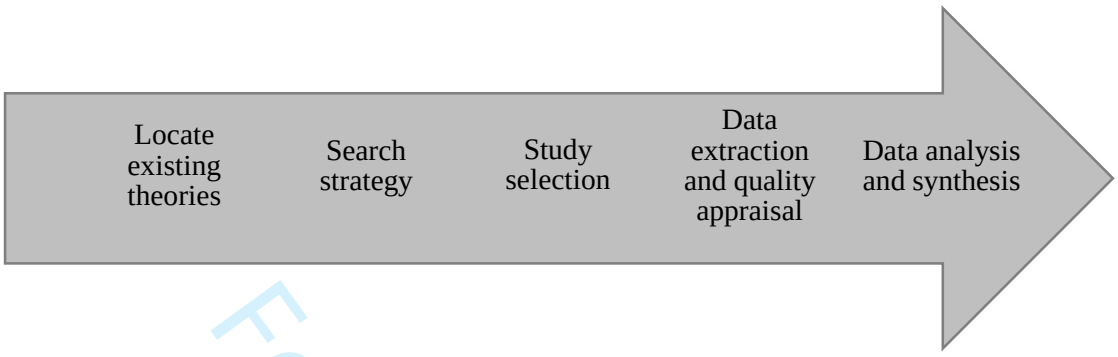
Secondary The RAMESES projects. 2013 http://www.ramesesproject.org/ 2013.

FIGURE 1: FIVE STAGES OF THE REALIST SYNTHESIS



Appendix 1: Search Strategy

1. TOPIC: (“medical student*”)
2. TOPIC: (“intern”)
3. TOPIC: (“clerk*”)
4. TOPIC: (“residen*”)
5. TOPIC: (“postgraduate trainee*”)
6. TOPIC: (“postgraduate year”)
7. TOPIC: OR/ 1-6
8. TOPIC: (“patient-center*”)
9. TOPIC: (“patient-centre*”)
10. TOPIC: (“person-center*”)
11. TOPIC: (“person-centre*”)
12. TOPIC: (“holistic health”)
13. TOPIC: (“holistic medicine”)
14. TOPIC: (“holistic car*”)
15. TOPIC: (“holistic practic*”)
16. TOPIC: (“biopsychosocial”)
17. TOPIC: (“holistic need”)
18. TOPIC: (“whole-patient car*”)
19. TOPIC: (“total-patient car*”)
20. TOPIC: (holistic AND “medical educat*”)
21. TOPIC: (“empath*”)
22. TOPIC: (“compassion*”)
23. TOPIC: (“sensitiv*”)
24. TOPIC: (“social*”)
25. TOPIC: (“listener”)
26. TOPIC: (“individual*”)
27. TOPIC: (“respect*”)
28. TOPIC: (“empower*”)
29. TOPIC: (“communicat*”)
30. TOPIC: (“reflect*”)
31. TOPIC: OR/ 8-30
32. TOPIC: (“narrative medicine”)
33. TOPIC: (“narrative medical”)
34. TOPIC: (“narrative train*”)
35. TOPIC: (“narrative medicine train*”)
36. TOPIC: (narrative AND “medical educat*”)
37. TOPIC: OR/ 32-36

38. TOPIC: 7 AND 31 AND 37
39. Limit 39 to (yr= “2008-2018”)
40. Limit 39 to language English and Mandarin

PRISMA-P (Preferred Reporting Items for Systematic review and Meta-Analysis Protocols) 2015 checklist: recommended items to address in a systematic review protocol*

Section and topic	Item No	Checklist item	(Page No.#)
ADMINISTRATIVE INFORMATION			
Title:			
Identification	1a	Identify the report as a protocol of a systematic review	1
Update	1b	If the protocol is for an update of a previous systematic review, identify as such	N/A
Registration	2	If registered, provide the name of the registry (such as PROSPERO) and registration number	2
Authors:			
Contact	3a	Provide name, institutional affiliation, e-mail address of all protocol authors; provide physical mailing address of corresponding author	1
Contributions	3b	Describe contributions of protocol authors and identify the guarantor of the review	10
Amendments	4	If the protocol represents an amendment of a previously completed or published protocol, identify as such and list changes; otherwise, state plan for documenting important protocol amendments	N/A
Support:			
Sources	5a	Indicate sources of financial or other support for the review	10
Sponsor	5b	Provide name for the review funder and/or sponsor	N/A
Role of sponsor or funder	5c	Describe roles of funder(s), sponsor(s), and/or institution(s), if any, in developing the protocol	N/A
INTRODUCTION			
Rationale	6	Describe the rationale for the review in the context of what is already known	4-6
Objectives	7	Provide an explicit statement of the question(s) the review will address with reference to participants, interventions, comparators, and outcomes (PICO)	7
METHODS			
Eligibility criteria	8	Specify the study characteristics (such as PICO, study design, setting, time frame) and report characteristics (such as years considered, language, publication status) to be used as criteria for eligibility for the review	7-9
Information sources	9	Describe all intended information sources (such as electronic databases, contact with study authors, trial registers or other grey literature sources) with planned dates of coverage	7-8
Search strategy	10	Present draft of search strategy to be used for at least one electronic database, including planned limits, such that it could be repeated	8 Appendix 1

Study records:			
Data management	11a	Describe the mechanism(s) that will be used to manage records and data throughout the review	8-9
Selection process	11b	State the process that will be used for selecting studies (such as two independent reviewers) through each phase of the review (that is, screening, eligibility and inclusion in meta-analysis)	8
Data collection process	11c	Describe planned method of extracting data from reports (such as piloting forms, done independently, in duplicate), any processes for obtaining and confirming data from investigators	8-9
Data items	12	List and define all variables for which data will be sought (such as PICO items, funding sources), any pre-planned data assumptions and simplifications	8-9
Outcomes and prioritization	13	List and define all outcomes for which data will be sought, including prioritization of main and additional outcomes, with rationale	N/A
Risk of bias in individual studies	14	Describe anticipated methods for assessing risk of bias of individual studies, including whether this will be done at the outcome or study level, or both; state how this information will be used in data synthesis	N/A
Data synthesis	15a	Describe criteria under which study data will be quantitatively synthesised	N/A
	15b	If data are appropriate for quantitative synthesis, describe planned summary measures, methods of handling data and methods of combining data from studies, including any planned exploration of consistency (such as I^2, Kendall's τ)	
	15c	Describe any proposed additional analyses (such as sensitivity or subgroup analyses, meta-regression)	
	15d	If quantitative synthesis is not appropriate, describe the type of summary planned	
Meta-bias(es)	16	Specify any planned assessment of meta-bias(es) (such as publication bias across studies, selective reporting within studies)	N/A
Confidence in cumulative evidence	17	Describe how the strength of the body of evidence will be assessed (such as GRADE)	N/A

- **It is strongly recommended that this checklist be read in conjunction with the PRISMA-P Explanation and Elaboration (cite when available) for important clarification on the items. Amendments to a review protocol should be tracked and dated. The copyright for PRISMA-P (including checklist) is held by the PRISMA-P Group and is distributed under a Creative Commons Attribution Licence 4.0.**
- **N/A: not available**

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