# Evaluating the effectiveness of face-to-face and digital training in improving child mental health literacy rates in frontline paediatric hospital staff

**Jennifer O'Connell**

**June 2019**

*Research submitted in partial fulfilment of the requirements for the degree of Doctor in Clinical Psychology (DClinPsy), Royal Holloway, University of London.*

**Acknowledgements**

I would like to thank the staff at Great Ormond Street Hospital who kindly gave their time to participate in this study. In particular, Mrs Angelina Cooper who was incredibly supportive in consulting about and promoting the research within the hospital. A big thank you to the young person's advisory group who gave their feedback on the training content and questionnaires. I would also like to thank Ms Grazia Manzotti for her consultation and pure patience in developing the search strategy with me for the systematic review and to Mrs Emily Fulcher for the tedious task of being my inter-rater for the review (you're a star!).

I am eternally grateful to my supervisors Dr Helen Pote and Professor Roz Shafran for their thoughtful feedback and dedicated support throughout the process of supervising this project. You were both incredibly responsive and clear in our vision for the study and your positivity kept me going! Roz, thank you once again for funding my EndNote licence, it was beyond kind of you.

Finally, I would like to thank my family, friends, and fellow trainees for their unconditional support. I am forever grateful to my parents, Una and Matt O'Connell, who have always supported me in everything that I do, whether near or afar. Once again, thank you for showing an unrelenting faith in my ability to complete what is now my largest piece of academic work to date.

## Table of Contents

## Executive Summary

## Child mental health training programs: A systematic review

### Background

- The term mental health literacy is defined as "knowledge and beliefs about mental disorders which aid their recognition, management or prevention" (Jorm et al., 1997, p. 182). Mental health literacy levels are often measured by assessing ones' mental health knowledge, stigma towards mental health, and help-seeking efficacy.
- In line with the government's agenda to decrease the gap between the prevalence of mental health problems and provision of evidence-based treatment, there has been a surge of mental health literacy training programmes that aim to increase mental health knowledge, decrease stigmatised attitudes to mental health, and increase help-seeking behaviour.
- Previous systematic reviews have either evaluated the effectiveness of mental health literacy training programmes with specific professional groups, those that have provided education about *adult* mental health literacy, or those that have evaluated one particular mental health literacy training course (e.g. Mental Health First Aid). No systematic reviews have looked at the effectiveness of *child* mental health training programs across *all* the professional groups that are in a position to support young people in accessing appropriate support.
- It therefore remains unknown whether mental health literacy programmes are effective in improving professionals' child mental health knowledge, stigma-related attitudes, and helping behaviour to support young people.

**Aim**

- The primary aim of the systemic review was to synthesise and analyse existing quantitative research investigating the effectiveness of child mental health literacy training programmes in non-mental health professionals who have regular contact with young people.
- Research Question 1: To what extent do child mental health literacy training programs improve professionals' knowledge and/or stigma-related attitudes towards mental health?
- Research Question 2: To what extend do the training programs facilitate young people accessing the mental health support that they might need?

**Method**

- A systematic review of published evidence was undertaken following the Preferred Reported Items for Systematic Reviews and Meta-analysis (PRISMA) Statement (Moher, Liberati, Tetzlaff, & Altman, 2009).
- Relevant studies were identified by searching key internet-based bibliographic databases Cochrane, EMBASE, Medline and PsycINFO. Papers were also identified via hand-searching and chaining.
- Inclusion criteria: Professionals who have regular contact with young people in the context of their role; child or adolescent mental health training programme; any measure of mental health knowledge, skill or stigma and/or measure of action taken to support a young person; any design that had baseline and post-training data.

- Participant data extraction items included (a) Profession, (b) Sample Size, (c) Age, (d) Percentage of female participants, (e) Ethnicity, and (f) Location of the study.
- Data items regarding study characteristics were also retrieved including: (a) Design, (b) Control/ Comparison group, (c) Follow-up duration, (d) Training method, (e) Duration of training, and (f) Training content.
- Outcomes of the studies were extracted in relation to: (a) Mental health literacy measures collected, (b) Changes in mental health knowledge, stigma-related attitudes, confidence to help, intentions to help and their effect size, and (c) Helping behaviour that may result in young people accessing mental health support.
- Risk of bias was assessed using the risk of bias tool 2 developed by the Cochrane Collaboration for randomised controlled trials (RCT)s and the Integrated Quality Criteria for the Review of Multiple Study Designs (ICROMS) for non-RCTs.

**Results**

- Electronic and hand searching identified 683 citations. Duplications were removed and citations not meeting inclusion criteria were excluded. This resulted in 21 citations to be reviewed.
- The majority of studies were case series (71.4%; n=15), there was one non-randomised controlled trial, and five RCTs. There were 14 different training programmes in total. Six were disorder specific and 15 covered a variety of mental health conditions. Training ranged between two hours and three days. There were only two digital studies and no studies compared face-to-face and

digital teaching methods. The majority of studies had been conducted with the teaching profession (85.7%, n=18), though healthcare workers, club leaders and social workers were also recipients of the training. Five studies had an additional follow-up timepoint.

- **Impact on mental health knowledge and/or attitudes**. All 21 studies evaluated change in mental health knowledge and 14 studies evaluated a change in stigma-related attitudes towards mental health post-training. Sixteen showed an increase in knowledge and five showed no change. Effect sizes for improvement ranged from Cohen's *d*=.43 to 3.1 post-training and *d*=.48 to 1.74 at follow-up. Nine of the 14 studies showed improvements in attitudes towards mental health, four had mixed results, and one did not report the results. Effect sizes for improvement ranging from *d*=.36 to 1.18 post-training and *d*=.68 to 1.0 at follow-up.
- Five studies assessed for change in confidence to help a young person. Three studies showed an improvement in confidence and two showed no change.
- Two studies assessed for intention to help young people, one showed an improvement in intention to help and the other found no change.
- **Impact on subsequent helping behaviour**. Nineteen percent (n=4) of studies measured helping behaviour. Three were self-report and one investigated referral data. There were mixed results with regards to whether training resulted in professionals supporting young people to get subsequent mental health support.
- Overall quality of the studies included as measured by the Cochrane's Risk of Bias tool 2 and ICROMS was suboptimal

**Discussion**

- Results appeared promising in terms of the impact of the child mental health literacy training on improving professionals' mental health knowledge and attitudes. However, there are questions around the generalisability of these results given that the quality of the studies was suboptimal, most were non-RCTs and heterogeneous in terms of training duration, content, and use of unstandardized outcome measures.
- Very few studies investigated the real-life impact of training in terms of subsequent helping behaviour. There is currently not enough evidence to suggest that the changes in mental health knowledge and attitudes translate to increased early intervention, prevention or access to help for young people with mental health needs.

**Conclusion**

- Future research should employ a randomised controlled design and use of well-validated measures of the mental health literacy construct. Such studies should also investigate the translation of the research findings into practice in terms of whether the programmes improve treatment seeking.

**Evaluating the effectiveness of face-to-face and digital training in improving child mental health literacy rates in frontline paediatric hospital staff**

## Background

- One in eight young people had a mental health condition in 2017 but only 25% received support. Young people with chronic physical health conditions are up to six times more likely to develop a mental health condition than their physically healthy peers, making the need to identify mental health problems and support young people in accessing support an important task.
- One possible reason for the gap between the prevalence of mental health problems and receipt of treatment is a shortage of mental health specialists and other professionals who are trained to recognise signs of poor mental health. There has been a recent surge in upskilling other professional groups that have contact with children in order to help increase the identification of mental health needs.
- Frontline paediatric hospital staff (e.g. healthcare assistants, housekeepers, receptionists, volunteers) are in a good position to recognise mental health needs, however no mental health literacy training studies have been completed with this heterogenous group. The majority of previous studies have focused on upskilling teachers using a traditional face-to-face teaching approach and have generally found improvements in knowledge and stigma-related attitudes towards mental health, improved confidence in implementing their new knowledge, and greater intentions to seek help if concerns regarding a young person's mental health are recognised.
- The findings should be taken with caution however, as there are a limited number of high-quality studies. Furthermore, few studies have investigated actual help-

seeking behaviour post-training and the effectiveness of digital mental health literacy training, and no studies have directly compared digital and face-to-face training.

- An evaluation of these factors would shed light on the impact that child mental health literacy training programs have on young people accessing services and the acceptability of a digital training program which may be a more time-efficient way to upskill busy frontline hospital staff.
- MindEd (minded.org.uk) is a freely available digital educational resource designed by the Department of Health and Department of Education in the UK to support professionals to improve their knowledge and skills to support young people with mental health difficulties. No prior evaluations have been conducted using the MindEd content to assess its effectiveness at improving child mental health literacy via digital or face-to-face teaching methods with any professional group.
- The current study had two aims.

  1. To establish the mental health literacy levels of frontline paediatric hospital staff.

  2. To increase mental health literacy levels of frontline paediatric hospital staff using a series of selected MindEd modules delivered face-to-face or digitally.

- The following four hypotheses were established:

  1. MindEd training delivered digitally and face-to-face will show improvements in participants' mental health knowledge compared to a waitlist control group.
  2. MindEd training delivered digitally and face-to-face will show reduced stigma-related mental health knowledge and behaviours compared to a waitlist control group.

3. Participants who receive digital and face-to-face MindEd training will be more confident in recognising and knowing what to do following training compared to a waitlist control group.
4. There will be no difference in completion rates, preference or satisfaction between digital and face-to-face training.

**Method**

- A randomised control trial was conducted to compare face-to-face and digital methods of child mental health literacy training against a waitlist control.
- A sample of 203 frontline paediatric hospital staff were recruited from Great Ormond Street Hospital for Children, London. Sixty-four were randomly assigned to the face-to-face group, 71 to the digital group and 68 to the waitlist control group. Staff were predominantly female (84.7%) with a mean age of 37.
- The child mental health MindEd modules entitled 'What Goes Wrong' and 'Mind and Body: The Interface' were selected for the training content. Information on symptoms of oppositional defiant disorder and depression were also included on the training based on 'The Aggressive/ Difficult Child' and 'Sad, Bored or Isolated' modules, respectively.
- Face-to-face training was three hours in duration, inclusive of post-training measures. Digital training was 1.5 hours in duration. This included approximately 25 minutes per module, 10 minutes for the additional symptomology content, and 30 minutes for the post-training questionnaires. All participants completed their pre-training questionnaires in their own time ahead of the training (approximately 30 minutes).

- All measures were self-report: Mental Health Literacy Scale (O'Connor & Casey, 2015) was collected at baseline only to assess the mental health literacy of hospital staff.
- Training-specific oppositional defiant disorder and depression vignettes (Loades & Mastroyannopoulou, 2010; Jorm, Wright & Morgan, 2007) were collected pre- and post-training to assess mental health knowledge specific to the training content.
- Mental Health Knowledge Schedule (MAKS; Evans-Lacko et al., 2010) was collected to measure change in stigma-related mental health knowledge.
- Reported and Intended Behaviour Scale (RIBS; Evans-Lacko et al., 2011) was collected to measure change in intended future stigmatised behaviour.
- Visual analogue scales (VASs) measured participants' confidence in recognising mental health concerns and knowing what to when recognised.
- Training Satisfaction Rating Scale (TSRS; Holgado-Tello, Chacón-Moscoso, Barbero-García, & Sanduvete-Chaves, 2006) was collected post-training to assess satisfaction with the face-to-face and digital approach.
- The vignettes, MAKS, RIBS, and VASs were measured at baseline and post-training. The TSRS was measured post-training only. The VAS was also measured at a two-week follow-up to determine if the training had any impact on help-seeking behaviour. Two-weeks was selected as an appropriate time to retain interest in the study to avoid drop-out.

**Results**

- One-way analysis of variance (ANOVAs) and chi-squared test for independence were conducted to examine baseline differences between the groups on gender,

age, ethnicity, religion, years in education, working hours, duration of time working at the hospital, number of patients interacted with on a weekly basis, and previous child mental health training. They revealed no significant differences between the groups.

- Frontline paediatric hospital staff (M=103.9, *SD*=12.7) had lower mental health literacy rates than mental health professionals (M=145.5, *SD*= 7.19) ($p$ <.0001) but slightly higher mental health literacy rates to a community based sample (M=127.38, *SD*= 12.63) ($p$ =.002).
- The following results relate to the respective four hypotheses:
    1. A mixed between-within subjects ANOVA revealed that there was a main effect of time on knowledge of oppositional defiant disorder, $F(1, 180)=54.1$, $p<.0001$, with both face-to-face and digital groups improving in knowledge compared to controls ($p<.0001$). Baseline knowledge of depression differed between groups, so an ANCOVA was conducted to control for baseline scores. The ANCOVA revealed there was a significant difference between groups on post-training total depression knowledge scores, $F(2, 178)=14.76$, $p<.0001$, with both face-to-face and digital groups improving in knowledge compared to controls ($p<.0001$).
    2. A mixed between-within subjects ANOVA showed that there was a main effect of time on stigma-related knowledge scores (MAKS), $F(1, 178)=116.6$, $p<.0001$, with all three groups showing improved knowledge across time, but no interaction between group and time, $F(2, 178)= 1.3$, $p=.27$. Similarly, there was a main effect of time on intended future discrimination scores (RIBS), $F(1, 178)=95.2$, $p<.0001$, with all three groups showing reduced stigma across

the two timepoints. There was no interaction between group and time, $F(2, 178) = .57$, $p = .24$.

3. A mixed between-within subjects ANOVA revealed a main effect of time on confidence in recognising mental health problems ($F(1, 179) = 33.7$, $p < .0001$) and confidence knowing what to do ($F(1, 179) = 41.6$, $p < .0001$). There was also an interaction effect between time and group, $F(2, 179) = 7.5$, $p = .001$ and $F(2, 179) = 7.4$, $p = .001$, respectively. Post-hoc *t*-tests showed an increase in confidence in recognising mental health concerns and knowing what to do between baseline and post-training for the face-to-face ($p < .0001$ and $p < .0001$) and digital group ($p < .0001$ and $p < .0001$). Waitlist controls showed no change in confidence levels across confidence in recognising ($p = .12$) or knowing what to do ($p = .08$). A chi-squared test for independence indicated that there were observed differences between digital and waitlist controls with respect to the reporting of concerns post training, $\chi^2$ (1, n=117) =8.00, $p = .005$, with digital participants reporting more concerns than waitlist controls. Although face-to-face participants did report more concerns post-training, the difference relative to controls was not significant ($p = .16$).
4. A chi-squared test for independence indicated that there was no significant association between group and completion rates, $\chi^2$ (3, n=120) =7.0, $p = .07$, although it is possible that there may have been a difference with a larger sample size. A chi-squared test for independence showed that there was a significant association between group and training preference, $\chi^2$ (2, n=120) =14.6, $p = .001$, with participants having a preference to receive face-to-face training. A one-way between-groups ANOVA suggests that the face-to-face group were more satisfied with the training than the digital group with a

higher total Training Satisfaction Rating Scale (TSRS) score, $F(1, 119)=31.9$, $p<.0001$.

**Discussion**

- Results suggests that MindEd modules delivered face-to-face or digitally are effective at improving knowledge, confidence in recognising and knowing what to do about identified mental health concerns compared to a waitlist control. Digital training was successful in improving reported help-seeking behaviour in frontline paediatric staff. Stigma was observed to reduce across both training and waitlist control groups, suggesting that mere exposure to a mental health study, discussion with colleagues or completion of questionnaires may have a positive impact on stigma levels.
- Although there was a preference for face-to-face training, participants still rated the digital training highly and were just as likely to complete it, suggesting that MindEd training may be a viable and cost-effective way to improve child mental health literacy levels of paediatric frontline hospital staff.
- Limitations (e.g. unstandardised vignettes) and suggestions for future research (e.g. longer follow-up period) are highlighted within the paper.

**Integration, Impact and Dissemination**

- The empirical paper addresses some of the gaps in the literature highlighted within the systematic review, specifically by training frontline paediatric hospital staff, employing a RCT design, evaluating both face-to-face and digital training methods in the same study, and investigating self-reported help-seeking behaviour following training.

- MindEd training should be incorporated into the mandatory staff induction packages that each new staff member must complete. This would ensure that all professionals have the same basic mental health knowledge and skills, regardless of role.
- Findings will be disseminated through publication, conferences and to service users (i.e. young people) via the young person's advisory group.

**Child mental health training programmes: A systematic review**

## Abstract

**Background**: A shortage of mental health professionals has meant that there is a gap between the prevalence of child mental health problems and treatment that young people can access. To address this, there has been a surge in the number of child mental health literacy programmes for non-mental health professionals who have regular contact with children. Previous systematic reviews have looked at the impact of training on specific professionals, but none have investigated the change in child mental health knowledge, attitudes and helping behaviour across different professional groups. **Methods**: Studies were identified through a systematic literature search of online databases Cochrane, EMBASE, Medline, and PsycINFO as well as hand searches and reference lists Studies included in the review aimed to target training programmes that assess a change in professionals' child mental health knowledge, attitudes and/or helping behaviour and had any design with pre-post training data. **Results:** The review identified 21 studies that met eligibility criteria (n=3,243). These studies provided some evidence that child mental health literacy training improved professionals' knowledge and stigma-related attitudes towards mental health. Few studies investigated the impact of training on actual helping behaviour. The review highlighted some concerns around methodological rigour and the appropriateness of measures employed. **Conclusion:** There may be value in providing child mental health literacy training to professionals in contact with children, however there is a need for studies to evaluate the long-term impact of such training, particularly on young people's subsequent access to appropriate support. Findings raise concerns about the quality of the studies reported in the systematic review and it is recommended that future studies employ a randomised controlled design in addition to well-validated measures of mental health literacy with strong psychometric properties.

## Introduction

Mental health conditions commonly have their first onset in childhood and adolescence, with one in eight (12.8%) five to 19-year olds having a mental health diagnosis in 2017 (Sadler et al., 2018). For young people, poor mental health is associated with lower educational attainment, reduced interpersonal skills, school absence and substance misuse (Murphy & Fonagy, 2012). If untreated, long term studies show that individuals are more likely to have lower income in early adulthood through to middle age and increased risk of physical health problems (Goodman, Joyce, & Smith, 2011), increased likelihood of involvement with the criminal justice system, both as victims and perpetrators (Durcan, 2016), and increased cost to society due to lost working days (Knapp, McDaid, & Parsonage, 2011).

Despite the impact of mental health problems on short and long-term outcomes, we know that young people do not self-refer or speak to mental health professionals about their concerns. Young people are more likely to speak to a friend or family member who may not be in a position to provide them with the most accurate information to get their needs met (Offer, Howard, Schonert, & Ostrov, 1991). When surveyed, only 25% of a sample of 13-16-year olds said that they would seek help from an adult if a friend disclosed symptoms of poor mental health and 50% would try support their friend alone (Dunham, 2004). A separate survey found that parents did not always see the value in contacting specialist mental health services (Jorm, Wright, & Morgan, 2007) and preferred informal or more general sources of help (Jorm & Wright, 2007). There is therefore a need for professionals who have regular contact with children to be able to recognise mental health issues and then know how to facilitate access to further care required.

**Addressing the treatment gap**

Interventions from NHS services are inconsistent across the country with support often limited to young people whose mental health needs reach a certain level of severity and even then, people can be on long waiting lists before accessing the support (Moore & Gammie, 2018). The UK government's recent Green Paper (Department of Health and Social Care and Department of Education, 2017) highlights the commitment to delivering the vision set out in the Future in Mind (Department of Health, 2015) and Five-Year Forward View for Mental Health (Mental Health Taskforce, 2016) by ensuring that young people showing early signs of distress are able to access the right help when they need it.

Due to the current treatment gap and the need for referral efficiency, there have been a surge of 'mental health literacy' training programmes aimed at increasing knowledge and skills of professionals who have contact with children in order to facilitate early mental health recognition, prevention, and intervention (Kutcher, Wei, & Coniglio, 2016). The term 'mental health literacy' is defined as "knowledge and beliefs about mental disorders which aid their recognition, management or prevention" (Jorm et al., 1997, p. 182). The concept is an extension of the term 'health literacy' which originated 30 years prior and is defined as the ability to understand, gain access to, and use information in a manner that promotes and maintains good health (Nutbeam, Wise, Bauman, Harris, & Leeder, 1993)

Mental health literacy has many components including (1) one's ability to recognise specific conditions, (2) know how to seek information about mental health, (3) knowledge of risk factors and causes, (4) knowledge of self-help strategies, (5) knowledge of professional help that is available, (6) attitudes that promote recognition, and (7) appropriate help-seeking (Jorm et al., 1997). These components

have been condensed into four domains by other authors within the field to include (1) an understanding of positive mental health and strategies to achieve this, (2) an understanding of mental health problems and their treatments, (3) decreasing stigma against mental health problems, and (4) enhancing help-seeking efficacy (Kutcher, Wei, McLuckie, & Bullock, 2013). The measurement of these domains are commonly divided into constructs of knowledge (of mental health problems and positive mental health), stigma, and help-seeking efficacy (Wei, McGrath, Hayden, & Kutcher, 2015). Stigma itself is defined in terms of an undesirable attribute that disqualifies someone from social acceptance (Goffman, 1963). Mental health stigma in this case can be understood as a negative stereotype or attitude about someone living with a mental health condition. Help-seeking efficacy is defined as knowing when and where to seek help and developing competencies designed to improve one's mental health care and self-management capabilities (Kutcher, Wei, & Coniglio, 2016).

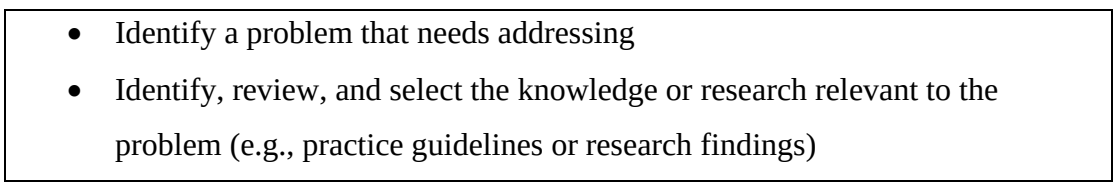
**Mental health literacy training**

Different mental health literacy training approaches have emerged over the last decade, one of the leading packages being Mental Health First Aid (MHFA; Kitchener & Jorm, 2002). Traditionally, MHFA is a 12-hour face-to-face training. It has been delivered across 20 countries and aims to address the mental health literacy gap by training members of the public in how to assist someone who is developing a mental illness or give assistance in a mental health crisis situation. A youth version of MHFA (YMHFA) has been designed with tailored content relating to adolescents (Kelly, Kitchener, & Jorm, 2010) and has shown success in improving participants' knowledge, attitudes towards mental health (i.e. the evaluative mental states (e.g.

positive or negative) about mental health that may predict potential action (Ajzen, 1988)), and helping behaviour (Kelly et al., 2011).

Another recognised approach to addressing the gap in mental health literacy is school curriculum-based training packages, such as the Mental Health and High School Curriculum Guide (MHHSCG; Kutcher, 2009). Schools are in an excellent position to embed mental health literacy information, with teaching staff being in prime positions to be able to recognise mental health concerns and facilitate children accessing support. This package has the added benefit of not only educating teachers, but also providing them with a framework from which to teach mental health content to children directly and normalising mental health in the process.

Training packages vary in terms of being diagnosis specific or providing a more general overview of mental health problems to support professionals in identifying mental health concerns and knowing the appropriate action to take to enable young people to access appropriate support. Although the strongest predictors of helping behaviour are thought to be intention, confidence and feeling competent in supporting someone in need (Rossetto, Jorm, & Reavley, 2016), no theory has been put forward to conceptualise how knowledge obtained in mental health literacy training translates to help-seeking behaviours. A knowledge-to-action cycle model has been proposed within the health literature that may help to understand how knowledge is translated into action (Graham et al., 2006). A summary of the key phases of this model is illustrated in Figure 1.



- Adapt the identified knowledge or research to the local context
- Assess barriers to using the knowledge
- Select, tailor, and implement interventions to promote the use of knowledge (i.e., implement the change)
- Monitor knowledge use
- Evaluate the outcomes of using the knowledge
- Sustain ongoing knowledge use

*Figure 1*: Key phases involved in translating knowledge to action

For example, once a professional identifies a mental health problem that deserves attention (e.g. young person who has stopped engaging with their regular activities), they recall the relevant mental health knowledge (e.g. symptoms of depression) and appraise its usefulness and appropriateness for the current setting (e.g. whether there is another explanation for this change in behaviour). Barriers that impede action taking are then addressed (e.g. stigmatised attitudes, lack of confidence) and facilitators to action are identified (e.g. reviewing symptoms of depression, speaking with a colleague). Once addressed, knowledge can be implemented by selecting the appropriate action in the current context (e.g. speaking to a line manager or parent about the identified concerns). The professional must then monitor whether the intervention has been sufficient in bringing about the desired change (e.g. young person receiving the appropriate mental health support). The subsequent phase is to evaluate the impact of implementing the knowledge (e.g. the quantity of information provided to the line manager or parent was sufficient to result in a referral to a mental health service). Knowledge is continually put into practice via the same cycle.

**Previous systematic reviews**

Previous systematic reviews on mental health literacy training have focused on specific professional groups such as school teachers (Anderson et al., 2018; Yamaguchi et al., 2019), police and public sector employees (Booth et al., 2017), health care workers (Liu et al., 2016) and sports coaches and athletes (Breslin, Shannon, Haughey, Donnelly, & Leavey, 2017). Two have evaluated the MHFA training programme specifically (Morgan, Ross, & Reavley, 2018; Hadlaczky, Hökby, Mkrtchian, Carli, & Wasserman, 2014) and others have focused on improving young people's mental health literacy instead of professionals (e.g. Wei, Hayden, Kutcher, Zygmunt, & McGrath, 2013) or raising awareness of specific mental health conditions (e.g. Dickens, Hallett, & Lamont, 2016). Overall, these reviews found that mental health literacy training was effective in improving knowledge and attitudes (although to a lesser degree), however there was little or insufficient evidence that training improved professionals' helping behaviour. Many papers called for this to be addressed in future studies through longer follow-up periods (e.g. Bapat, Jorm, & Lawrence, 2009; Carr, Wei, Kutcher & Heffernan, 2018; Hussein & Vostenis, 2013; Martínez et al., 2015).

There are also common limitations across the studies reported in these reviews. Specifically, a lack of randomisation, control for confounding variables, validated measures on the three components of mental health literacy, and lack of information on attrition. It is difficult to ascertain the effectiveness of child mental health training programmes from the above systematic reviews as many do not specify whether the training content was tailored to knowledge and skills relating to youth mental health, do not contain baseline measures in order to effectively assess

for change, report unpublished data, or they provide qualitative feedback on the impact of training rather than through outcome measures.

To date there has been no systematic review of the effectiveness of youth mental health literacy training programs across all professionals who have contact with children. It therefore remains unclear whether the training is effective for improving child mental health knowledge, attitudes, and helping behaviour to support young people.

### Current review

This review aims to identify whether training professionals in child mental health literacy helps them to improve mental health knowledge and stigma-related attitudes and to act on these concerns to enable young people to receive support. The following questions will be answered: (1) To what extent do child mental health literacy training programs improve professionals' knowledge and/or stigma-related attitudes towards mental health? (2) To what extend do the training programs facilitate young people accessing the mental health support that they might need?

## Method

### Source of information

After several scoping searches, four bibliographic databases were searched for relevant published and unpublished literature from their inception until October 2018; Cochrane, EMBASE (PubMed interface), Medline (Ovid 1946 interface) and PsycINFO (Ovid interface). These databases were selected following a consultation with a specialist librarian at UCL Great Ormond Street Institute of Child Health on the basis that they covered the disciplines of health and social sciences and had been

used in similar systematic reviews (e.g. Anderson et al., 2018). Known authors within the field were also contacted via email (n=1) and ResearchGate (n=5) to request access to inaccessible papers after the search had been complete. Corresponding authors of protocol (n=4) and conference papers (n=6) were also contacted for information regarding their study progress to identify if they had been published. Finally, reference lists of the included papers and other relevant mental health literacy systematic reviews were reviewed to identify any remaining articles (i.e., 'citation chaining').

**Inclusion and exclusion criteria**

Titles and abstracts were screened using the population and intervention eligibility criteria outlined in the Participants, Intervention, Comparison, Outcomes, Setting and Study Design (i.e. PICOSS) table below (Table 1). Full-text papers were obtained for studies that appeared relevant at this stage. Each paper was then read and assessed for relevance using the full eligibility criteria. Papers that did not meet criteria were excluded. As mentioned above, the term 'mental health literacy' was coined in 1997 (Jorm et al., 1997), therefore papers prior to 1997 have been excluded. The review focused on published articles only to enable a thorough high-quality assessment.

Table 1.

*Inclusion and exclusion criteria*

| | **Inclusion** | **Exclusion** |
|---|---|---|
| **Population** | Professionals who have regular contact with young people (0-19) in the context of their role | Non-professionals e.g. parents or young people |

| | | |
|---|---|---|
| **Intervention** | Training programme that explicitly states that the content is about child or adolescent mental health | Training programme that uses adult mental health training content or is not explicit in stating the that the content is about child or adolescent mental health |
| **Comparators** | *Any if available* | - |
| **Outcomes** | Any measure of mental health knowledge, skill or stigma change and/or measure of action taken to support a child or adolescent | No measure of mental health knowledge, skill or stigma change and/or measure of action taken to support a child or adolescent |
| **Study design** | *Any design* | - |
| **Data collection** | Minimum of baseline and one post-training timepoint | No baseline data collected. No clear distinction between post-training data between groups |
| **Setting** | *Any setting* | - |
| **Source** | Published data | Book chapters, conference papers, research notes, meeting abstracts, dissertations, study protocols and reviews (narrative reviews, literature reviews, systematic reviews and meta-analyses) |
| **Publication date** | 1997 - current | Prior to 1997 |
| **Language** | Published in English | Not published in English |

**Search strategy**

The systematic review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA guidelines (Liberati et al., 2009; Moher, Liberati, Tetzlaff, & Altman, 2009). Following a review of similar search strategies (e.g. Anderson et al., 2018; Booth et al., 2017), a search strategy was devised and agreed in consultation with the specialist librarian. Medical Subject Headings (MeSH) were used when available, in addition to truncation and proximity searching of keywords. Boolean operators were used to combine the relevant population, intervention, and outcome inclusion criteria. The strategy contained no

methodological search filters that would limit results to specific study designs, specifically because a large proportion of well-cited MHFA and MHHSCG studies are uncontrolled or pilot studies. Studies that did not have pre-post training data were later removed by hand. The search strategy was first undertaken in October 2018 and repeated in January 2019 to ensure no recent publications were missed. It was amended slightly to accommodate each database. The Medline search strategy is reported in Appendix 1 due to its length (61 lines).

**Process of study selection**

The results from each database were extracted onto EndNoteX9. Duplicates were removed, titles were screened for relevance with non-relevant titles being excluded, and full texts were requested for the remaining papers. Abstracts of the remaining articles were then reviewed, with full texts being read where necessary to determine eligibility. Additional relevant citations were identified via citation chaining and were also included in the systematic review. Eligibility of 10% of the original studies were assessed for reliability between the author and a fellow Trainee Clinical Psychologist (Mrs Emily Fulcher) who found very good agreement, 98.1%, Kappa =.85 ($p$<.001). There was only one disagreement which was resolved via discussion. This resulted in the study being removed as it did not include a measure of knowledge, attitudes, or actions taken to help, but rather measured children's symptoms and acceptability of the intervention (Corkum, Elik, Blotnicky-Gallant, McGonnell, & McGrath, 2019). Data were then extracted into tables and quality assessed. The quality assessment of 25% of included studies were selected at random then assessed for inter-rater reliability by the same second rater. Effect sizes (Cohen's *d*) were calculated for studies by dividing the mean difference of the paired groups by the pooled standard

deviation. Cohen's (1988) suggestions that .2 is a small effect, .5 is a moderate effect, and .8 is a large effect were used.

**Data extraction**

The following characteristics were extracted onto a data extraction form. Due to the objective nature of these characteristics, data were extracted by the author alone:

*Participant characteristics*

- Author and year of publication
- Population (i.e. professional the training targeted)
- Sample size
- Participant characteristics (age, gender, ethnicity)
- Location

*Study characteristics*

- Design (e.g. randomised controlled trial (RCT), non-randomised controlled trial, case series)
- Control and/or comparison group
- Follow-up duration
- Method of training delivery (e.g. face-to-face, online, mixed)
- Duration of training
- Training content

*Study results*

- Mental health literacy measures used

- Key findings/ effect size relating to a change in mental health knowledge, attitudes towards mental health, confidence to help, intention to help, and actual helping behaviour.

**Quality assessment**

Study quality for the papers included in this review was assessed using validated tools that assess risk of bias across multiple domains. For the RCT studies, the well-established Cochrane revised Risk of Bias Tool (RoB 2; Higgins et al., 2016) was used, while the for the non-RCT studies, the Integrated Quality Criteria for the Review of Multiple Study Designs (ICROMS; Zingg et al., 2016) tool was used. There is a slightly different version of the RoB 2 for individually randomised parallel-group trials (five domains) and cluster-randomised parallel-group trials (six domains) with one added item for the cluster-trials. Domains assess for bias arising from the randomisation process, identification and recruitment of participants (cluster trial only), deviations from the intended interventions, missing outcome data, measurement of the outcome, reported result and an overall risk quality score can then be calculated (low, some concerns, high). The authors of the RoB 2 are currently designing a new tool that can be used with all types of design, however upon correspondence with the team it was reported not to be in circulation yet.

The ICROMS tool (seven domains) was therefore chosen as it allows for different methodologies (e.g. case series, non-randomised controlled trials) to be assessed under similar criteria. Quality dimensions include clear aims and justification, managing bias in sampling or between groups, outcome measurements and blinding, follow-up, analytical rigour, reporting/ethical considerations, and managing bias in other study aspects. There are 14-15 items across the seven

domains, depending on the design being assessed. Items are rated as “yes criteria”, “no criteria”, or “unclear criteria”. There is no overall quality judgement. The decision to use two separate tools was to capture design specific quality criteria and these two tools had both been used in a recent similar systematic review that contained studies with mixed designs (Anderson et al., 2018). This was done after data extraction to prevent bias in extraction. Inter-rater reliability was assessed and had good agreement, 85.7%, Kappa =.74 ($p$<.001), for studies using the Cochrane RoB 2, and moderate agreement, 75.8%, Kappa = .56 ($p$<.001) for studies using the ICROMS tool. Discrepancies were resolved through discussion between the two raters.

A meta-analysis was not conducted because of the limited studies that met criteria for low risk of bias and the high methodological heterogeneity between studies. A narrative synthesis of the data is therefore presented.

## Results

### Study screening

Twenty-one studies were included in this review. Electronic and hand searches originally identified 670 citations and 13 additional papers were identified via reference lists of key known papers and systematic reviews. Duplicates were removed (n=126) leaving 557 unique citations to be screened for inclusion (see PRISMA flow diagram in Figure 2). Titles and abstracts were then assessed for relevance (stage 1) resulting in 93 potential citations and full texts were obtained or requested for these studies.

After applying the inclusion criteria (stage 2), a further 72 papers were excluded; 43 were due to the intervention not meeting the inclusion criteria (e.g. adult content), nine were aimed at non-professionals (e.g. parents or youths), six only collected post-training data, two did not have the appropriate measures (e.g. only perceived change in knowledge was measured), 10 were unpublished studies (e.g. conference results, protocols), and two papers were not in English.

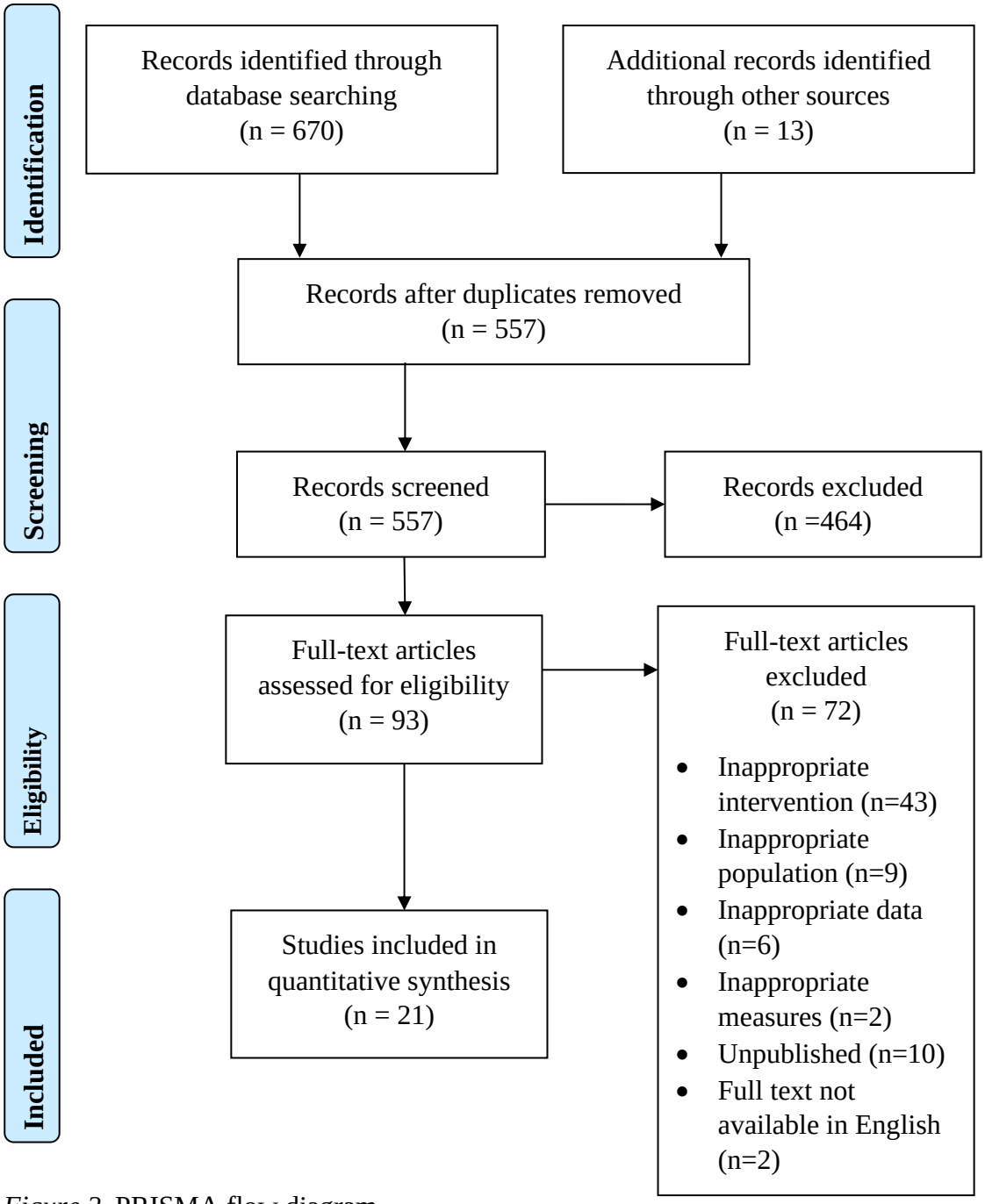



*Figure 2.* PRISMA flow diagram

Data from the 21 studies were extracted and synthesised into three Tables; participant characteristics (Table 2), study characteristics (Table 3), and study outcomes (Table 4).

## Participant characteristics

The total number of participants of the included studies was 3,243, ranging from 16-1,024 (mean: 154.4; median: 114). The majority of training programmes were aimed at Primary (n=3) or Secondary School teachers (n=8). Other programmes targeted student teachers (n=1), youth leaders (n=1), student social workers (n=1), and mental health agency staff (n=1). The six remaining studies had a mix of teachers and different professionals (e.g. social workers, psychologists, administration), with one of these studies including 24 different professional groups. Participant age was only reported in seven of the studies, ranging from 20-54 years, and mean age of the total sample was rarely reported. Two studies did not report on gender, of those that did the percentage of female participants ranged from 18-100% (mean: 70.9%; median: 72.6%; mode: 75%). Ethnicity was reported in only four studies with Caucasian participants being the majority. Of the 21 studies, six took place in Canada, three in the USA and the UK, two in Australia and Brazil, and one in Haiti, Malawi, Tanzania, Pakistan and Chile, respectively.

## Study characteristics

**Methodological quality and analyses.** Five studies were RCTs, one was a non-randomised controlled trial, and the remaining 15 were case series. Of the six controlled trials, two were waitlist controls and one had an additional active comparison group. Sixteen studies only collected pre-post data, ranging from

immediately after to 12-months post-training. The remaining five studies also had a follow-up timepoint, ranging from six weeks to nine months post-training, with three of five being three months or more.

Sixty-two percent (n=13) achieved a good response rate post-training (i.e., >80%). Three explicitly reported being underpowered to perform the analyses, however the majority made no reference to power calculations. Eight explicitly reported that their study needs to be replicated with a larger sample size, five of which were pilot studies. Only one reported using intention to treat analysis. Studies analysed data using repeated measure ANOVAs (n=5), paired sample t-tests (n=11), non-parametric tests (n=1), chi-square test (n=1), or regression analyses (n=3).

**Training delivery.** The majority of the studies delivered the training content face-to-face (n=18), two were delivered online, and one study delivered the training simultaneously face-to-face and via video conferencing, finding no difference between either delivery method. Not all studies reported the specific duration of the training in hours. Six of the 19 face-to-face programmes were approximately one day (7-8 hours), six were two to four hours, and seven were betweentwo to three days. Of the two online studies, participants had access to the training content for 60 days or were required to complete the training in one three-hour block for three consecutive weeks, respectively.

**Training content.** There was some overlap between the content covered across the 21 studies. Fifteen studies looked at a variety of common youth mental health presentations (e.g. depression, anxiety, schizophrenia, ADHD, substance abuse), four using the YMHFA content (Bapat et al., 2009; Jorm, Kitchener, Sawyerm Scales, & Cvetkovski, 2010a; Kidger et al., 2016; Rose, Leitch, Collins, Frey, & Osteen, 2017), five using the MHHSCG content (Carr et al., 2018; Kutcher, Wei,

McLuckie, & Bullock, 2013; Wei, Kutcher, Hines & MacKay, 2014) of which two had been culturally adapted for use in Malawi (Kutcher et al., 2015) and Tanzania (Kutcher et al., 2016), and the remaining six developed their own individual content (Eustache et al., 2017; Hussein & Vostenis, 2013; Pereira, Wen, Miguel, & Polanczyk, 2014; Powers, Wegmann, Blackman, & Swick, 2014; Vieira, Gadelha, Moriyama, Bressan, & Bordin, 2014; Wei & Kutcher, 2014). Three studies focused solely on depression (Martínez et al., 2015; Moor et al., 2000; Moor et al., 2007), one on ADHD (Barbaresi & Olsen, 1998), one on psychosis (Cheng, deRuiter, Howlett, Hanson, & Dewa, 2013), and one on eating disorders (McVey, Gusella, Tweed, & Ferrai., 2008).

Table 2.

*Participant characteristics*

| Author | Population | Total *N* | Age | % Female | Ethnicity | Location |
|---|---|---|---|---|---|---|
| Bapat et al. (2009) | Junior sporting club coaches and leaders | N=40 | 20-59 | 60% | NR | Australia |
| Barbaresi & Olsen (1998) | Elementary School teachers (Kindergarten through grade 6). 29 regular classroom teachers, 15 specialist teachers e.g. art. | N=44 | Mean age 42 years | 75% | NR | USA |
| Carr et al. (2018) | Preservice (student) teachers in middle or secondary teaching | N=60 | NR | 68.33%, 1% not specified | NR | Canada |
| Cheng et al. (2013) | Non-medical mental health workers: case managers (3), counsellors (6), social workers (3), therapists (4), psychometrist (1) and managers (2) | N= 19 | NR | NR | NR | Canada |
| Eustache et al. (2017) | Secondary teachers | N=22 | 40-47 | 18% | NR | Haiti |
| Hussein & Vostenis (2013) | Primary School teachers Grade 1-5 | N=114 | 35% 21-25, 5% >40, 60% NR | 100% | NR | Pakistan |
| Jorm et al. (2010a) | Highschool teachers Years 8-10 | N=327, 14 schools Intervention: 221 Control: 106 | NR | 65.10% | NR | Australia |
| Kidger et al. (2016) | Secondary school teachers | N=1024, Intervention: 472 Control: 552 | NR | NR | NR | UK |

| | | | | | | |
|---|---|---|---|---|---|---|
| Kutcher et al. (2013) | Highschool Teachers Grade 9 | N=89 | NR | 76% | NR | Canada |
| Kutcher et al. (2015) | Elementary & Highschool Teachers and youth club leaders. No details of breakdown | N = 218 | 20-30 | 44% (1% not specified) | NR | Malawi |
| Kutcher et al. (2016) | Secondary school teachers who had previously undergone training | N=61 | NR | 47.50% | NR | Tanzania |
| Martínez et al. (2015) | School psychologists (44.7%)<br>Teachers (25%)<br>School counsellors (17.8%)<br>Social workers (5.3%)<br>Other (7.2%) | N=152 | 23-66<br>Mean age 35.9 (10.3) | 74.3% | NR | Chile |
| McVey et al. (2008) | Elementary Teachers (n=78) & public health practitioners (n=89) | N=167 | NR | 88.02% | Caucasian (84.4%), East Asian (1.8%), South Asian (1.2%), Native Canadian (.6%) and other (5.4%) | Canada |
| Moor et al. (2000) | Secondary School teachers | N=16 | NR | NR | NR | UK |
| Moor et al. (2007) | Secondary School teachers | N=151, 8 schools | NR | 66.89% | NR | UK |
| Pereira et al. (2014) | Primary School teachers | N=115, 9 schools | 30-54 | 96.52% | Caucasian (88.70%), Other (11.3%) | Brazil |

| | | | | | | |
|---|---|---|---|---|---|---|
| Powers et al. (2014) | 24 employment positions:<br>55% Classroom teachers (89% of which were elementary school teachers)<br>46% other (e.g. counsellor, social worker, speech therapist) | N=157 | NR | 86% | White (48%)<br>African American (44%) and other (3%) | USA |
| Rose et al. (2017) | Social work students on placement with youths aged 12-18 | N=73<br>Intervention: 39<br>Control: 34 | 21-33 | 94.5 | Caucasian (57.5%)<br>Black/African American (26%)<br>Mixed/Other race (16.5%) | USA |
| Vieira et al. (2014) | Middle & high school teachers, no breakdown. | N=32 | 20 - >50, 82.8% > 39 years | 69.8% | NR | Brazil |
| Wei & Kutcher (2014) | Secondary Teachers (70%), Guidance/school Counselors (17%), principals / Administrators (6%), Social workers (1%), Other educators (5%) | N=134 | NR | 70.83% (1% not specified) | NR | Canada |
| Wei et al. (2014) | Highschool Teachers of Grade 9 | N=228 | NR | 75% | NR | Canada |

Note: NR= Not reported

Table 3.

*Study characteristics*

| Author | Design | Intervention comparison | Follow-up | Training course | Delivery details | Training duration | Training content |
|---|---|---|---|---|---|---|---|
| Bapat et al. (2009) | Case series | None | Immediately post training | Read the Play (YMHFA) | F2F | 8 hours (3-days across 3-weeks) | YMHFA material. Symptoms and functional implications of common mental health disorders, risk factors, and where and how to get help, with an emphasis on local referral sources. Resources: manual, fact sheets, & notes, interactive presentation, group exercises & brainstorming. |
| Barbaresi & Olsen (1998) | Case series | None | 1-month post training | CHADD | F2F | 2.5 hours | Presentation with visual aids, case example, handouts with facts concerning ADHD diagnosis, treatment & classroom management strategies & the history of ADHD, prevalence, diagnosis & long-term outcome. Resources: Fact sheets & presentation. |
| Carr et al. (2018) | Case series | None | Immediately post-training & 3 MFU | MHHSCG | F2F | 1 day | Basic epidemiology of mental health relevant to school setting. Modules on stigma, information about specific mental illnesses, experiences of mental illness, seeking help, and the importance of positive mental health, how to deal with students with mental health problems and mental disorders in the classroom setting. Resources: manual & guided through 6-online modules. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Cheng et al. (2013) | Case series | None | 3 & 9 MFU and 6-month focus group | EPI | F2F / Video-confere-ncing | 2 days | What is psychosis, stress-vulnerability, introduction to early intervention, assessing first episodes, treatment options, substance misuse, and case discussions. Resources: Presentation & case discussions. |
| Eustache et al. (2017) | Case series | None | Immediately post-training & 6-9 weeks follow-up | TAPS | F2F | 2.5 days | Child & adolescent development; signs & symptoms of major MH conditions, effective treatments, recognising a psychiatric emergency approaches to responding, local MH resources, stress management, MH law, promoting resilience. Organised around a framework of recognise, respond, refer, & resilience. Resources: Presentation, discussions & role-play. |
| Hussein & Vostenis (2013) | Case series | None | Immediately post-training | School-based training | F2F | 12 hours (x6 2-hr sessions) | Child development and age appropriate behaviour. Common child mental health problems, risk and protective factors. Proactive strategies in managing behaviours and the importance of building positive relationships with children and parents. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Jorm et al. (2010a) | RCT | Waitlist control | Immediately post-training & 6-MFU | YMHFA | F2F | 2 days, 7-hours x2 | Modified YMHFA course. Part 1 for all education staff: Departmental policy on MH issues, common adolescent disorders (depressive and anxiety disorders, suicidal thoughts and behaviours, and non-suicidal self-injury), MH action plan. Part 2 for teachers who have responsibility for student welfare: First aid for crises and less common MH problems (psychotic symptoms, eating disorder, substance misuse). Resources: Presentation, manual & fact sheets |
| Kidger et al. (2016) | RCT | Control | 12-months post-training | MHFA + peer support and YMHFA | F2F | 2 days (14 hours) | Common MH issues and how to apply action plan. Crisis information and less common MH issues and responses. For group who received YMHFA, content focused on adolescents. ALGEE response framework of: Assess Risk, Listen non-judgmentally, Give advice /Information, Encourage professional help & Encourage self-help. Resources: Manual, fact-sheets & material from the state government department. |
| Kutcher et al. (2013) | Case series | None | Immediately post-training | MHHSCG | F2F (+access to online modules) | 7 hours | Basic epidemiology of MH relevant to the school setting. Six modules on stigma, experiences of mental illness, seeking help, importance of positive MH, where to find further teacher resources, and how to deal with MH issues in the classroom setting. Resources: Video clips, |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | | discussions, guide through online modules & handout. |
| Kutcher et al. (2015) | Case series | None | Immediately post-training | AGMv (MHHSCG) | F2F | 3 days | Basic epidemiology of MH relevant to the school setting. Modules on stigma, experiences of mental illness, seeking help, importance of positive MH, where to find further teacher resources and how to deal with MH issues in the classroom setting. Culturally relevant content for Malawi. Resources: group discussion & guide through 6 modules. |
| Kutcher et al. (2016) | Case series | None | Immediately post-training | AG Refreshers training (MHHSCG) | F2F | 2 days | The AG consists of a teachers' mental health knowledge self-study study guide, a self-evaluation test, and six classroom ready modules: the stigma of mental illness; understanding mental health and wellness; information about specific mental illnesses; experiences of mental illness; seeking help and finding support; and the importance of positive mental health. Group discussion. |
| Martínez et al. (2015) | Case series | None | Immediately Post-training | Adolescent depression: What can schools do? | F2F | 4 hours | Relevance, epidemiology, clinical characteristics, aetiology, consequences, treatment, prognosis, prevention, school approach, and myths of adolescent depression. Resources: PowerPoint, group exercises, discussion, film clips, handouts & access to website for more material on adolescent depression |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| McVey et al. (2008) | RCT | Control group | Immediately post-training | The Student Body: Promoting Health at Any Size | Online | 60 days access | Six online modules: media & peer pressure, healthy eating, active living, teasing, adult role models, and school climate. |
| Moor et al. (2000) | Case series | None | Immediately post-training | Educational package on adolescent depression | F2F | 2 hours | Symptoms and signs of depression in young people. Practical tips on how to assess depression and appropriate questions to ask. Comorbidities, different presentations of depression, risk factors, and contributing life events were explored through case vignettes. Pupils experience of using the guidance system, coping with life and friendships were presented. |
| Moor et al. (2007) | RCT | Control group | Immediately post-training | Educational package on adolescent depression | F2F | 2 hours | Educational video about adolescent depression, series of case vignettes for discussion, general management strategies including problem solving and activity scheduling, discussion of issues specific to local triage procedures and referral of a hypothetical at-risk pupil. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Pereira et al. (2014) | RCT | (i)Waitlist control<br>(ii) Web-based interactive education<br>(iii) Text- and video-based education | Immediately post-training | WBIE and TVBE | Online | 9 hours (one 3-hour block every 3 weeks) | WBIE group: Educational videos on the aetiology of MH conditions, risk factors, functional impairment, developmental impact and treatment, clinical presentations & classroom management strategies for depression, anxiety, inattention and hyperactivity, conduct problems and difficulties with social interaction. Also had access to an internet discussion forum to communicate with researchers and other teachers, a web conference with a child & adolescent psychiatrist to discuss the main doubts arising from the course and written support guide with the content of the videos. TVBE: Only had access to the videos and supportive guide (no forum or web conference). |
| Powers et al. (2014) | Case series | None | Immediately post-training | SBMH | F2F | 2 hours | Information on 7 common childhood presenting problems (depression, anxiety, ADHD, autism, learning, communication and behavioural disorders). Prevalence, symptoms, diagnostic criteria, basic knowledge necessary to make a referral. Short- and long-term consequences of untreated MH conditions and barriers that prevent access to care. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Rose et al. (2017) | Non-random-ised control-led trial | Control group | Immediately post-training & 5-MFU | YMHFA | F2F | 8 hours (or 4 hours over 2 days) | General MH, adolescent development, signs and symptoms of mental health problems, self-injury, risk and protective factors, and suicidality assessment. Skills, use of the ALGEE model and managing MH crises. Examples of common MH problems including depression, trauma, anxiety, eating disorders, psychosis, substance use and abuse, and attention and disruption disorders. Resources: manual. |
| Vieira et al. (2014) | Case series | None | Immediately post-training | Psycho-education | F2F | 4 hours (2 hours over 2 weeks) | Differences between normal adolescent behaviour and behaviour that represents MH problems or risk for the development of mental problems. The impact of MH problems on adolescents' cognition, thought, behaviour, feelings, and social skills. Behavioural changes, decrease in school performance, and distress resulting from MH problems. Information about when and where to refer students who had signs of MH problems. |
| Wei & Kutcher (2014) | Case series | None | Immediately post-training | 'Go-to' Educator Training | F2F | 1 day | Epidemiology on youth MH, stigma, challenges in the school environment, common disorders (schizophrenia, depression, bipolar, anxiety, eating disorder, ADHD, & substance misuse), treatment and support and talking to family. |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Wei et al. (2014) | Case series | None | Immediately post-training | MHHSCG | F2F (+ access to online modules) | 7 hours | Basic epidemiology of MH relevant to the school setting. Six modules on stigma, experiences of mental illness, seeking help, importance of positive MH, where to find further teacher resources, and how to deal with MH issues in the classroom setting.<br>Enriched 'trainer' session designed to train some teachers to be trainers themselves in future. |

Note: F2F=Face to face training; YMHFA= Youth Mental Health First Aid ; CHADD = Child and Adults with Attention-Deficit Disorder Educators Inservice; MFU = month follow-up; MHHSCG = Mental Health and High School Curriculum Guide; EPI=Early Psychosis Intervention training; MH = Mental Health TAPS =Teacher-accompagnateur; MHFA = Mental Health First Aid; AGMv= The African Guide Malawi Version; AG= The African Guide; WBIE= Web-based interactive education; TVBE= Text and Video-Based Education; SBMH= School-Based Mental Health

**Study outcomes**

A brief overview of the results are reported in Table 4. This outlines changes in mental health knowledge, attitudes towards mental health, self-reported confidence in helping young people, intentions to help young people, and actual helping behaviour following child or adolescent mental health training.

Table 4.

*Brief overview of training outcomes*

| Author | Knowledge | Attitudes towards MH | Confidence to help | Intention to help | Actual helping behaviour |
|---|---|---|---|---|---|
| Bapat et al. (2009) | ↑ | ↑ | ↑ | - | - |
| Barbaresi & Olsen (1998) | ↑ | - | - | - | - |
| Carr et al. (2018) | ↑ | ↑ | - | ***ns*** | - |
| Cheng et al. (2013) | ***ns*** | - | - | - | ↑ |
| Eustache et al. (2017) | ↑ | ↑ | - | - | - |
| Hussein & Vostenis (2013) | ↑ | - | - | - | - |
| Jorm et al. (2010a) | ↑ | ~↑ | ↑ | ↑ | ***ns*** |
| Kidger et al. (2016) | ↑ | ↑ | ***ns*** | - | ↓ |
| Kutcher et al. (2013) | ↑ | ↑ | - | - | - |
| Kutcher et al. (2015) | ↑ | ↑ | - | - | - |
| Kutcher et al. (2016) | ↑ | ↑ | ***ns*** | - | ↑ |
| Martínez et al. (2015) | ↑ | - | - | - | - |
| McVey et al. (2008) | ~↑ | - | - | - | - |
| Moor et al. (2000) | ***ns*** | ~↑ | - | - | - |

| | | | | | |
|---|---|---|---|---|---|
| Moor et al. (2007) | ***ns*** | ~↑ | - | - | - |
| Pereira et al. (2014) | ***ns*** | ~↑ | - | - | - |
| Powers et al. (2014) | ↑ | - | - | - | - |
| Rose et al. (2017) | ↑ | [a] | ↑ | - | - |
| Vieira et al. (2014) | ***ns*** | - | - | - | - |
| Wei & Kutcher (2014) | ↑ | ↑ | - | - | - |
| Wei et al. (2014) | ↑ | ↑ | - | - | - |

Note: ↑ = improvement following training; - = not measured; *ns* = no changes found; ↓ = decrease following training; ~ ↑ = mixed results; [a] = data not reported due to unacceptable reliability. For controlled and randomised controlled trials, the overview is with respect to the comparison group.

**Mental health knowledge**. All 21 studies measured professionals' knowledge of mental health. Each study used a different self-report questionnaire to measure change with 17 being designed to assess the specific training content, ranging from 12-48 items, and the remaining four looking at change in disorder specific knowledge (e.g., schizophrenia, depression, ADHD). Only four of these measures had been validated. Four studies used vignettes to assess recognition of mental health conditions (e.g. depression, psychosis, conduct disorder) pre- and post-training. Confidence in implementing the knowledge was measured in five studies and intention to help was measured in two. As shown in Table 4, 15 studies reported an increase in mental health knowledge pre-and post-training as well as sustained effects at follow-up (n=4) (ranging from six weeks – six months) suggesting that training had been effective at raising mental health literacy rates. From studies where an effect size was reported or calculated from available data, effect sizes ranged from 0.43 to 3.1

post-training (n=14) and .48 to 1.74 at follow-up (n=4). The remaining five studies showed no overall change in mental health knowledge following training or at a nine-month follow-up (n=1) and one study showed improvements across some items.

**Attitude towards mental health.** Fourteen studies measured professionals' general attitudes towards mental health. Items varied across studies from attitudes towards people with mental health concerns, attitudes towards treatment, stigmatised perceptions of specific mental health conditions to mental health conditions broadly, ranging from three-40 items. Three used validated measures, although one measure was shown to have poor reliability. Nine studies reported improved overall attitudes towards mental health, four had mixed results across different items, and one did not report results due to inappropriate reliability. One of the studies (Pereira et al., 2014) reported that their waitlist control group had a lower rating compared to one of the training groups post-training. From studies where an effect size was reported or calculated from available data, effect sizes ranged from 0.36 to 1.18 at post-training (n=9) and 0.68 to 1.0 at follow-up (n=2).

**Subsequent support young people received**. Only four of the 21 studies investigated the subsequent impact of the training on behaviour and the results were mixed. Two case series looked at referral data to mental health services following training. In one study (Kutcher et al., 2016), teachers reported recognising mental health concerns in over 200 students and advising them to seek local mental health support. However, it was not recorded whether young people indeed proceeded to access support. In the other study there was an increase in the proportion of referrals made (from two to eight) and accepted (from zero to four) to an early intervention service following the training. It was noted, however, that these referrals were not made by participants who attended the training (Cheng et al., 2013).

Two RCTs used self-reported scales to assess whether the training improved teacher's actual helping behaviour. One found that there was no difference in help received following the MHFA training (Jorm et al., 2010a) and the other however found that teachers provided less help to students with mental health support within the academic year following training (Kidger et al., 2016). The authors do not discuss the implication of this finding, and although it is contradictory to other studies, one may need to consider the possible negative effects of mental health literacy training. Students in this case did show a slight increase in wellbeing and lower difficulties score over the course of 12-months, however it is unclear if there was a difference between conditions and whether this small shift is attributable to the intervention, particularly as attrition was greater than 50%.

Table 4.

*Study outcomes*

| Author | Measures | Knowledge | Attitudes towards MH | Confidence to help | Intention to help | Actual helping behaviour |
|---|---|---|---|---|---|---|
| Bapat et al. (2009) | <u>Sociodemographic questionnaire</u><br><u>MH Knowledge (20-items)</u> T/F questions specific to the training<br><u>Validated depression & psychosis vignette</u> (identification)<br><u>MH Stigma (3-items)</u> validated stigma questionnaire subscale to assess attitudes towards dangerousness and weakness of MH concerns and reluctance to disclose with regards to depression and psychosis. | Post: *d*=[a]<br><br>Mean True/False scores improved from 12 to 14 ***<br><br>Depression recognition rose from 72.5% to 92,5%.<br>Psychosis recognition rose from 7.5% to 62.5% | Depression:<br>Dangerousness *d*=.68***<br>Weakness *d*=.87***<br>Disclosure reluctance *d*=.52**<br><br>Psychosis:<br>Dangerousness *d*=.64**<br>Weakness *d*=.69**<br>Disclosure reluctance *d=.61****** | Depression *d*= 1.15**<br><br>Psychosis *d*= 1.02** | - | - |
| Barbaresi & Olsen (1998) | <u>Demographics questionnaire</u><br><u>MH Knowledge (27-items)</u> to assess for ADHD knowledge & experiences with ADHD students | Post:<br>*d* = .80** | - | - | - | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Index of Teaching Stress (90-items) to assess teacher's stress<br>Child Attention Problems Rating Scale (12-items) to assess student's inattention. | | | | | |
| Carr et al. (2018) | MH Knowledge (22-items) specific to the training<br>Use of the Guide (8-items)<br>MH stigma (8-items) to assess attitudes towards people with MH concerns, treatment & intended behaviour towards people with MH concerns.<br>Help-seeking (5-items) intentions to help friends, family, peers & self with MH related issues. | Post: *d*=3.1***<br><br>3-MFU: *d*=1.74*** | Post: *d*=1.18***<br><br>3-MFU: *d*=.68** | - | 3-MFU = *ns* | - |
| Cheng et al. (2013) | The Knowledge about Schizophrenia Questionnaire (KASQ; 25-item) validated.<br>Referral data to the EPI service was examined to determine the effect of the training, referral data<br>Focus group – experience of the training and evaluation process. | 3-MFU = *ns*<br><br>9-MFU = *ns* | - | - | - | Increase in proportion of referrals from 2 to 8. Increase in accepted referrals from 0 to 4. referrals following the training. *p* not provided. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Eustache et al. (2017) | MH Knowledge questionnaire (48-items) unstandardized study specific<br>MH Stigma questionnaire (40-items) unstandardized on attitudes towards mental health and treatment<br>Perceived Feasibility of Training (8-items) on difficulty and satisfaction ratings.<br>Participant Feedback: Open response on experience of training, relevance, difficulty, and recommendations<br>Focus group discussions to debrief on the training. | Post *d*=1.32**<br><br>6-9-week FU *d*=1.28** | Post *d*=.60*<br><br>6-9week FU *d*=1.00** | - | - | - |
| Hussein & Vostenis (2013) | Demographics questionnaire<br>MH Knowledge & Recognition (20-item) specific to the training | Post *d* =.43** | - | - | - | - |
| Jorm et al. (2010a) | MH Knowledge questionnaire (21-item) validated questionnaire based on training content<br>Recognition of MH problem (1-item) using a vignette<br>MH Stigma (14-items) assessing personal and | Intervention vs. Comparison group:<br>Post *d*=.57*** | Intervention vs. Comparison group:<br>Post *d* = [a]<br><br>Intervention vs. Comparison group: | Intervention vs. Comparison group:<br>Post *d*=1.09**<br><br>Intervention vs. | Intervention vs. Comparison group:<br>Post *d*=1.15* | Intervention vs. Comparison group:<br>Post = *ns*<br><br>Intervention vs. Comparison group: |

| | | | | | | |
|---|---|---|---|---|---|---|
| | perceived attitudes towards student in vignette<br>Beliefs about Treatment Efficacy (1-item) vignette on list of possible treatments<br>Confidence in Providing Help to Students or Colleagues: (2-item) self-report<br>Intention to Provide Help (1-item) vignette<br>Actual Help Provided: Self-report of help provided to students or colleagues<br>School Practices and Policy (12-items)<br>Teacher Psychological Distress: K6 Psychological Distress Scale<br>Strengths and Difficulties Questionnaire (25-items) assessing student MH<br>Student Recognition of MH two vignettes<br>Information from Teachers (1-item): Students' report of information they received from teachers around MH issues | Intervention vs. Comparison group:<br>6-MFU *d*=.52*** | 6-MFU *d*= [a] | Comparison group:<br>6-MFU *d*=1.35** | Intervention vs. Comparison group:<br>6-MFU *d*=1.07* | 6-MFU = *ns* |

| | | | | | | |
|---|---|---|---|---|---|---|
| Kidger et al. (2016) | MH Knowledge (12-items) based on training content<br>MH Stigma (10-items) based on a depression & anxiety vignette<br>Application of Action Plan: Open response about how to assist students in vignette<br>Helping Behaviour: Questions based on confidence to help<br>Actual Helping: Reported helping behaviour towards students or colleagues<br>Peer Support Add-On: Open responses about usefulness<br>Feasibility and Acceptability of the Program: Qualitative data: observations, interviews, focus groups<br>WEMWBS scale assessing staff wellbeing<br>PHQ-9 assessing staff depression<br>Strengths and Difficulties Questionnaire assessing student MH<br>WEMWBS assessing student well-being | Intervention vs. Comparison group:<br>12 months post *d*=1.15* | Intervention vs. Comparison group:<br>12 months post for anxiety *d*=.73* and depression *d*=.77* | Intervention vs. Comparison group:<br>12 months post = *ns* | - | Intervention vs. Comparison group:<br>Less helping over the past academic year *d*=.80* |

| | | | | | | |
|---|---|---|---|---|---|---|
| Kutcher et al. (2013) | MH Knowledge (21-items) specific to training content<br>Use of the Guide (9-items)<br>MH Stigma (8-items) measuring attitudes towards people with mental illness and attitudes to treatment<br>Satisfaction with Training: relating to relevance of training and suggestions for improvement | Post *d* =1.53*** | Post *d*=.85*** | - | - | - |
| Kutcher et al. (2015) | MH Knowledge (30-items) validated assessing mental health knowledge<br>MH Stigma (8-items) validated measuring attitudes towards people with mental illness and attitudes to treatment | Post *d*=1.16*** | Post *d*=.79*** | - | - | - |
| Kutcher et al. (2016) | MH Knowledge (22-items) assessing MH knowledge specific to training content<br>Use of the Guide (8-items)<br>MH stigma (8-items) measuring attitudes towards people with mental illness and attitudes to treatment.<br>Comfort addressing MH needs of students (3-items) | Post *d*=1.14*** | Post *d* =.61*** | Post = *ns* change in comfort addressing concerns | - | 84% reported identifying students with MH needs and 79% advised that the student seek professional help (totalling >200 students). |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Referral questions (6-items) assessing identification of MH problems in students/family/ friends, whether they advised to seeking help and if they recognised and sought help for their own MH. | | | | | |
| Martínez et al. (2015) | Knowledge Questionnaire of Adolescent Depression for School Staff (26-items) specific to the training content. | Post *d* = 2.04*** | - | - | - | - |
| McVey et al. (2008) | Demographic + information on school codes of conduct<br>MH Knowledge (5-items) validated (but low reliability) T/of the physical changes associated with puberty<br>MH Knowledge about facts concerning restrictive dieting (3-items)<br>MH Knowledge about peer & adult influences (6-items)<br>MH Knowledge about the influence of the media on weight loss (3-item)<br>Teacher's efficacy to fight weight bias (6-item)<br>Computer & internet use (13-items) to measure comfort and | Intervention vs. Comparison group: Improvement in 3 of 11 knowledge-based items reported<br>Post *d* = [a]<br>*ns* - ** | - | - | - | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| | skill level with computers or the internet<br>Evaluation of the programme (24-items) to assess satisfaction with the training content. | | | | | |
| Moor et al. (2000) | Attitude towards depression questionnaire (designed by authors)<br>Pupil-depression task: Given class list and asked to indicate which pupils were possibly/probably depressed.<br>Mood and Feelings Questionnaire (MFQ; 32-items) self-report scale of depressive symptoms completed by students<br>Schedule for Affective Disorders and Schizophrenia for school aged children-present and lifetime version (K-SADS-PL) interview to assess for depressive and other psychiatric disorders was completed with students who scored >30 on the MFQ.<br>Teachers feedback on the session | Post = *ns*<br><br>Recognised 58% (7 of 12) depressed pupils pre-training and 75% post-training (9 of 12). | Post *d* = [a] Improvement in 4/10 items | - | - | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| Moor et al. (2007) | *Same as Moor et al. (2000)* | Intervention vs. Comparison group: Post = *ns* | Intervention group: Post *d* = [a] Improvement in 6/10 items<br><br>Intervention vs. Comparison group: Post *d* = [c] | - | - | - |
| Pereira et al. (2014) | <u>Sociodemographic questionnaire</u><br><u>MH knowledge (27-items)</u> T/F questionnaire about MH conditions and management strategies.<br><u>Belief and Attitudes (21-items)</u> questionnaire on stigmatised concepts in MH, non-stigmatised concepts in MH and attitudes in MH.<br><u>Training satisfaction question</u> for the WBIE group. | Intervention vs. Comparison group: Post *d* = [a] No difference in overall score between groups using ITT | Intervention vs. Comparison group: Post *d* = [a] Stigmatised concepts: WBIE had fewer stigmatised opinions than TVBE (β =-0.92)_*** WL had fewer stigmatised opinions than TVBE (β =0.98)_*<br><br>Non-stigmatised concepts: WBIE had fewer non-stigmatised | - | - | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | opinions than WL ($\beta$ =1.18)_ *<br>No difference between groups on attitudes towards mental health | | | |
| Powers et al. (2014) | Demographics questionnaire<br>MH Knowledge (27-items) T/F questionnaire about training content. | Post *d* = .81** | - | - | - | - |
| Rose et al. (2017) | Mental Health Beliefs and Literacy Scale to assess the implementation of the training, attitudes about MH first-aid principles (i.e., ALGEE), personal stigma, behavioural knowledge of MH (16-items), the motivation for and confidence in carrying out action steps (14-items), intention to use skills taught during training, and actual behaviours.<br>Training quality assessed by open-ended questions | Intervention group only:<br>Post *d* =1.07*<br><br>5-MFU *d*=.48**<br><br>Intervention vs. Comparison group:<br>Post *d* = c<br><br>5-MFU *d* = a ($\eta^2_p$ =.28)*** | Intervention group only:<br>Post *d* = b<br><br>5-MFU *d* = b<br><br>Intervention vs. Comparison group:<br>Post *d* = b<br><br>5-MFU *d* = b | Intervention group only:<br>Post *d* =1.2**<br><br>5-MFU *d*=.98**<br><br>Intervention vs. Comparison group:<br><br>Post *d* = c<br><br>5-MFU *d* = a ($\eta^2_p$ =.20)** | - | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| Vieira et al. (2014) | Demographics questionnaire<br>Six vignettes (high risk for psychosis, depression, conduct disorder, hyperactivity, mania, and normal adolescent behaviour). Developed for this study. This questionnaire investigated whether the adolescents described had any mental health problems and required some sort of referral (mental health services, after-school help for pedagogical support, other, or none).<br>Evaluation of the training self-report measure. | Post = *ns*<br><br>Identification pre-post training:<br>Conduct disorder 96.7% to 93.3%<br><br>Hyperactivity 76.7% to 73.3%<br><br>High-risk for psychosis 76.7% to 80%<br><br>Mania 83.3% to 83.3%<br><br>Depression 80% to 83.3%<br>Normal behaviour 67% to 80% | - | - | - | - |
| Wei & Kutcher (2014) | MH Knowledge (30-items) assessing signs, symptoms, causes and onset of MH | Post *d*= 2.3*** | Post *d*=.36*** | - | - | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| | conditions, assessment and linking in with professionals<br>MH stigma (8-items) assessing attitudes towards MH<br>Workshop evaluation (6-items) | | | | | |
| Wei et al. (2014) | MH Knowledge (30-items) assessing MH knowledge<br>MH Stigma (8-items) assessing attitudes towards mental illness | Post *d*=1.85*** | Post *d*=.51* | - | - | - |

Note: MH= Mental Health; * = $p<.05$, ** = $p<.005$, *** = $p<.001$; *d*= Cohen's *d;* - = Not measured; MFU = month follow-up; *ns* = non-significant change; [a] = not able to calculate Cohen's *d* from available data. [b] = authors did not report data due to unacceptable reliability; [c] = authors did not conduct this analysis. WBIE=Web-based interactive education; TVBE= Text and video-based education; WL= waiting list control group; ITT= Intention to treat analysis

**Quality assessment**

The methodological quality of each study was assessed and reported individually in Figures 3 and 4 for RCTs and other designs, respectively. Overall for the five RCTs, two had a high risk of bias and three had some concerns due to lack of information to make an informed judgement. Two of five provided enough information regarding randomisation process to rule out bias during the randomisation process. The majority of studies also provided enough information with regards to recruitment, deviations from the intervention, addressing missing data and reporting to rule out selection, performance, detection, attrition, and reporting bias. Two studies were deemed high risk of attrition bias as there was greater attrition in the control group and reason for drop out was not provided. Finally, one study was also deemed high risk of reporting bias as a breakdown of baseline data were not provided per group, there was missing follow-up data and the conclusions were not justified.

For the non-RCT papers, there was no overall quality rating, however the categories of 'impact of no control' and 'mitigation of no control' were assessed as having as high risk in 12 studies. These studies made no reference to why they chose the non-controlled design or how they attempted to correct for this. Three studies were classified as unclear risk as they explicitly stated that data were collected immediately post training to help mitigate confounding factors. Almost all studies were assessed as either high or unclear risk on 'ethical issues' (i.e. ethical approval or procedures not mentioned) and 'other bias', which was around the omission of adequate participant demographics (i.e., age, gender, ethnicity). Similar to the RCTs, the majority of studies provided enough information with regard to participant selection, outcome measurements, addressing missing data, analytical rigour and reporting for these domains to be assessed as low risk. However, measure reliability

of a high proportion (n=10) of studies was assessed as unclear due to the use of unstandardised measured designed for the purpose of assessing the idiosyncratic training material.

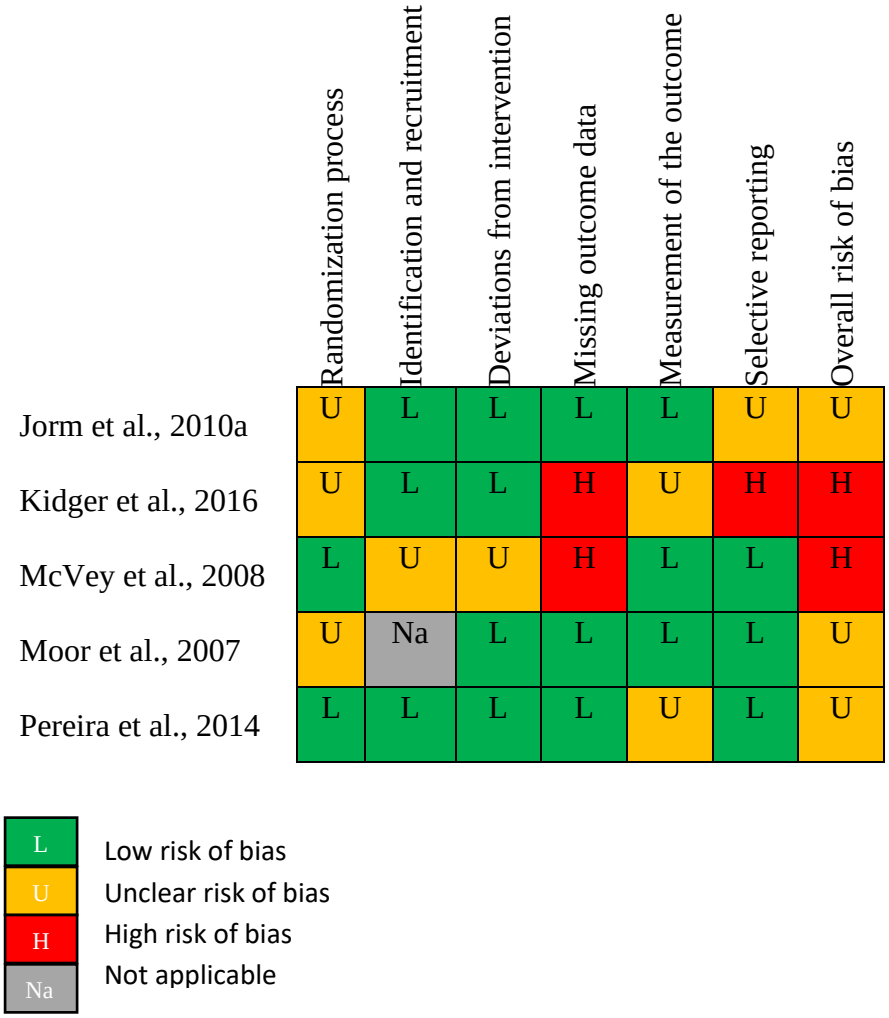



*Figure 3:* Quality assessment of RCTs using the Cochrane revised Risk of Bias Tool

| | Clear statement of aims | Baseline measure | Explanation for no control | Control did not get the intervention | Selection rational | Rationale for participation allocation | Outcome assessment impact | Reliablity of measures | Incomplete outcome data | Intervention modifications | Mitigation of no control | Data analysis | Selective reporting | Limitations addressed | Justified conclusions | Ethical issues | Other bias |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bapat et al. 2009 | L | L | H | Na | L | Na | L | U | L | L | H | L | L | U | L | H | H |
| Barbaresi & Olsen 1998 | H | L | L | Na | L | Na | U | U | U | U | H | H | H | L | U | H | H |
| Carr et al. 2018 | L | L | L | Na | L | Na | L | L | L | L | H | L | U | U | U | U | H |
| Cheng et al. 2013 | L | L | H | Na | L | Na | L | L | L | L | H | L | L | U | U | U | H |
| Eustache et al. 2017 | L | L | H | Na | L | Na | L | U | L | L | H | L | U | L | L | L | H |
| Hussein & Vostenis 2013 | L | L | H | Na | H | Na | L | U | L | L | H | L | L | U | H | U | N |
| Kutcher et al. 2013 | L | L | U | Na | U | Na | L | U | L | L | U | L | L | L | U | H | H |
| Kutcher et al. 2015 | L | L | H | Na | L | Na | L | L | H | L | U | L | L | L | L | U | H |
| Kutcher et al. 2016 | L | L | H | Na | L | Na | L | L | L | L | U | L | L | L | L | U | H |
| Martínez et al. 2015 | L | L | H | Na | H | Na | L | U | L | L | H | L | L | H | H | L | H |
| Moor et al. 2000 | U | L | H | Na | L | Na | L | L | L | L | H | L | L | U | H | H | H |
| Powers et al. 2014 | L | L | H | Na | L | Na | L | U | L | L | H | L | U | U | H | H | H |
| Rose et al. 2017 | L | L | Na | L | Na | U | L | L | L | L | Na | L | L | L | L | L | L |
| Vieira et al. 2014 | L | L | H | Na | H | Na | L | U | L | L | H | U | U | H | H | L | H |
| Wei & Kutcher 2014 | U | L | H | Na | L | Na | L | U | L | L | H | L | L | U | H | U | H |

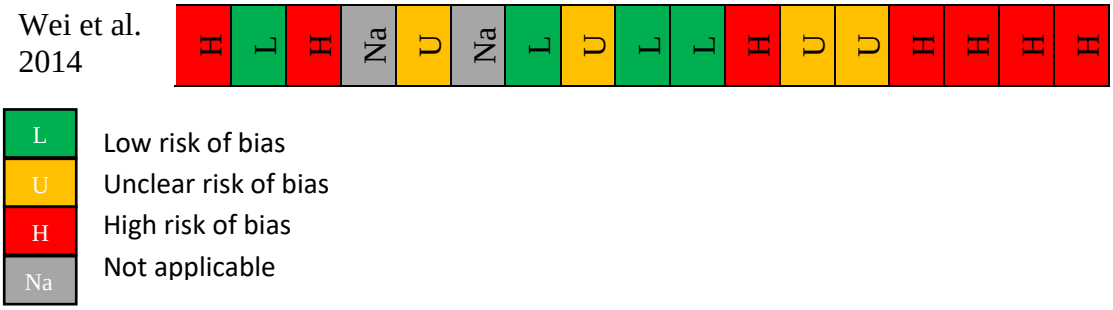



*Figure 4:* Quality assessment of non-RCT studies using the Integrated Quality Criteria for the Review of Multiple Study Designs

## Discussion

This review aimed to determine the effectiveness of child mental health training for improving the knowledge or attitudes of professionals working with young people, and whether young people received or were signposted for support following the training. Twenty-one studies were identified, only five of which were RCT evaluations. The key findings relating to effectiveness, support, training format, training content, and professionals will be looked at in turn.

### Effectiveness

The majority (71.4%, n=15) of training programs were effective at improving knowledge and 9 studies that measured stigma showed improvements in attitudes towards mental health. Across these studies, effect sizes for these improvements ranged from moderate to large for knowledge ($d$= 0.43 - 3.10) and small to large for attitudes ($d$= 0.36 - 1.18), demonstrating that such trainings have a greater effect on knowledge change than on beliefs and attitudes, which are known to take longer to shift (Pereira et al., 2014). These outcomes were achieved across a range of study designs, delivery formats, and among diverse samples. The importance of having a

control group to assess for effects connected to the intervention is evident, as some papers reported a worsening of stigmatised attitudes in the control group post-training (Jorm et al., 2010a) or improvements in controls' attitudes compared to the intervention group (Pereira et al., 2014).

There were five studies that showed no change in mental health knowledge post-training, one of which was an RCT when intention to treat analyses were performed. This may be due to the very high attrition rates of 31%, 52%, and 56% across intervention and control groups possibly due to teacher workload and being signed up to the study by the Head teacher (Pereira et al., 2014). Another study used a measure that was disorder specific rather than training specific. As evidenced by the high baseline knowledge, professionals working in the field were likely to have known about the aetiology of this condition already (Cheng et al., 2013). High levels of mental health identification pre-training were also observed by Vieira and colleagues (2014) resulting in no significant changes post-training. A pilot study (Moor et al., 2000) found a trend in improvement in teachers' correct recognition of depression in their pupils pre and post-training (58% to 75%), however the study was underpowered. The authors then completed a fully powered RCT using the same methodology but found no improvement in teachers' correct recognition of depression in their pupils pre and post-training (52% to 45%) compared to a control (41% to 43%). This finding is rather concerning given the emphasis that has been placed on rolling out mental health literacy training for teachers (Department of Health and Social Care and Department of Education, 2017). The authors suggest that teachers were reluctant to adopt a medical perspective of depression, viewing it as having a social or moral component from their observations in the classroom. If this is the case, future trainings should consider how best to train staff, perhaps using a

biopsychosocial approach, so that staffs' personal beliefs do not impact young people not being referred to the appropriate sources of care, particularly when internalised conditions, like depression can be hard to recognise (Vieira et al., 2014).

Three of five studies showed an increase in confidence support a young person with a mental health problem, with effect sizes ranging from $d$ = 1.09 to 1.15 post-training (n=3) and $d$=.98 to 1.35 at follow-up (n=2). One of two studies showed improvements in intentions to help a young person following training ($d$=1.15), which was maintained at follow-up ($d$=1.07). Given that few studies have measured both of these constructs and the outcomes are largely inconsistent, it is not possible to make a judgement on whether child mental health literacy training is successful in improving participant's confidence or intentions to help young people. Inconsistent findings also make it difficult to determine if there is a link between confidence in supporting a young person and actual helping.

**Subsequent support young people received.** The overall aim of mental health training is to improve professionals' helping behaviour so that young people can access support that they need. Most of the studies in this review did not measure helping behaviour (81%, n=17). Of the four that did, none produced convincing evidence that training was successful in gaining young people access to appropriate support. Only one study looked at accepted referral data to a mental health team, and although there were 50% more successful referrals following the training, these figures were very low and the referrals were not made by professionals who attended the training (Cheng et al., 2013). It was posited by the authors that this could be understood in terms of knowledge being shared with colleagues who did not attend the training, suggesting that such training programs may have an "educational

multiplier effect" (p. 448) inadvertently reaching a wider audience than the limited number of staff who can attend face-to-face training programs.

The remaining were self-reports, whereby professionals in one study reported identifying and advising over 200 students to access support but no data were collected on whether youths proceeded to access services (Kutcher et al., 2016). One reported no change post-training or a six-month follow-up (Jorm et al., 2010a) and the other reported a lowered helping behaviour in the past academic year since the training (Kidger et al., 2016), with no explanation provided by the authors.

Measuring subsequent helping behaviour can be methodologically difficult to capture. It is possible that a longer follow-up time period is necessary to enable professionals to internalise the training content and improve their confidence and competence at supporting the young people they work with. A range of follow-up time periods have been used in previous studies (six weeks – nine months; n=5) with the majority of studies (n=3) reviewing training benefits after three months. In line with previous studies, a minimum of a three-month follow-up period could be recommended, however it would be useful to understand longer term improvements. An evaluation every three months for up to a year could help to understand at which point additional booster sessions might be advised. Such refresher sessions could potentially tie into an individual's annual continuing professional development activities.

To obtain a true picture of the impact of the training requires a consideration of multiple sources. This may include, but is not limited to, the collection of objective data on referrals made and accepted by professionals to relevant services, contact with professional services, self-referrals, help-seeking via support groups or the internet made by young people, the young person's self-reported account of advice or help

provided, or monitoring of wellbeing outcomes on young people who have sought support following a conversation or lesson on mental health. Training courses may also need to focus on increasing professionals' confidence in implementing their knowledge of mental health; only two of the four studies measuring confidence reported an increase post-training, and one of two showed an increase in intention to provide help. Despite 76% of papers attempting to or explicitly recognising the need for future studies to investigate youth outcomes, no RCT has yet to be conducted to investigate the impact of such mental health training programmes on all the key factors of mental health literacy.

**Training format**

Two RCTs delivered the training online, however no direct comparisons were made between online and face-to-face methods. There were mixed knowledge and attitude improvements reported in the online studies, however neither of the RCTs collected follow-up data to assess for change over time. The impact of delivery format cannot therefore be assessed; however other reviews suggest that individuals have a stronger preference for training that incorporates an interactive element, contains role-plays and time for group discussion (Zhang, Zhou, & Nunamaker, 2004) than didactic sessions (Giangreco, Sebastiano, & Peccei, 2009), however this needs to be balanced with a consideration for the limited time (and funding) that professionals may have for training and development.

Training duration varied from a couple of hours to three days. Findings suggest that training for as little as two hours can significantly improve professionals' knowledge, however it is unclear if this was sustained as no follow-up was conducted. Longer trainings were observed to have greater effect sizes for knowledge and attitude

changes, with the highest change being observed in a one day face-to-face session. These effects appeared to be maintained at follow-up ranging from six weeks to six months. The longest follow-up period was nine months (Cheng et al., 2013); however, this study found no change in knowledge post-training or at follow-up, possibly due to methodological issues. One study reported data at 12-months post-training, but this was not a follow-up timepoint. Only trainings that were two or more days attempted to measure the effect of training had on actual helping behaviour, so it is unclear what impact a shorter training might have on subsequent helping behaviour or intention to help.

**Training content**

There were 14 different training approaches to the 21 studies reported in this review: 10 were designed to improve knowledge and/or attitudes across a variety of conditions, five were designed specifically for teachers as a curriculum resource (Carr et al. 2018; Kutcher et al., 2013; Kutcher et al., 2015; Kutcher et al., 2016; Wei et al., 2014), and six had been designed for professionals working with young people who had a specific mental health diagnosis (Barbaresi & Olsen, 1998; Cheng et al.,2013; Martínez et al., 2015; McVey et al., 2008; Moor et al., 2000; Moor et al., 2007). Overall, generic and curriculum-based training had more successful outcomes than disorder specific training, possibly because the majority were longer or conduced face-to-face where professionals had more opportunities for discussion and to ask questions. This indicates that a standalone (or curriculum programme for teachers) delivered face-to-face over one or more days may be the most appropriate approach when professionals require training across a broad range of mental health conditions.

There was some overlap between the content covered across the 21 studies. Fifteen studies looked at a variety of common youth mental health presentations (e.g. depression, anxiety, schizophrenia, ADHD, substance abuse), four using the YMHFA content and five using the MHHSCG content of which two had been culturally adapted for use in Malawi and Tanzania and the remaining six developed their own individual content. Six studies focused solely on depression (n=3), ADHD, psychosis, and eating disorders, respectively.

**Professionals**

This review captures data from 10 different countries and across six continents, evidencing the growing demand and need for child and adolescent mental health awareness and support on a global level. The majority of studies completed training programmes with teaching staff. Healthcare workers, club leaders and social workers were also recipients of the training. This may reflect the main professional groups that young people come into contact with, however it is stark contrast to the adult mental health literacy training programmes that have delivered training to a diverse range of professionals from the police (e.g. Booth et al., 2017), government and public sector workers (e.g., Kitchener & Jorm, 2004; Svensson & Hansson, 2014), nurses (e.g. Bingham & O'Brien, 2018; Burns et al., 2017), medics (e.g. Davies, Beever & Glazebrook, 2018), and pharmacy students (e.g. El-Den, Chen, Moles, & O'Reilly, 2016). As only three studies trained non-teaching participants, it is difficult to compare effectiveness of training across professional groups, however no overt differences were reportedly observed.

There is also a paucity of male and non-Caucasian professionals receiving child mental health training. Future studies should attempt to target professionals

outside of the female and Caucasian demographics so that children of all genders and ethnicities have role models educating them and advocating for their mental wellbeing. This is particularly important as mental health problems are known to be more prevalent in black and ethnic minority communities (National Institute for Mental Health in England, 2003), yet there are reports of males and non-white individuals being more likely to endorse stigmatised attitudes than females and white groups (Corrigan & Watson, 2007). Despite suicide being the lead cause of death in young men, adolescent males are also being underserved in mental health services (Rice, Purcell, & McGorey, 2018). If more male professionals could be trained in child mental health literacy, they have the potential to act as role models and advocates for young men to access mental health services (Wilkins & Kemple, 2011).

**Methodology quality of studies**

Five studies used the gold standard RCT design, however even these were not without limitations, particularly when conducting preliminary research in a relatively new area of study (Anderson et al., 2018). Due to schools needing to schedule professional development days, it meant a lack of concealment in allocating participants to the intervention or control group. Having an active comparison group might counteract this as well as reducing attrition bias that was observed. This made it difficult to judge whether these studies should hold more weight than the 16 less rigorously tested interventions. All studies had at least one category of bias that was assessed as high risk, with almost all studies omitting adequate ethical and demographic information.

There was also no measurement of fidelity across similar training paradigms, making it difficult to know if findings are reliable. A large proportion of papers used non-validated measures designed to assess the specific training content or validated

disorder-specific measures that were not specific enough to capture knowledge change following training. There is a need for standardised programmes to develop validate measures that explicitly assess their training content so that generalisability can be assessed.

**Strengths and limitations of the review**

Strengths of this review include the fact that it is the first to examine the important topic of the effectiveness of child mental health literacy programs across different professional groups. It included a relatively large sample size overall, studies conducted across a variety of countries and the rigorous search strategy identified studies highly relevant to the topic of mental health training. A large proportion had to be removed by hand because it was not feasible to develop a strategy that would pick out only professionals working with children who received mental health training.

Due to the multiple designs and methodologies used by the studies, it was not possible to thoroughly compare and contrast the specific qualities of each study. As such, there is a wide amount of heterogeneity in the training programmes and assessment methods. Future reviews might benefit from focusing on a specific training paradigm (e.g. MHHSCG) or standardised questionnaire when further child mental health training studies have been conducted. Using the chosen risk assessment tools, it was difficult to ascertain whether a study failed to address bias or whether the information was just not reported in the study. As suggested within the Anderson and colleagues (2018) review, future studies could consider looking at the risk of bias guidelines during write up to ensure all appropriate data are included and therefore enable a high-quality meta-analysis to be conducted.

Four papers were sourced through 'citation chaining'. A review of the search strategy alongside a specialist librarian could not determine the reason why all papers were not captured within the databases and through the search terms that were used. Equally there were three teacher studies that were not captured in Yamaguchi and colleagues (2018) systematic review despite a similar database being employed. This reflects the importance of reviewing reference lists, using a wide variety of databases and search terms to maximise the likelihood of capturing all relevant papers.

Furthermore, the concept of mental health literacy was established in 1997 and since then there has been a surge in training studies to target mental health literacy levels, therefore papers prior to then were not reviewed. On reflection, it is possible that prior studies did target mental health literacy, but different terminology was employed. However, a brief scan through the titles of removed papers prior to 1997 however did not reveal any discarded relevant studies.

## Conclusion

Professionals' knowledge and attitudes towards child mental health were significantly improved following training courses included in this review. Changes were observed in disorder specific and global mental health training, ranging from two hours to three days. Changes in mental health knowledge were observed to be greater than in attitudes, however longer follow-ups are needed. Future studies also need to measure both confidence in helping behaviour and actual helping behaviour using objective measures. Currently, there is not enough evidence to suggest that these changes translate to increased early intervention, prevention or children's access to help as studies rarely sought to investigate this. The differences between face-to-face and digital training programs also need to be investigated as digital programs may be a

more time-efficient way to target a larger proportion of professionals in contact with children. Overall, higher quality research using a blind randomised controlled design, standardised measures of the ‘mental health literacy’ construct, follow-up period, and a measure of actual helping behaviour is required to appropriately determine the value of such training programmes and understand whether the above results are generalisable.

**Evaluating the effectiveness of face-to-face and digital training in improving child mental health literacy rates in frontline paediatric hospital staff**

## Abstract

**Background:** Children with chronic physical health conditions are up to six times more likely to develop a mental health condition than their physically well peers. Frontline paediatric hospital staff are in a good position to identify mental health problems and facilitate appropriate support to patients. To date, no evaluation of mental health literacy training has taken place with this professional group. It is also not known whether face-to-face or digital training is more effective or preferable in this setting. To improve the skills of frontline hospital staff, a face-to-face and digital mental health literacy training course was delivered using MindEd content and evaluated in a randomised controlled trial. **Method:** Two-hundred and three frontline staff across different professions from a tertiary paediatric hospital were randomised to a face-to-face (n=64), digital (n=71), or waitlist control group (n=68). Face-to-face training was two and a half hours and digital training took approximately one hour. The effects of training were evaluated pre- and post-training and at two week follow-up. Questionnaires assessed mental health knowledge, stigma, confidence in recognising concerns and knowing what to do, actual helping behaviour, as well as training delivery preference, completion rate and satisfaction. **Results:** Both face-to-face and digital training increased mental health knowledge, confidence in recognising mental health problems and knowing what to do compared to waitlist controls. Digital training increased actual help-seeking behaviour relative to the waitlist controls and stigma decreased across all groups. Staff were satisfied with both delivery methods but preferred face-to-face training. **Conclusions**: The results provide promising findings that the MindEd content is an effective way of improving mental health literacy in frontline paediatric hospital staff. Providing digital training could be a time-efficient way of upskilling non-mental health professionals to identify mental health needs in a paediatric population and facilitate access to appropriate care.

## Introduction

A recent survey on the mental health of young people in England identified that one in eight (12.8%) five-19-year olds had at least one mental health condition when assessed in 2017 and only 25% were receiving specialist mental health support (Sadler et al., 2018). If children also have a chronic physical health or neurological condition (e.g. diabetes, asthma, epilepsy), the risk of developing a mental health problem can increase by up to six-fold (e.g. Davies, Heyman, & Goodman, 2003; Parry-Langdon, Clements, Fletcher, & Goodman, 2008). Young people with chronic illnesses are more likely to have higher levels of internalising and externalising problems than their physically healthy peers (Pinquart & Shen, 2011). This can in part be understood in the context of increased stressors such as undergoing rigorous treatment and disease management, lifestyle changes, feelings of isolation, and stigmatisation (Suryavanshi & Yang, 2016).

One reason for the gap between mental health prevalence and treatment rates is a shortage of specialist mental health professionals, combined with a lack of universal mental health training across the health workforce (British Medical Association, 2017). One way to address this gap is to upskill professionals in early identification of mental health problems so that they can facilitate access to appropriate treatment. Particularly within the context of treatment restrictions, it is important that services maximise efficiency by supporting children to access the appropriate services at the appropriate time. However, a survey of over 1,000 primary care staff found that 82% of practice nurses said they felt ill-equipped to deal with aspects of mental health they are responsible for, and 42% reported that they had no mental health training at all (Mind, 2016).

‘Health literacy’ refers to an individuals’ ability to gain access to, understand, and use information in a way that promotes and maintains good health (Nutbeam, Wise, Bauman, Harris, & Leeder, 1993). In an attempt to bridge the gap between physical health, the term ‘mental health literacy’ was coined as an extension of health literacy and refers to an individuals’ “knowledge and beliefs about mental disorders which aid their recognition, management or prevention” (Jorm et al., 1997, p. 182). The authors who coined this concept suggest that it makes up seven different components including (1) the ability to recognise specific conditions, (2) how to seek information about mental health, (3) knowledge of risk factors and causes, (4) self-help strategies, (5) professional help that is available, (6) attitudes that promote recognition, and (7) appropriate help-seeking (Jorm et al., 1997). Researchers within the field have not agreed on a unified way to conceptualise or measure the concept of mental health literacy (Spiker & Hammer, 2018), however it is often measured across the domains of mental health knowledge, stigma, and help-seeking efficacy (Wei, McGrath, Hayden, & Kutcher, 2015).

A recent study (Marwood & Hearn, 2018) looked at UK medical students mental health literacy levels using the Mental Health Literacy Scale (O’Connor & Casey, 2015) and found that their overall mental health literacy scores (M=127.6, *SD*=11.8) were no different to a community sample (M=127.4, *SD*=12.6) reported in the original O’Connor and Casey (2015) study ($p$ =.85). Hospital staff who have inadequate awareness of mental health are also more likely to have stigmatised attitudes, which may lead to feelings of anxiety among staff and a desire to avoid clients, resulting in poor quality care and less effective outcomes (Knaak, Mantler, & Szeto, 2017).

These reports on hospital staff's confidence and competence within the field of mental health are consistent with the knowledge that young people prefer to speak to a close friend or family member, rather than speak to a professional about their mental health (Dunham, 2004). It has been shown that young people have problems recognising symptoms of mental illness but encouragement from others can aid in help-seeking behaviour (Gulliver, Griffiths, & Christensen, 2010). It is therefore important for adults who are in regular contact with young people to be trained to recognise mental health problems and know how to act to enable them to seek appropriate help (Kelly, Jorm, & Wright, 2007). The government is therefore attempting to increase the mental health literacy of professionals that have regular contact with children in order to facilitate recognition of mental health problems and support with early intervention and prevention (Kutcher, Wei, & Coniglio, 2016).

**Face-to-Face Mental Health Literacy Interventions**

Improving the mental health literacy of frontline hospital staff is in line with the government's agenda to achieve parity of esteem between mental and physical health (NHS England, 2014; Department of Health and Social Care, 2017). One way to support this is to deliver mental health 'first aid' training. Just as non-healthcare professionals have been educated to recognise a stroke, use a defibrillator, or to know the appropriate source of professional help when it comes to physical illness, any professional who has regular contact with children is well placed to receive mental health literacy training to help identify, support, and refer children for early intervention (Jorm, 2012).

Adult mental health literacy training programs have been extensively evaluated. For example, six randomised controlled trials (RCTs) have found that the 12-hour face-to-face 'Mental Health First Aid' course (MHFA; Kitchener & Jorm, 2002) show improvements in knowledge and confidence to provide help to another adult, decreased stigmatised attitudes, and increased helping behaviour, with changes being maintained six months post-training. These results have been shown across a variety of different settings internationally including in government workplace settings (Kitchener & Jorm, 2004; Svensson & Hansson, 2014), educational settings (Jorm, Kitchener, Sawyer, Scales, & Cvetkowski, 2010a; Lipson, Speer, Brunwassee, Hahn, & Eisenberg, 2014), with nursing students (Burns et al., 2017) and across the general public (Jorm, Kitchener, O'Kearney, & Dear, 2004).

With regards to child mental health literacy training programs, the above systematic review (p. 20) is the first to review all of the different training programs that have been delivered to non-specialist professionals in contact with children. There have been a variety of different approaches to training professionals with some studies focusing on improving literacy across a range of mental health conditions (e.g. Bapat, Jorm & Lawrence, 2009; Carr, Wei, Kutcher, & Heffernan, 2018; Eustache et al., 2017), while others have focused on training professionals to recognise specific mental health disorders (e.g., Barbaresi & Olsen, 1998; Cheng, deRuiter, Howlett, Hanson, & Dewa, 2013; Moor et al., 2007).

The majority of programs (90.5%) have been delivered using a traditional face-to-face approach ranging from a duration of two hours to three days. Findings suggest that training for as little as two and a half hours can significantly improve knowledge

(Cohen's *d* =.8; Barbaresi & Olsen, 1998) however it is unclear if this was sustained as there was no follow-up. Longer trainings were observed to have greater effect sizes for knowledge (Cohen's *d* = 0.43-3.10; n=15) and attitude changes (*d* = 0.36-1.18; n=9), with the highest change being observed in a one day face-to-face session (*d* = 3.10; Carr et al., 2018).

**Digital Mental Health Literacy Interventions**

Despite supportive evidence for traditional face-to-face teaching approaches being effective in improving mental health knowledge and attitudes in non-mental health specialists, it can be challenging for staff to arrange time off and is often not feasible for frontline staff who find it difficult to arrange cover. This issue has been raised by teaching staff (Langley, Nadeem, Kataoka, Stein, & Jaycox, 2010) and is anticipated to be a similar concern for frontline paediatric hospital staff. Face-to-face mental health literacy trainings can also be relatively expensive, with a two-day YMHFA training costing being advertised at £300 per person (https://mhfaengland.org/individuals/youth/2-day/). One way to help resolve this is to deliver training via digital platforms. This has the potential benefits of being more flexible, accessible, and a more cost- and time-efficient method of delivering training as it does not require an instructor or necessitate attendance at a certain location, and it also ensures fidelity to the training content.

A previous systematic review has shown that internet-based learning in general is associated with large positive effects when compared with no intervention (Cook et al., 2008). Digital training that has an 'active' component, such as participants being guided through sequential steps and having the opportunity for experiential learning tends to be

even more efficacious (Brijnath, Protheroe, Mahtani, & Antoniades, 2016). This may account for the finding that guided internet-based psychological treatment has been shown to be as effective as face-to-face treatment (Andersson, Cuijpers, Carlbring, Riper, & Hedman, 2014) With regards to child mental health literacy training, the above systematic review (p. 20) highlights the paucity of digital training studies however there have been some documented success in the adult mental health literacy literature.

The MHFA course has been adapted for e-learning and was found to be effective in increasing mental health knowledge, decreasing stigmatised attitudes, and increasing first aid actions compared to a waitlist control group and superior again to a MHFA manual condition in terms of reducing stigma (Jorm, Kitchener, Fischer, & Cvetkovski, 2010b). Similar findings have also been reported in a UK based pilot RCT evaluating the effects of a MHFA digital course with 55 medical students, however attrition rates were 52% for MHFA participants and 21% for controls so caution should be taken when generalising these findings (Davies, Beever, & Glazebrook, 2018).

When given the option to self-select onto a face-to-face MHFA or digital course, there appears to be no set preferences among participants or difference in outcomes between groups. In an uncontrolled study, 37% of nursing and medical students (mean age of 29) opted for the face-to-face course over a digital option (Bond, Jorm, Kitchener, & Reavley, 2015), whereas the reverse was observed for financial counsellors (mean age of 49) with 82% opting for the face-to-face course (Bond, Jorm, Kitchener, & Reavley, 2016). Satisfaction rates in the latter study demonstrated no difference between delivery method, with 95% and 94% enjoying the digital and face-to-face course, respectively. In both studies, mental health literacy and confidence to provide help were shown to

improve in face-to-face and digital groups, however results must again be taken with caution as there was no control group. These findings may reflect different course delivery preferences between professionals and perhaps individuals of certain ages, suggesting that training programmes should not be a 'one size fits all' approach. Although no RCTs have directly compared face-to-face and digital adult or child mental health literacy trainings, it would be useful to compare these approaches in terms of preference, satisfaction, and completion rates to determine which method might be most acceptable for different professionals.

The above literature and previous systematic review highlight the lack of high-quality research that has been done to evaluate child mental health literacy training. Although much research has evaluated adult mental health literacy programs, child mental health training programs can offer additional information not covered within current adult mental health training programs such as a focus on adolescent development and the distinctions between mental health symptoms and normal teenage behaviour, in addition to the impact that mental health difficulties can have on academic achievement, developing relationships, puberty, and in long-term wellbeing.

A minimal number of RCTs have been conducted to evaluate the effectiveness of digital or face-to-face training in improving mental health knowledge, stigma, confidence in helping, and actual helping behaviour, and none have compared these two delivery methods directly to assess which is preferred and more satisfactory. Training completion rates have also not been compared across each method, which would be important when considering the time and cost-benefits of digital training. The majority of studies have been case series training studies within the teaching profession, assessing knowledge and

attitudes towards mental health, with no control group, and with no follow-up data. Although the studies do suggest an increase in child mental health knowledge, reduction in stigma-related attitudes, and increase in participants' confidence to support someone in the future, help-seeking actions taken to benefit the people that the training programme ultimately serves is often not often reported.

As mentioned, children with chronic physical health and neurological conditions are more at risk of developing mental health problems. This, coupled with the perceived stigma from professionals, difficulty recognising mental health problems in themselves, and the reluctance to seek out professional help, are arguments for why frontline paediatric hospital staff who interact with young people on a regular basis would benefit from mental health literacy training. Training could help frontline staff, alongside their medical colleagues, to identify child mental health problems and take appropriate action to support the young people they serve.

**Current study**

The current study attempts to address the gaps in the literature by proposing a three-arm "real-world" RCT with frontline paediatric hospital staff who have regular contact with young people but no formal training child mental health literacy training. The study has two aims. Given that no prior studies have investigated mental health literacy rates of frontline paediatric hospital staff, the first aim was to benchmark baseline mental health literacy levels against other professional groups. The second aim was to increase mental health literacy levels of frontline paediatric hospital staff using a series of selected MindEd modules delivered face-to-face or digitally. MindEd (minded.org.uk) is an

educational website designed by the UK Department of Health and Department of Education to upskill professionals who are in regular contact with children about child mental health so that they are in a better position to help young people receive the appropriate support that they need.

No formal evaluation of MindEd has been conducted, so this study will be the first to provide empirical evidence on the effectiveness of MindEd as a mental health literacy training resource. Participants will be randomised to a digital group or a face-to-face group where the same MindEd content will be covered, or to a waitlist control group that will receive the training at a later date.

With regards to the second aim, the study hypothesises that

1. MindEd training delivered digitally and face-to-face will show improvements in participants mental health knowledge compared to a waitlist control group.
2. MindEd training delivered digitally and face-to-face will show reduced stigma-related mental health knowledge and behaviours compared to a waitlist control group.
3. Participants who receive digital and face-to-face MindEd training will be more confident in recognising and knowing what to do following training compared to a waitlist control group.
4. There will be no difference in completion rates, preference or satisfaction between digital and face-to-face training.

## Method

### Participants

Two hundred and three frontline paediatric hospital staff were recruited from Great Ormond Street Hospital (GOSH), eligibility criteria are reported in Table 1. Staff either volunteered to participate in the study or were signed up (non-mandatory) by their line managers following an advertisement that was placed in the weekly newsletter (see Appendix 2) or following face-to-face discussions at team meetings. Participants were randomised to a face-to-face group (n=64), digital group (n=71), or waitlist control group (n=68) via a random number generator operated by an independent third party. All participants completed their baseline measures post-randomisation online and were then provided access to the training and subsequent questionnaires upon completion of each timepoint.

Table 1.

*Study eligibility criteria*

| Inclusion | Exclusion |
|---|---|
| 1. Full, part-time or honorary employment at Great Ormond Street Hospital. | 1. Previous formal training in child mental health (e.g. a degree specific to mental health) |
| 2. Frontline staff member (e.g., Nurses, Receptionists, Health Care Assistants, Housekeeping employees, Service Managers, Patient Advice and Liaison Service employees, Clinical Scientist Practitioners, Security staff, Volunteers, Porters and Catering staff) | 2. Inadequate English to be able to engage with training material and questionnaires. |

| | |
|---|---|
| 3.Have regular contact with young people and/or their family as part of their role | 3. Currently participating in another research study or training on child and adolescent mental health |

Incentives to participate in the study included a certificate of completion, time towards continuing professional development, and entry into a draw for a chance to win £100. When participants completed the final questionnaire, they were emailed a copy of their certificates and additional information about other MindEd modules in a debriefing email (see Appendix 3).

Of the face-to-face group, 58 participants completed the post-training measures (91%), as did 62 digital participants (87%), and 62 (91%) waitlist controls (see Figure 1). At the 2-week follow-up timepoint, 54 face-to-face (84%) and 61 digital participants participated (86%), and waitlist controls were provided with the digital training. Staff were predominantly female (84.7%) with a mean age of 37 (*SD*=12.3), which is largely representative of frontline hospital staff reported in the GOSH 2017 Annual Report on Staff Equality, Diversity and Inclusion Data (https://www.gosh.nhs.uk/about-us/equality-and-diversity). A breakdown of demographic information for each group is summarised in Table 2. No statistically significant differences between groups on any of the demographics reported in Table 2 were observed, based on one-way analysis of variance (ANOVAs) and chi-squared test for independence.

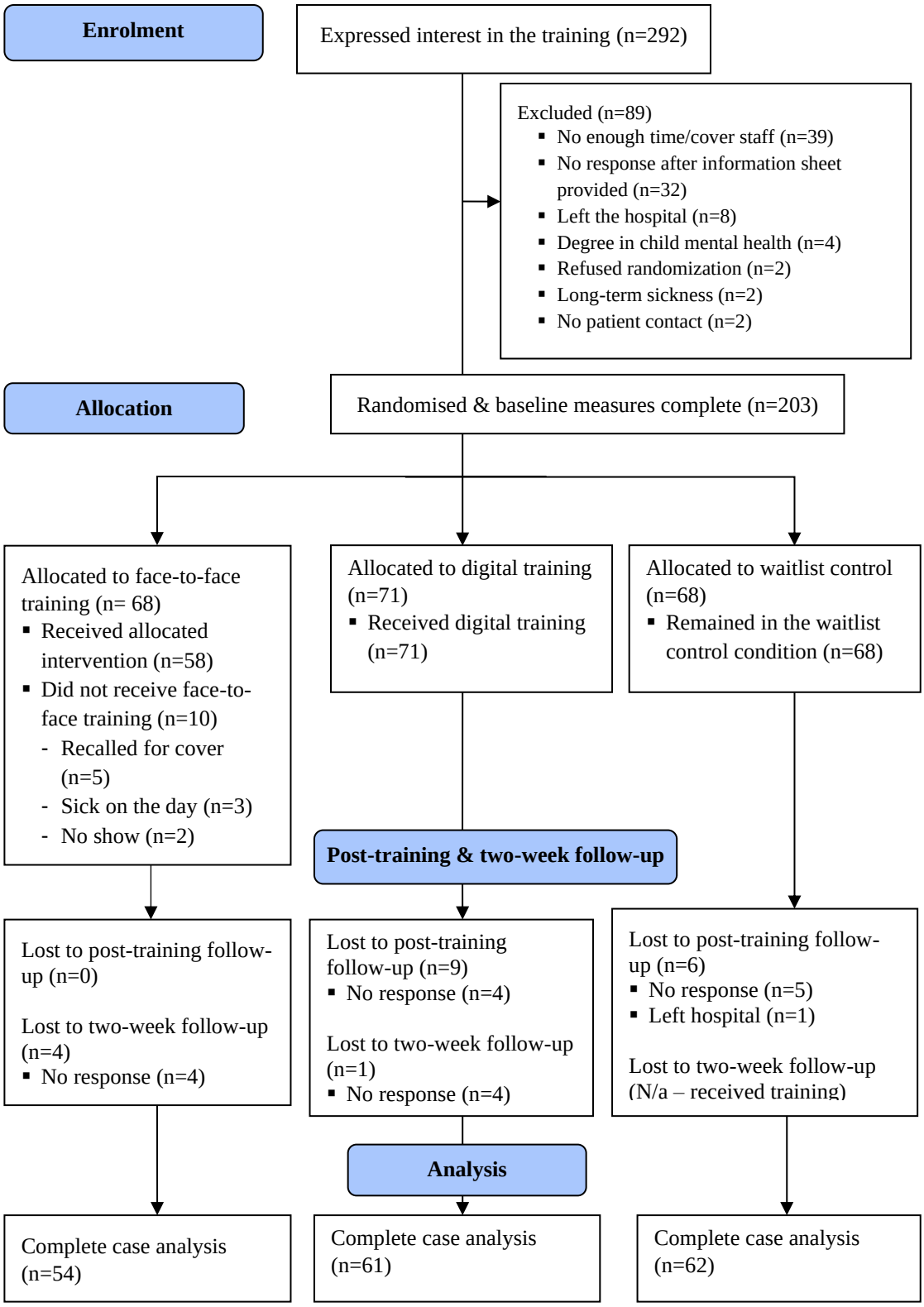



*Figure 1.* Consort flow diagram

Table 2.

*Participant demographics by group*

| | Study Sample | | |
|---|---|---|---|
| Demographics | Face-to-face (n=64) | Digital (n=71) | Waitlist controls (n=68) |
| Gender: | | | |
| Female | 79.7% | 90.1% | 83.8% |
| Male | 20.3% | 9.9% | 16.2% |
| Mean age (years) | 38.9 | 34.5 | 37.9 |
| Ethnic origin: | | | |
| White | 65.5% | 59.1% | 61.8% |
| Black | 14.1% | 9.9% | 17.7% |
| Asian | 15.7% | 23.9% | 8.9% |
| Mixed/Other | 4.7% | 7% | 11.8% |
| Religion: | | | |
| Christianity | 50% | 33.8% | 55.9% |
| Buddhism | 0% | 1.4% | 1.5% |
| Hinduism | 4.7% | 1.4% | 2.9% |
| Judaism | 3.1% | 7% | 2.9% |
| Islam | 10.9% | 9.9% | 7.4% |
| Other | 0% | 4.2% | 0% |
| No religion | 26.6% | 39.4% | 27.9% |
| Prefer not to say | 4.7% | 4.2% | 1.5% |
| Mean education (years) | 15.5 (3.1) | 16.5 (2.0) | 16.1 (2.9) |
| Mean working hours (p/w) | 30.7 (15.2) | 26.0 (16.5) | 22.9 (23.8) |
| Mean duration at GOSH (years) | 3.6 (4.4) | 3.1 (4.0) | 2.5 (3.2) |
| Mean number of patients interacted with (p/w) | 41.8 (78.0) | 41.5 (89.1) | 32.7 (50.4) |
| Previous training: | | | |
| Once-off | 6.3% | 12.7% | 7.4% |
| Multiple ad-hoc | 1.6% | 4.2% | 8.8% |
| Long course | 3.1% | 1.4% | 0% |
| None | 82.8% | 73.2% | 73.5% |
| Other | 6.3% | 8.5% | 10.3% |

Note. *N*=203. p/w=per week; GOSH=Great Ormond Street Hospital

The majority of staff (76.4%) had no previous child mental health training and had been working in the hospital for an average of 3.1 years (*SD*=3.9). It was a heterogeneous sample of volunteers (n=76), nurses (n=22), security officers (n=16), receptionists (n=14), clinical assistants (n=12), healthcare assistants (n=10), housekeepers (n=10), play workers (n=7), quality and safety officers (n=5), patient liaison officers (n=5), service managers (n=4), teaching staff (n=4), physiotherapists (n=3), speech and language therapists (n=3), staff working on the young people's forum (n=3), chaplains (n=2), data officers (n=2), physiologists (n=2), a press officer (n=1), family support officer (n=1), and a dietician (n=1).

Required sample size was estimated using the G-power programme. No mental health literacy training studies in children have been conducted with frontline hospital staff, with UK developed mental health literacy measures, or with a two-week post-intervention follow-up timeframe, so the effect size was estimated from other mental health literacy studies that have used an RCT design and similar measures. The likely effect size was taken from a randomised trial of MHFA training in a workplace setting (Kitchener & Jorm, 2004). In that study, recognition of mental health disorders using vignettes improved 10% in the intervention group compared to 1% in the waitlist control group. Similarly, acting on this recognition increased by 10% vs 1%. To detect this medium effect with sufficient power (80%) at the 0.05 significance level, 50 participants were required in each of the groups (Cohen, 1988). This calculation is based on the analysis of the first hypothesis, analysed using a mixed ANOVA.

## Ethics

Ethical approval for the study was granted by the Health Research Authority in March 2018 (IRAS number: 238067). The study was also approved and accepted by Great Ormond Street Hospital Clinical Research Adoptions Committee and Research and Design Department in March 2018 (see Appendix 4) and self-certified for approval by Royal Holloway, University College London in April 2018. The trial was retrospectively registered with clinicaltrial.gov in May 2019 (awaiting reference number).

## Training content

**MindEd Modules.** MindEd (www.minded.org.uk) is a free educational resource of over 1,300 modules, designed by the Department of Health and Department of Education, on children and young people's mental health for adults who have contact with young people. Approval was gained from the MindEd organisation for conduct of this study. Upon discussion with the organisation, it was identified that the two most accessed modules in June 2017 were “Mental health and Well-being”, which defines these terms and describes societal factors that protect young people (e.g. safe environment, opportunities to learn and achieve, feeling loved and included), and “People Working with Child Mental Health”, which looked at the roles of different mental health professionals (e.g. psychologists, psychiatrists, art therapists). A discussion with the lead Outpatient Team Leader of the hospital indicated that training content that enables frontline staff to be able to identify common signs of mental health problems would be highly valued and upon a search of the MindEd database, there were other available

modules which would cover the above content in addition to supporting participants in being able to identify mental health concerns.

The training content therefore consisted of two modules, 'What Goes Wrong' and 'Mind and Body: The Interface', as they were identified as the most appropriate to cover the symptoms of a range of mental health conditions as well as the connection between mental and physical health. Additional information about one internalising mental health condition (depression) and one externalising condition (oppositional defiant disorder) and what staff can do if they recognise a child with a mental health disorder. These conditions were selected as they represented two mental health conditions that are linked to physical disorders in young people (Aarons et al., 2008).

Within the 'What Goes Wrong' module, participants learn the broad presentations that suggest child or adolescent mental ill-health or vulnerability (e.g. behavioural, emotional and developmental conditions, and mood swings and psychotic thinking) and learn about biological and environmental factors that influence the mental health of children and young people and a framework for thinking about these issues. The link to access the 'What Goes Wrong' module is: https://www.minded.org.uk/LearningContent/LaunchForGuestAccess/447034.

Within the 'Mind and Body: The Interface' module, participants learn how mental health problems can have a negative effect on physical health in children and young people, how mental health problems can be caused by brain disorders, and how physical illness can lead to emotional and behavioural changes in children and make it more likely that they develop mental health problems. They also learned how these joint physical/mental health problems can be helped, the names of available services, and an

outline of what the treatment pathway may look like using a case example. The link to access the 'Mind and Body: The Interface' module is: https://www.minded.org.uk/LearningContent/LaunchForGuestAccess/447028.

Information on symptoms of oppositional defiant disorder and depression were also included in the training based on selected slides from 'The Aggressive/ Difficult Child' (https://www.minded.org.uk/LearningContent/LaunchForGuestAccess/445679) and 'Sad, Bored or Isolated' module (https://www.minded.org.uk/LearningContent/LaunchForGuestAccess/445667), respectively. The MindEd website estimates a completion time of 20 and 30 minutes for these respective modules (See Appendix 5 for training slides).

## Measures

**Demographics.** A demographics questionnaire was completed at baseline to gather participant characteristics to enable comparison between groups, generalisation of the findings, and to allow comparison to other studies. Participants were asked about their age, gender, ethnicity, and religion. Job title and the length of time working at GOSH were asked so that differences in experience and profession could be explored. Participants were also asked about the number of patients interacted with on a weekly basis, to determine what proportion of patients they recognise as having mental health concerns, and whether they have had any specialist training in mental health to understand participants prior knowledge.

**Mental Health Literacy.** The Mental Health Literacy Scale (MHLS; O'Connor & Casey, 2015) was administered at baseline only to assess the level of mental health literacy among frontline staff in a paediatric hospital so this could be benchmarked against other professions. It was selected as it addresses all constructs of mental health literacy. The 35-item scale measures the ability to recognise disorders (eight items), knowledge of where to seek information (four items), knowledge of risk factors and causes (two items), knowledge of self-treatment (2 items), knowledge of professional help available (three items) and attitudes that promote recognition or appropriate help-seeking behaviour (16 items). It was not administered at the post-training or follow-up timepoint as the training content did not match the knowledge section of the questionnaire so no meaningful change in score would be expected. The MHLS shows excellent internal consistency (Cronbach's alpha 0.97) and it was validated on a community-sample (*N*=372) and mental health professionals (*N*=42) (O'Connor & Casey, 2015). Professionals had significantly higher mental health literacy (M=145.49, *SD*=7.19) than the community sample (M=127.38, *SD*=12.63) (large effect size, *d*=1.76), demonstrating good discriminant validity. Construct validity is further evidenced by individuals with mental-health-problems having significantly higher mental health literacy (M=130.97, *SD*=13.21) than those with no problems (M=125.19, *SD*=11.76), $t(370)=4.39$, $p<.001$ (medium effect size, *d*=.46). Individuals who had seen a mental-health practitioner had significantly higher mental health literacy (M=133.53, *SD*=12.02) than those who had not (M=123.88, *SD*=11.61), $t(370)=7.61$, $p<.001$ (large effect size, *d*=.82). Individuals who had a family member or friend with a mental illness also had significantly higher mental health literacy (M=129.53, *SD*=12.12) than those that did not

(M=122.69, *SD*=12.49), *t*(370)=5.00, *p*<.001 (medium-effect size, *d*=.56). These findings highlight that the MHLS is successfully able to distinguish between individuals who are expected to have higher/lower literacy levels. The MHLS was also shown to significantly positively correlate with The General-Help-Seeking-Questionnaire, *r*(370)=.234 *p*<.001, where those with higher mental health literacy were more likely to seek professional help, thus demonstrating further construct validity. Table 3 outlines which measures were conducted at each timepoint. Cronbach's alpha in the current study was 0.61.

**Knowledge about mental health.** Changes in mental health knowledge were measured using two vignettes (Loades & Mastroyannopoulou, 2010; Jorm, Wright & Morgan, 2007) at baseline and post-training. One describes a child presenting with a common externalising disorder, oppositional defiant disorder, and the other is a teenager presenting with a common internalising disorder, depression. These vignettes have been previously validated against diagnoses made by mental health professionals (Day, 2002; Wright & Jorm, 2009). Questions asked about the vignette are specific to the MindEd training content and context but closely follow the vignette questions of previous studies on MHFA in adolescents by Hart, Mason, Kelly, Cvetkovski and Jorm (2016) and Kitchner and Jorm's (2004) mental health first aid workplace RCT. Participants were asked to (i) identify whether they think the young person has a mental health problem, (ii) rate how concerned they are, (iii) name the identified problem, (iv) list five symptoms that are concerning, (v) suggest three reasons why the individual may be displaying this behaviour in a hospital setting, (vi) identify ways of acting on their concerns, and (vii) rate how confident they are on acting on these concerns. The gender of the young person

described in these vignettes were counter-balanced and results showed no difference in scores regardless of gender on the oppositional defiant disorder (Gabriel/Gabrielle; *p* range = .34 to .76) or depression vignette (Justin/Justine; *p* range = .15 to .95) across groups. See Appendix 6 for all measures and Appendix 7 for the vignette scoring guide.

**Stigma.** The 12-item Mental Health Knowledge Schedule (MAKS; Evans-Lacko et al., 2010) was asked at baseline and post-training to measure stigma-related mental health knowledge. It comprises of six stigma-related mental health knowledge areas: help seeking, recognition, support, employment, treatment, and recovery, and six items that inquire about knowledge of mental illness conditions. It is measured on an ordinal scale (1-5). Higher MAKS scores indicate greater knowledge. The MAKS has moderate reliability (Cronbach's alpha .65), however, as the MAKS was not developed to function as a scale, the authors report that the internal consistency is not as important, and people's knowledge may be domain specific. The MAKS was validated on 403 participants across the across equal ages, genders, and socio-economic status and the authors ensured the validity of the measure by having "expert" judges examine the content and face validity of the measure (Evans-Lacko et al., 2011). The MAKS was significantly positively correlated with the benevolence subscale of the Community Attitudes towards the Mentally Ill (CAMI) stigma measure ($r$=.41, $p$<.01) and the community mental health ideology subscale ($r$=.31, $p$<.05) and negatively correlated with the authoritarianism subscale ($r$=-.56, $p$<.01) and social restrictiveness subscale of the CAMI ($r$=-.44, $p$<.01) (Fountain, 2017). Cronbach's alpha in the current study was 0.60.

The 8-item Reported and Intended Behaviour Scale (RIBS; Evans-Lacko et al., 2011) was also completed at baseline and post-training to measure intended future stigmatised behaviour. The RIBS was developed by the same research team that developed the MAKS. The RIBS measures past and current (four items) and intended future (four items) behavioural discrimination against people with mental health problems, only intended future behaviour was analysed. Higher scores indicate less intended stigma. The RIBS has good reliability (Cronbach's alpha 0.85) and was validated on 403 participants across the across equal ages, genders and socio-economic status. The RIBS was significantly positively correlated with the Mental Illness Clinicians' Attitudes scale that looks at stigmatised beliefs, $r(182) = .49$, $p<.01$ (Gabbidon et al., 2013). Intentions for future contacts on the RIBS has also been shown to positively correlate with tolerance and support for community care ($r=.49$, $p<.001$), knowledge about mental health problems ($r= .32$, $p<.001$) and past and present contact with those who have mental health problems ($r=.34$, $p<.001$). It was also shown to negatively correlate with prejudice and exclusion of people with mental health problems ($r=-.60$, $p<.001$) (Rüsch, Evans-Lacko, Henderson, Flach, & Thornicroft, 2011). Respondents with a higher RIBS score were consistently more likely to engage in subsequent behaviour, supporting findings from the 'Time To Change' UK campaign (Evans-Lacko et al., 2012). Cronbach's alpha in the current study was 0.80.

**Confidence recognising and responding to mental health concerns.** No standardised measures have been developed for measuring confidence in recognising or responding to mental health problems, so a series of Visual Analogue Scales were

therefore constructed. All participants at baseline were asked (i) how confident they are in recognising mental health problems in patients at GOSH, (ii) how confident they are at knowing what to do when they recognise mental health problems in patients, (iii) how many patients they have recognised as having mental health difficulties in the past two weeks, (iv) whether they have reported concerns about a patient to their line manager in the past two weeks, (v) how many times they have reported a concern, and (vi) what their reason for reporting or not reporting was. Post-training, the first and second question were re-asked of the face-to-face and digital groups. The waitlist control group completed all six questions at their post-training timepoint (two weeks after their baseline questionnaires). At the two-week follow-up timepoint, the face-to-face and digital groups only completed the six questions as the waitlist control group had now received the online training.

**Completion rates, satisfaction, and preference.** As face-to-face training can be challenging to arrange and be relatively expensive, the acceptability of digital methods in terms of completion rates, satisfaction, and preference were gathered to compare to face-to-face training to determine if there were any differences. Intervention completion rates were calculated in the face-to-face group by recording participants' attendance. Digital participants were asked what proportion of the modules they completed post-training.

Feedback regarding satisfaction with teaching was collected post-training using the 12-item Training Satisfaction Rating Scale (TSRS; Holgado-Tello, Chacón-Moscoso, Barbero-García, & Sanduvete-Chaves, 2006). The TSRS is a five-point Likert scale ranging from 1 (*totally agree*) to 5 (*totally disagree*). The TSRS asks about participants

views on objectives and content (threeitems), method (sixitems) and usefulness (threeitems). It has good reliability (Cronbach's alpha 0.89) and has been validated on 2,746 staff members who had participated in training courses run by the university of Seville's Training Center. Content validity was carried out by a panel of expert judges at the university and the measurement model was examined through an exploratory factor analysis using polychoric correlations. Three factors were identified, in the first factor (objectives and content) the highest loading was 0.751, of the second factor (method) the highest loading was 0.842, and of the third factor (usefulness), the highest factor loading was 0.855. Based on this three-factor structure, the value obtained in Model with 51 degrees of freedom was $\chi^2 = 358.78$, $p < .0001$. Cronbach's alpha in the current study was 0.95.

Post-training, face-to-face and digital participants were asked whether they would have preferred to have the training (i) face-to-face, (ii) digitally, or (iii) no preference. They were also asked whether they would change anything about the training they received.

Table 3.

*Measures and corresponding timepoints*

| Timepoint | Measures |
|---|---|
| Baseline:<br>*Face-to-face*<br>*Digital*<br>*Waitlist control* | ▪ Demographics<br>▪ Mental Health Literacy Scale (MHLS)<br>▪ Oppositional defiant disorder and depression vignettes |

| | |
|---|---|
| | ▪ Mental Health Knowledge Schedule (MAKS)<br>▪ Reported Intended Behaviour Scale (RIBS)<br>▪ Visual analogue scales for confidence recognising and responding to mental health concerns & actions taken |
| Post-training:<br>*Face-to-face*<br>*Digital*<br>*Waitlist control* | ▪ Oppositional defiant disorder and depression vignettes<br>▪ Mental Health Knowledge Schedule (MAKS)<br>▪ Reported Intended Behaviour Scale (RIBS)<br>▪ Visual analogue scales for confidence recognising and responding to mental health concerns.<br>*Note:* Only controls were asked what actions they had taken in the last two-weeks, the face-to-face and digital groups were asked this in the follow-up questionnaire.<br>▪ Training Satisfaction Rating Scale (TSRS), preference of training, and rate of completion. |
| Two-week follow-up:<br>*Face-to-face*<br>*Digital* | ▪ Visual analogue scales for confidence recognising and responding to mental health concerns & actions taken |

## Procedure

**Piloting.** With support from the Lead for Patient and Public Involvement and Engagement in Research within the hospital, feedback was sought from the young person's advisory group regarding the proposed study to determine whether service users would deem the training content relevant and whether any changes should be made. An information sheet about the proposed study and questions was distributed to the advisory group (see Appendix 8). Responses from young people aged 10-18 indicated that they considered young people with physical health concerns more likely to need support with mental health, that it was "very important" to train professionals who have regular contact with young people in child and adolescent mental health awareness and that benefits included potential early detection of problems and knowledge on how to act to support a young person and their family. Perceived disadvantages of the training were minimal. The respondents spoke highly of the proposed training modules, especially the module linking mental and physical health and considered the proposed measures appropriate for the study.

The post-training measures were then piloted for time by hospital staff (n=3) with no prior mental health experience, with a median response time of 22.7 minutes (*SD*=10.6). This was deemed acceptable given the three hour slot allocated for the face-to-face session. Timing of the baseline measures were not assessed as participants were to complete these in their own time prior to attending the training, although it was estimated to be approximately 35 minutes with the added MHLS scale.

**Intervention.** Once a participant was identified, received the information sheet (Appendix 9), and signed the consent form (Appendix 10), they were randomised.

Participants were provided a unique identifier and informed which group they had been allocated to. They were then provided a link to complete their baseline questionnaires online via the Qualtrics software program (https://www.qualtrics.com/uk/). Baseline questionnaires were completed post-randomisation. Participants then either arranged a date to complete the face-to-face training, were provided with information on how to access the digital modules, or the timer was set for controls to complete the second set of questionnaires in two weeks.

Dates of when participants' post-intervention measures were due for completion were monitored on an anonymised spreadsheet to ensure blinding. Recruitment numbers were also recorded on the EDGE clinical research system in line with requirements for the National Institute for Health Research. Personalised email prompts were sent at one week intervals for a maximum of four weeks to remind participants to complete their post-training and follow-up questionnaires.

***Face-to-face group.*** Participants received a two and a half hour teaching session (delivered by the author) on the identified MindEd modules, followed by 30 minutes to complete the post-training questionnaires. A discussion with the research collaborators identified that three hours was in-line with the average duration of training sessions that staff had previously completed in the hospital (e.g. conflict management). The teaching session was delivered on 10 separate occasions to accommodate staff cover, with an average of six attendees per session. The face-to-face group completed their post-training questionnaires immediately following training and a follow-up questionnaire two-weeks post-training.

***Digital group.*** Participants received instructions on how to log onto the MindEd website to access the relevant materials once baseline questionnaires were complete. Previous mental health literacy digital interventions have allowed participants 4-weeks to complete modules (e.g. Jorm et al., 2010b), however these contained more modules than the current study. Two weeks post-intervention was therefore considered an appropriate amount of time before participants would be asked to complete the post-training measures. This was considered long enough for the digital group to complete the modules and not long enough for the face-to-face group and waitlist control to lose interest before their subsequent set of questionnaires were due. After two weeks, an email reminder was sent to participants to complete the follow-up questionnaires. Another email was sent to complete the follow-up questionnaire after a further two weeks.

It is important to note that the modules and additional information were physically presented in the exact same way to both intervention groups (via the MindEd website), ensuring that content covered was the same. The difference between the training conditions was that the digital group had two weeks to complete it in at a time and location of their convenience and the face-to-face group completed it as a group over two and a half hours with the trainer presenting the same information verbally. Participants in the face-to-face group also had an opportunity to ask questions and discuss the material.

***Waitlist control group.*** Participants completed their second set of questionnaires two weeks post-baseline. They were then given access to the MindEd modules to review in their own time. The control group did not complete the additional confidence visual analogue scales at the 2-week follow-up timepoint due to concerns that a month-long waiting period would deter participants from participating in the study.

### Analyses

The difference in MHLS mean scores between the current sample and other studies were calculated manually via two-tailed independent samples t-tests using the respective mean, standard deviation, and sample size. Five mixed between-subjects ANOVAs were used to compare the intervention (digital or face-to-face training) to the waitlist control group on mental health knowledge of oppositional defiant disorder, stigma-related knowledge and future intended behaviour scores, and confidence in recognising and knowing what to do about mental health concerns. A series of paired samples t-tests were subsequently used to assess if there were changes in confidence within each group over time. Baseline knowledge of depression scores differed between groups so an ANCOVA, controlling for baseline scores, was used to compare the interventions to the waitlist control group. Three chi-squared tests for independence were used to assess for a difference between groups on reporting of concerns post-training, training completion rates, and training preference. A one-way between-groups ANOVA assessed for differences in satisfaction rates between intervention groups. Due to low attrition rates complete case analysis was conducted. All analyses were performed using SPSS 21.

## Results

### Assumptions and analyses

Prior to performing the analyses, normality was tested using the Shapiro-Wilk test. The distribution of scores on the MHLS, the oppositional defiant disorder and depression vignettes, MAKS, RIBS, and TSRS violated the assumption of normality, with significant Shapiro-Wilk scores. Eight outliers were present on the MHLS and one outlier

on the oppositional defiant disorder vignette only, however the mean and 5% trimmed mean values were similar and not too different from the remaining distribution so they were retained. Homogeneity of variance was met across groups for outcome measures aside from mental health knowledge of depression. In this case, baseline scores differed between groups so pre-scores were controlled for using an ANCOVA and adjusted means are reported.

**Aim 1: Mental health literacy levels among frontline paediatric hospital staff**

Frontline staff scored an average of 130.9 (*SD*=12.7) on the Mental Health Literacy Scale (MHLS), with scores ranging from 85-154. This was measured at baseline only to benchmark the scores against other professional groups. As one might expect, these results are below that of mental health professionals (M=145.5, *SD*=7.2, *N*=43; O'Connor & Casey, 2015), $t(106)=10.33$, $p<.0001$. They were also found to be lower than members of the clergy (M=134.2, *SD*=10.8, *N*=238; Vermaas, Green, Haley, & Haddock, 2017), $t(414) = 3.18$, $p=.002$ (who in turn have lower literacy levels than mental health professionals, $t(81)=8.67$, $p<.0001$) who presumably have some experience of working with individuals with mental health concerns. Frontline paediatric staff's MHLS scores were found to be higher than a community sample (M=127.38, *SD*=12.63, *N*=372; O'Connor & Casey, 2015), $t(413)=3.18$, $p=.001$ and UK medical students (M=127.56, *SD*=11.8, *N*=25; Marwood & Hearn, 2018), $t(417)=2.88$, $p=.004$ who may not have had any prior exposure to working with mental health concerns. Finally, the baseline MHLS scores were found to be the same as those of UK teachers (M=129.43, *SD*=12.01, *N*=144;

Saunders, 2019), $t(318)=1.10$, $p=.27$, who are received a digital mental health literacy intervention.

**Aim 2, Hypothesis 1: MindEd training delivered digitally and face-to-face will show improvements in participants' mental health knowledge compared to a waitlist control group**

Table 4 and 5 show data on the oppositional defiant disorder and depression vignettes broken down per item and total score for each group. Prior to training, 19.7% of all participants identified Gabriel to be suffering from oppositional defiant disorder while 80.8% identified Justine to be suffering from depression. After training, this increased to 89.7% and 89.7% in the face-to-face group, 87.1% and 96.8% in the digital group and 14.3% and 82.3% in the waitlist control group, respectively.

A mixed between-within subjects ANOVA was used to compare the effectiveness of the intervention on total mental health knowledge of oppositional defiant disorder. There was a statistically significant effect of time on knowledge ($F(1, 180)=54.1$, $p<.0001$) and an interaction effect between group and time ($F(1, 180)=19.6$, $p<.0001$). Both face-to-face ($p=.005$, Cohen's $d=1.12$) and digital groups ($p<.0001$, Cohen's $d=1.13$) improved in their overall knowledge of oppositional defiant disorder compared to waitlist controls (see Figure 2).

Table 4.

*Oppositional defiant disorder vignette questionnaire breakdown by group*

| Oppositional defiant disorder | Face-to-face | | Digital | | Waitlist Control | |
|---|---|---|---|---|---|---|
| | Pre (n=64) | Post (n=58) | Pre (n=71) | Post (n=62) | Pre (n=68) | Post (n=62) |
| Correct diagnosis | 15.6% | 89.7% | 29.6% | 87.1% | 13.2% | 14.3% |
| Identified as MH problem | 48.4% | 94.8% | 54.9% | 95.2% | 58.8% | 54% |
| Appropriate level of concern | 82.8% | 84.5% | 76.1% | 88.7% | 83.8% | 76.2% |
| Symptoms recognised (max 5) | 2.5 (1.7) | 3.3 (1.5) | 2.6 (1.6) | 3.5 (1.6) | 2.4 (1.5) | 2.4 (1.4) |
| Reasons (max 3) | 1.6 (1.0) | 1.6 (1.1) | 1.7 (1.0) | 1.8 (1.1) | 1.8 (1.0) | 1.5 (1.0) |
| Prescribed help-seeking behaviour | 85.9% | 93.1% | 88.7% | 95.2% | 88.2% | 90.5% |
| Quite a bit/extremely confident speaking to line manager | 79.7% | 91.4% | 83.1% | 87.0% | 79.4% | 77.8% |
| Total score (max 18) | 11.6(2.7) | 14.1(2.5) | 12.1(2.5) | 14.2(2.6) | 11.8(2.7) | 11.5(2.2) |

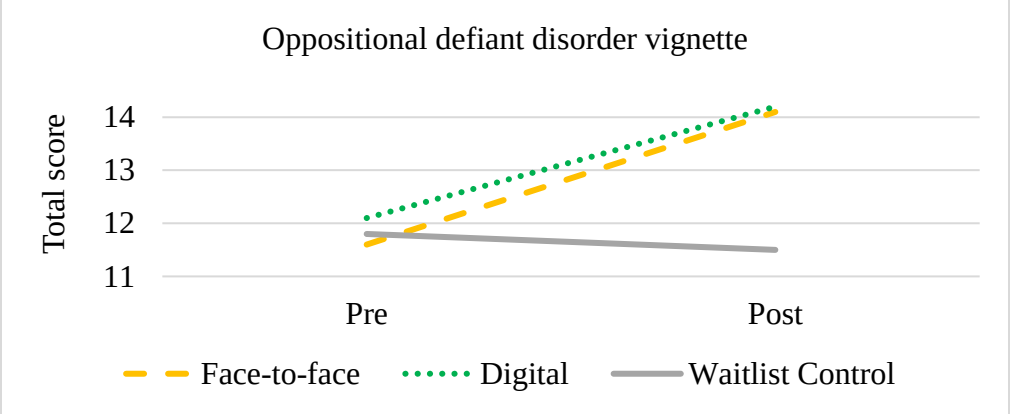



*Figure 2.* Oppositional defiant disorder mental health knowledge change over time

An ANCOVA was used to compare the effectiveness of the intervention on mental health knowledge of depression. After controlling for total pre-training scores, there was still a statistically significant difference between groups on post-training total scores over time, $F(2, 178)=14.76$, $p<.0001$. Both face-to-face ($p<.0001$, Cohen's $d=.53$) and digital groups ($p<.0001$, Cohen's $d=.74$) improved their knowledge compared to waitlist controls (see Figure 3).

Table 5.
*Depression vignette questionnaire breakdown by group*

| Depression | Face-to-face | | Digital | | Waitlist Control | |
|---|---|---|---|---|---|---|
| | Pre (n=64) | Post (n=58) | Pre (n=71) | Post (n=62) | Pre (n=68) | Post (n=62) |
| Correct diagnosis | 75.0% | 89.7% | 85.9% | 96.8% | 80.9% | 82.3% |
| Identified as MH problem | 60.9% | 98.3% | 87.3% | 95.2% | 77.9% | 79.0% |
| Appropriate level of concern | 48.4% | 43.1% | 53.5% | 46.8% | 55.9% | 53.2% |
| Symptoms recognised (max 5) | 3.1 (1.6) | 3.8 (1.3) | 3.6 (1.4) | 4.1 (1.2) | 3.5 (1.4) | 3.5 (1.4) |
| Reasons (max 3) | 1.3 (1.1) | 1.9 (1.2) | 1.8 (1.1) | 2.0 (1.0) | 1.6 (1.1) | 1.5 (1.0) |
| Prescribed help-seeking behaviour | 87.5% | 91.4% | 90.1% | 95.2% | 88.2% | 87.1% |
| Quite a bit/extremely confident speaking to line manager | 86.0% | 87.9% | 81.7% | 88.7% | 85.3% | 77.4% |
| Total score (max 18) | 12.5(3.0) | 14.5(2.5) | 13.9(2.1) | 14.8(1.9) | 13.4(1.4) | 13.2(2.4) |

Note: Adjusted total mean (*SD*) scores are reported.

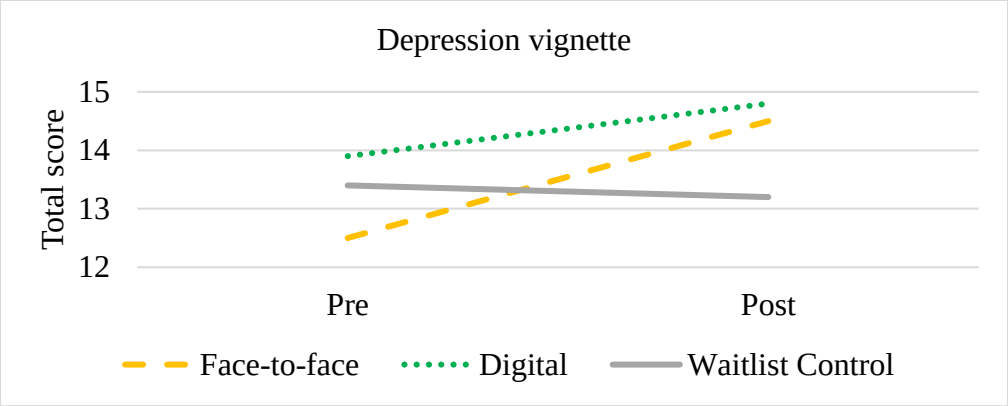



*Figure 3.* Depression mental health knowledge change over time

**Hypothesis 2: MindEd training delivered digitally and face-to-face will show reduced stigma-related mental health knowledge and behaviours compared to a waitlist control group.**

A mixed between-within subjects ANOVA was conducted to assess the impact of training on stigma-related knowledge on the MAKS and intended future discriminatory behaviour towards people with mental illness on the RIBS (see Table 6). In both measures, higher scores indicate reduced stigma.

On the MAKS, there was a statistically significant main effect of time on stigma-related knowledge scores, $F(1, 178)=116.6$, $p<0001$, with all three groups showing improved knowledge across the two timepoints (see Table 6). There was no significant interaction between group and time, $F(2, 178)= 1.3$, $p=.27$. The main effect of comparing groups was not significant, $F(2, 178)=1.8$, $p=.16$, suggesting that the training delivery method was not a contributing factor to the change in stigma-related mental health scores.

Table 6.

*Change in mean (SD) stigma scores over time*

| | Face-to-face | | | Digital | | | Waitlist Control | | |
|---|---|---|---|---|---|---|---|---|---|
| | Pre (n=64) | Post (n=58) | *d* | Pre (n=71) | Post (n=62) | *d* | Pre (n=68) | Post (n=61) | *d* |
| MAKS Total | 22.1 (4.5) | 25.7 (2.8) | .98 | 21.2 (4.2) | 24.4 (2.7) | .93 | 22.1 (4.2) | 24.6 (2.7) | .72 |
| RIBS Total | 14.3 (4.4) | 17.1 (3.3) | .72 | 15.5 (4.3) | 17.9 (2.6) | .70 | 15.4 (4.2) | 17.5 (2.7) | .61 |

Note: *d* = Cohen's *d*

On the RIBS, there was a statistically significant main effect of time on intended future discrimination scores, $F(1, 178)=95.2$, $p<.0001$, with all three groups showing reduced stigma across the two timepoints. There was no significant interaction between group and time, $F(2, 178)= .57$, $p=.24$, and similar to the MAKS, the main effect of comparing groups was not significant, $F(2, 178)=1.4$, $p=.24$, further suggesting that it was not the training delivery method that decreased intended future discrimination scores.

**Hypothesis 3: Participants who receive digital and face-to-face MindEd training will be more confident in recognising and knowing what to do following training compared to a waitlist control group**

Table 7 presents participants' confidence levels with regards to recognising and knowing what to do when they notice mental health problems in young people.

Table 7.
*Confidence in recognising and knowing what to do about mental health concerns*

| | | Pre (T1) | Post (T2) | Follow-up (T3) | *t*-tests |
|---|---|---|---|---|---|
| Face-to-face | *Recognising* | 4.0 (1.4) | 5.4 (1.4) | 6.1 (0.6) | T2>T1***<br>T3>T1***<br>T3>T2*** |
| | *What to do* | 4.2 (1.5) | 5.8 (1.6) | 6.3 (0.8) | T2>T1***<br>T3>T1***<br>T3>T2* |
| Digital | *Recognising* | 4.5 (1.4) | 5.1 (1.7) | 5.8 (0.9) | T2>T1**<br>T3>T1***<br>T3>T2* |
| | *What to do* | 4.6 (1.4) | 5.4 (1.9) | 6.2 (1.0) | T2>T1*<br>T3>T1***<br>T3>T2** |
| Control | *Recognising* | 4.2 (1.4) | 4.5 (1.4) | - | *ns* |
| | *What to do* | 4.3 (1.5) | 4.7 (1.5) | - | *ns* |

Note: ***$p$ <.0001; ** $p$<.005; *$p$<.05; *ns* = non-significant

**Confidence recognising.** A mixed between-within subjects ANOVA found that there was a statistically significant main effect of time, $F(1, 179)=33.7$, $p<.0001$, on confidence in recognising mental health problems and an interaction effect between time and group, $F(2, 179)=7.5$, $p=.001$. There was no main effect of group, $F(2, 179)= 2.7$, $p=.07$. There was a significant difference between the face-to-face group and waitlist controls ($p<.0001$, Cohen's $d = .64$) and between the digital group and waitlist controls ($p=.02$, Cohen's $d=.39$) on pre- and post-training confidence in recognition of mental health concerns. The lack of comparison with the waitlist control group at follow-up is recognised as a limitation of this study.

**Confidence knowing what to do.** A mixed between-within subjects ANOVA found that there was a statistically significant main effect of time, $F(1, 179)=41.6$, $p<.0001$, on confidence in knowing what to do, and an interaction effect between time

and group $F(2, 179)= 7.4$, $p=.001$. There was a main effect of group on confidence with respect to knowing what to do, $F(2, 179)=3.5$, $p=.03$. There was a significant difference between the face-to-face group and waitlist controls ($p=.03$, Cohen's $d = .71$) and between the digital group and waitlist controls ($p=.04$, Cohen's $d=.41$) on pre- and post-training confidence in knowing what to do when a mental health concern is recognised.

**Actual reporting behaviour.** With regards to the face-to-face group compared to the waitlist controls, a chi-squared test for independence (with Yates Continuity Correction) indicated that there was no significant association between group (face-to-face and waitlist controls) and reporting mental health concerns (yes or no) prior to training, $\chi^2$ (1, n=132) = .00, $p=1.0$. There was also no significant association post-training, $\chi^2$ (1, n=108) = 1.94, $p=.16$, suggesting that the increase face-to-face participants reporting behaviour observed in Table 8 did not reach significance.

With regards to the digital group compared to the waitlist controls, a chi-squared test for independence (with Yates Continuity Correction) indicated that there was no significant association between group (digital and waitlist controls) and reporting mental health concerns (yes or no) prior to training, $\chi^2$ (1, n=139) = .79, $p=.38$. There was however a significant association post-training, $\chi^2$ (1, n=117) = 8.00, $p=.005$, suggesting digital participants reported significantly more concerns than waitlist controls post-training.

Table 8.
*Percentage of staff who reported identified mental health concerns*

| Group | Baseline | Follow-up |
|---|---|---|
| Face-to-face | 9.4% | 19.1% |
| Digital | 16.9% | 30.4% |

| | | |
|---|---|---|
| Waitlist control | 10.3% | 8.2%* |

**These data were collected at the post-training timepoint.*

**Hypothesis 4: There will be no difference in completion rates, preference or satisfaction between digital and face-to-face training.**

Completion, preference, and satisfaction results are reported in Table 9. A chi-squared test for independence (with Pearson) indicated that there was no significant association between group and completion rates, $\chi^2$ (3, n=120) =7.0, $p$=.07. However, it is possible that with a larger sample this result may approach significance. A chi-squared test for Independence (with Pearson) indicated that there was a significant association between group (face-to-face and digital) and training preference (face-to-face, digital, and no preference), $\chi^2$ (2, n=120) =14.6, $p$=.001, with participants preferring to receive face-to-face instead of digital training. Finally, a one-way between-groups ANOVA found that the face-to-face group was more satisfied with the training than the digital group, with a higher total TSRS score, $F$(1, 119)=31.9, $p$<.0001, $d$=1.04, and objectives and content ($F$(1, 119)=20.2, $p$<.0001), method ($F$(1, 119)=41.4, $p$<.0001), and usefulness ($F$(1, 119)=11.0, $p$=.001) subscale scores.

Table 9.

*Completion, preference and mean (SD) satisfaction ratings per training group*

| | Face-to-face | Digital | *p* |
|---|---|---|---|
| Completion rate: | | | |
| *All* | 100% (n=58) | 88.7% (n=55) | *ns* |
| *Most* | - | 8.1% (n=5) | |
| *Part* | - | 1.6% (n=1) | |
| *None* | - | 1.6% (n=1) | |

| | | | |
|---|---|---|---|
| Training preference: | | | |
| *Face-to-face* | 93.1% | 64.5% | .001 |
| *Digital* | 1.7% | 14.5% | |
| *No preference* | 5.3% | 21.0% | |
| | | | |
| Satisfaction (TSRS): | | | |
| *Objectives* | 13.7 (1.6) | 12.2 (2.1) | <.0001 |
| *Method* | 27.6 (2.8) | 22.7 (5.0) | <.0001 |
| *Usefulness* | 13.9 (1.4) | 12.7 (2.5) | .001 |
| *Total* | 55.2 (5.2) | 47.7 (8.8) | <.0001 |

Note: *ns*= non-significant

## Discussion

This is the first known "real-world" RCT evaluation that has successfully delivered a mental health literacy training across frontline staff in a paediatric hospital setting. The first aim of the study was to benchmark baseline mental health literacy levels against other professional groups and the second aim was to increase mental health literacy levels of frontline paediatric hospital staff using MindEd content that was delivered face-to-face or digitally.

Baseline mental health literacy rates suggested that frontline paediatric staff show lower mental health literacy levels than mental health professional and members of the clergy (who in turn show lower literacy levels than mental health professionals). Frontline paediatric staff showed higher mental health literacy rates than both a community sample and to UK medical students, who may have less exposure to mental health conditions than the above professionals. Interestingly, the paediatric staff showed similar levels of mental health literacy to teachers. Given the government's push for educating all primary and secondary school teachers in mental health awareness

(Department of Health and Social Care and Department of Education, 2017), this finding suggests that frontline paediatric staff may equally benefit from a child mental health literacy training programme to identify and support young people in receiving the appropriate care.

Results from the intervention showed that both digital and face-to-face approaches were successful in increasing mental health knowledge of depression and oppositional defiant disorder compared to waitlist controls. It was observed that baseline knowledge about depression was higher than knowledge of oppositional defiant disorder, something that has been observed in previous literature between depression and other lesser known mental health conditions, like schizophrenia (e.g. Bapat et al., 2009). Overall change in oppositional defiant disorder knowledge scores demonstrated a very large effect size for face-to-face ($d$=1.12) and digital ($d$=1.13) groups compared to waitlist controls.Changes in overall knowledge of depression showed moderate effect sizes for the face-to-face ($d$=.53) and digital ($d$=.74) groups relative to the waitlist controls. The effect sizes within the current study are among the largest reported from a brief training and are on par with less rigorous studies of a longer duration (e.g. Kidger et al., 2016; Kutcher et al., 2015; Kutcher et al., 2016). Aside from Martínez and colleagues (2015) who found a very large effect size ($d$=2.04), previous studies of a similar duration have either shown no change in knowledge (e.g. Moor et al., 2000; Moor et al., 2007), mixed effects (e.g. McVey et al., 2018), or have demonstrated a lesser (but still large) effect size of $d$=.8 (e.g. Barbaresi & Olsen, 1998). This suggests a real inconsistency in the impact a brief training can have on mental health knowledge and the need for further high quality RCTs to assess the generalisability of the current findings.

Stigma-related mental health knowledge (MAKS) and future behavioural discrimination against people with mental health problems (RIBS) scores decreased post-training across the face-to-face, digital and waitlist control groups. The reason for this finding is unclear, but one could speculate that mere exposure of being involved in the study, reflections post-baseline questionnaires, or perhaps liaising with colleagues who have participated in the training may have had some impact. It is possible that the questionnaires themselves may have an educating effect or participants might have been inspired to investigate some of the terms and conditions themselves between testing periods, which may question the sensitivity of these questionnaires to measure such constructs over time. Social desirability effects may also have been in play given that waitlist control participants received the training immediately after the second set of questionnaires. Jorm and colleagues (2010a) found an opposing effect, with waitlist control's post-training scores worsening over time and the intervention group improving over time. Such effects show the necessity of having a control group to allow for any re-test effects which are unconnected with the intervention.

The change in both constructs of stigma across the face-to-face and digital groups were shown to have large effect sizes when pre-post scores were compared within each group. Moderate effect sizes were found for the difference between pre-post in the waitlist control group. It is difficult to directly compare these results as other child mental health literacy training programs have measured different aspects of stigma and general attitudes towards mental health, however these effect sizes are similar to changes observed in attitudes towards mental health and treatment (e.g. Kidger et al., 2016;

Kutcher et al., 2013; Kutcher et al., 2015). There is a need for a more unified way of measuring the concept of stigma defined within the mental health literacy construct.

The MindEd training was also seen to improve face-to-face and digital participants' self-reported confidence in both recognising mental health concerns and knowing what to do when these concerns are recognised. Improved confidence was observed immediately post-training and furthermore at the two week follow-up timepoint for the intervention groups. The sustained effects could not be compared to the waitlist control group two weeks post-training as there was not a comparative follow-up timepoint for the controls. These results complement two other RCTs (Jorm et al., 2010a; Rose et al., 2017) and one case-series (Bapat et al., 2009) who found improvements in confidence to help young people following training. However, a further RCT and case series found no change in confidence following training (Kidger et al., 2016; Kutcher et al., 2016, respectively), which again suggests that further high quality studies are required to understand the impact that child mental health literacy training has on participants confidence to support a young person when concerns have been identified.

As discussed in the systematic review above (p.52), very few mental health training studies have investigated the real-world impact that training has had on young people in terms of access to support. Although it was through self-reported measures rather than objective measures, the digital MindEd training appeared to improve the proportion of participants who reported concerns to relevant professionals, such as escalating it to a line manager or speaking to a mental health care professional in the hospital. This finding supports previous research that indicates an increase in mental health knowledge and decrease stigma has the potential to increase appropriate help-

seeking actions amongst adults (Jorm, Blewitt, Griffiths, Kitchener, & Parslow, 2005; Rossetto, Jorm, & Reavley, 2014) and young people (Yap, Reavley, & Jorm, 2012; Jap & Jorm, 2011). Face-to-face participants also reported more concerns, however this did not differ significantly from the waitlist control group. A brief open ended question asking why participants did not act on concerns highlighted that there may need to be a strong emphasis on reassuring staff that they do not need to be in a healthcare role to be able to notice and report concerns, not to assume that someone else will have picked it up, and that it is not their role to determine if mental health is of a certain threshold of severity before raising a concern.

Previous child mental health literacy studies have reported mixed results with respect to a change in helping behaviours following training. Two have reported an increase in helping behaviours following training (Cheng et al., 2013; Kutcher et al., 2016), one demonstrated no change (Jorm et al., 2010a), and one reported lower helping behaviour within the academic year post-training (Kidger et al., 2016). The latter finding was not elaborated on by the authors but begs the question as to whether child mental health literacy training programs may have unintended negative consequences. One could posit that the more people who are mental health trained within an organisation, the more likely that a 'by-stander' type effect might come into play where responsibility for a child's mental wellbeing is diffused and staff assume another person will or already has identified the concern and acted in the appropriate manner. This reason for not reporting concerns about a child was mentioned by three people in current study. Another reason one participants suggested for not reporting concerns to the appropriate professionals was the idea that the presenting behaviour was not 'severe enough'. Future training programs

could aim to support professionals in differentiating between levels of severity (when appropriate within the context of their tole) and tailor their responses accordingly to meet the level of need, rather than dismissing the concerns because they do not meet a perceived threshold.

On the whole, participants were satisfied with the training across delivery methods but there was higher satisfaction and a significantly stronger preference to receive the training face-to-face. A brief open ended post-training feedback question suggest that the reasons for preference may be the typical comparators between traditional face-to-face and digital approaches reported in many studies, such as the interactive component of discussions, learning from others, and being able to ask questions (e.g. Zhang, Zhao, Zhou, & Nunamaker, 2004). There was a request across both groups to incorporate additional interactive components into the training such as audio, video clips, or role-plays as well as more in-depth information about different mental health conditions and case-studies. Although this may have the disadvantage of making the training longer, future studies could keep this in mind as well as provide participants with supplementary information that trainees can take away and share with colleagues, to increase chances of the training reaching a wider audience.

There were mixed views on how long the training should be, with the majority of feedback suggesting that the training should be longer than 3 hours. As seen in the systematic review (p. 42, Table 3), previous to face-to-face child mental health literacy trainings have ranged from 2-hours to 3-days, with the majority being a minimum of seven hours. However, despite this, both methods showed improvements across mental health knowledge and stigma within this time frame, with digital training also being

effective at improving help-seeking behaviour. These findings are in line with current research comparing the effectiveness of face-to-face and digital delivery methods (e.g. Means, Toyama, Murphy, Bakia, & Jones 2009; Sitzmann, Kraiger, Stewart, & Wisher, 2006). This suggests that the MindEd modules are a convenient and time-efficient way of improving mental health literacy in clinical and non-clinical frontline staff, at least in the short term. The large range of available MindEd modules means that professionals can select more tailored relevant modules that would better fit their role or interest. MindEd training could, and should, be included as part of the mandatory induction training for staff members as there is evidence to suggests that a whole systems approach is more effective in supporting people with mental health problems than targeting individual members of the system (Cohen, 2017; Killaspy, Harden, Holloway, & King, 2005).

This is the first known study to compare both delivery methods to a comparison group within the child literature, and as seen in the systematic review above, there are a very limited number of studies that have investigated the use of digital methods at all. A previous study compared the effectiveness of a web-based child mental health programme in comparison to the same program based on text and video material only to a waitlist control group in a randomised controlled trial (Pereira et al., 2014). The 'web-based program' was found to be most effective at improving knowledge of mental disorders than the 'text and video materials' group and waitlist control. The only difference between the two active training groups was access to a discussion forum and to web conferencing. This may indicate that these interactive components are related to greater improvements in knowledge gain. Another possible delivery method is a blended approach that incorporates both face-to-face and online components. Blended delivery

has been reported as preferable to traditional face-to-face delivery (Means et al., 2009) and digital learning (Sitzmann et al., 2006), but there are no known studies evaluating this method against face-to-face or digital mental health training.

As with all studies, particularly those conducted in 'real-world' settings (Proctor et al., 2009) there are a number of limitations to consider when interpreting the findings. Although a RCT design was implemented, the use of stratification variables such as clinical (e.g. nurses) versus non-clinical professions (e.g. receptionists), duration of time working in the hospital, and number of patients interacted with may have helped reduce the variance observed in the depression vignette baseline data and to more accurately assess the differences between MindEd and control groups on the proportion of mental health concerns that are picked up.

The study may also have benefited from controlling English literacy levels. One challenge that occurred during the running of the face-to-face group was the varying levels of literacy and prior exposure to mental health terminology. Future studies could consider ways for the training to be more accessible to all members of staff, particularly when English may not be a first language. MindEd modules that incorporate more interactive elements of video or use of imagery might enable the content to be even more accessible if they are unable to be translated into the users preferred language. The concept of mental health literacy itself is difficult to measure, possibly because the definition is interpreted differently between researchers (e.g. Jorm et al., 1997; Kutcher, Wei, McLuckie, & Bullock, 2013). It is very much an evolving construct that has been refined from Jorm and colleagues (1997) original definition of mental health literacy as "knowledge and beliefs about mental disorders which aid their recognition, management

or prevention" (p. 182) to incorporate the interrelationship between mental health knowledge, stigma and behaviour. Based on this understanding, mental health literacy could be conceptualised as three related but separate constructs, whereby a lack of knowledge may drive negative attitudes that then influence behaviour (Kutcher, Wei, & Coniglio, 2016).

A review of mental health literacy measures evaluating knowledge, stigma-related attitudes, and help-seeking was conducted and found that out of 401 mental health training studies that had been conducted, 69 knowledge measures had been used (14 validated), 111 stigma measures (65 validated), and 35 help-seeking related measures (10 validated), highlighting the complexities in measuring mental health literacy (Wei et al., 2015). Where possible, validated measures were selected to address the hypotheses of the current study, however, a limit of the study is that all outcome measures relied on self-report, which increases the possibility of social desirability bias. This is particularly important given that the face-to-face participants completed the post-training measures in the room with other participants and the trainer. To help alleviate this issue, the trainer sat away from participants, participants were spaced out so as not to see each other's responses, and unique identification numbers were used on questionnaires for reassurance of anonymity.

Though it is common practice within the mental health literacy literature, one might question whether using the same vignette at both timepoints may pose a threat to internal validity as improvements in knowledge could, for example, be attributed to participants conducting their own research between timepoints. Although this might suggest that change is not associated with the training content, it is unlikely to be the case

in this study as the face-to-face group completed the post-training measures immediately after training showing improvements in mental health knowledge and there was also no statistically significant difference between the control group scores across time.

The oppositional defiant disorder and depression vignette were selected as they represent one of the most common externalising and internalising presentation observed within the hospital. A limitation of this is that staff members did not receive an in-depth training on other common presentations (e.g. anxiety), which could mean these symptoms are not picked up as readily by staff. Selecting the 'What Goes Wrong' module was an attempt at addressing this issue as it discusses multiple presentations, but future studies could extend the training to include more presentations and use the other young person vignettes developed by Jorm and colleagues (e.g. Jorm, Wright, & Morgan, 2007b) to assess for change.

While the self-reports from participants support the hope that beneficiaries (i.e. young people) did receive helpful support, the evidence is only indirect. Future training studies would benefit from the collection of objective outcome data, specifically with respect to the impact the training has had on professionals taking appropriate actions when mental health concerns are recognised. This could be in the form of formal referrals made and accepted to mental health teams within the hospital or community support.

The lack of follow-up comparison in the waitlist control group confidence is another limitation of the study. Although the trend suggests that controls would not have shown a change in confidence scores at this timepoint, this cannot be inferred. Now that it has been shown possible to implement an RCT in a paediatric hospital across professionals, future studies would benefit from investigating the long-term benefits of

the MindEd training, completing a full battery of measures at each time point and increasing the follow-up time point to assess longevity. Some members of staff had been on annual leave or sick leave in the two weeks post-training, so it is possible that the true benefits of the training with regards to recognising and acting on concerns were not captured within this short window.

Existing research evidence demonstrates that short-term gains tend to decrease over time if not reinforced by additional inputs (Lipson, 2014) so perhaps incorporating an online refresher training course may produce better outcomes in the long-term than a single intervention. Furthermore, because knowledge assessments were tailored to the specific training content, unstandardised measures of overall knowledge and confidence were used which had unknown construct and predictive validity. Use of standardised measures in future evaluations of MindEd will be useful in benchmarking knowledge improvement against other training approaches. Future studies could also investigate other interesting avenues such as differences in mental health literacy rates or actions taken between paediatric professionals or between clinical and non-clinical staff. The heterogeneous sample group limited the investigation of such differences due to the small sample size of each professional group and concerns of increased type 1 error. The trial protocol should also have been published prior to recruitment to ensure transparency of results.

Finally, as it was not mandatory for participants to complete the training study, sampling was not representative of all frontline staff. Although the annual report of diversity suggests that age and gender of participants is representative of GOSH staff, other variables (e.g. literacy rates) may confound the external validity of the study in

terms of how generalisable the results are across all frontline professionals. Furthermore, the low attrition rates may suggest that participants' who volunteered for the study already had an interest in learning about child mental health literacy and therefore may not be representative of all frontline staff. Equally, mental health receives much publicity and research at GOSH, so it is possible that staff here may have had increased exposure to mental health and motivation to engage in the training relative to frontline staff in other hospitals.

## Conclusion

As the first known study to successfully deliver a brief mental health literacy training across frontline staff in a paediatric hospital setting. It is also the first study to evaluate the MindEd training content, directly compare face-to-face and digital child mental health literacy training to a waitlist control to assess mental health literacy, and to each other to determine acceptability in terms of completion rates, satisfaction, and preference. It is also one of the few randomised controlled trials that have looked at actual help-seeking behaviour post-training and have included a follow-up timepoint. Assessing participants' confidence of recognising and knowing what to do when problems are identified is also something that is largely missing from other youth mental health training programs that was addressed within this study.

Overall, this study provides promising findings that the MindEd training content is an effective way of improving mental health literacy of frontline paediatric hospital staff. The MindEd modules appear to be a time-effective and convenient way to target

mental health literacy among paediatric hospital staff. With over 1,300 modules available to freely access, this study shows that there is much promise in the impact that increased mental health literacy levels may have on early identification and support in accessing the appropriate services.

## Integration, Impact, and Dissemination

## Integration

### Conceptualisation of the systematic review

I wanted the review to conceptually and/or theoretically link to my proposed research study as closely as possible. Originally, I considered keeping the review specific to the paediatric setting by investigating the effectiveness of mental health training on paediatric staff and patients, however an a priori hand search suggested that there were not enough studies to justify such a review. Although a systematic review had been conducted by Booth and colleagues (2017) looking at the impact of adult and child mental health literacy training on non-mental health professionals, a closer review of this paper found many key studies to be omitted and the main interest was in reviewing the effect of training police in mental health literacy to inform the development of an upcoming randomised controlled trial (RCT). It was agreed with my supervisors that there was indeed a gap in the literature on understanding the effectiveness of child mental health training across different professionals who are in contact with children.

Originally only RCTs were going to be included as it was thought that this would provide a high-quality overview of the effectiveness of mental health literacy training. However, it became apparent that the majority of studies by many leading researchers in this field had in fact been case series and so the review was opened to all designs while noting the lack of high-quality research in this area. The heterogeneity between studies in terms of design, training content and duration, outcome measures, and attrition meant that it was not possible to conduct a meta-analysis.

No consensus has been reached on what constructs should be included as part of mental health literacy, which made defining the concept and selecting appropriate

measures rather challenging within the systematic review and empirical paper. These issues are critiqued by Spiker and Hammer (2018) who reflect on the confusion within the literature on defining mental health literacy, with some researchers arguing that mental health literacy is strictly about knowledge rather than attitudes or help-seeking behaviour (e.g. Chen et al., 2017), possibly accounting for why six of 21 (28.6%) studies in the systematic review only looked at this domain, and only three (14.3%) looked at components of mental health knowledge, attitudes towards mental health, and help-seeking behaviour. Before any global and meaningful conclusions regarding the effectiveness of 'mental health literacy' training programs can take place, the definition and associated constructs need to be clearly operationalised and agreed by researchers within the field.

**Synergy between the systematic review and empirical paper**

The systematic review identified that child mental health training did improve knowledge and attitudes towards mental health, with training having a larger impact on knowledge change than stigma. There was inconclusive evidence to determine whether training resulted in an increase in helping behaviour in terms of young people accessing mental health support. There were also not enough digital studies (n=2) to thoroughly assess the effectiveness of this delivery method and no studies had been completed with frontline hospital staff. This provided a conceptual basis for the empirical study and the proposed hypotheses that child mental health literacy training will improve mental health knowledge, decrease stigma, and improve professionals' confidence in recognising mental health concerns and knowing what to do. It also proved an opportune time to

investigate the preference, satisfaction, and completion rate of different delivery methods within this population.

In line with results from the systematic review, the empirical study found that the training did indeed improve mental health knowledge, confidence in recognising concerns and knowing what to do, in addition to an increase in reported helping behaviour (in the digital group). It also found that stigma across training and waitlist control groups decreased. The impact of training on stigma have had mixed results within other controlled studies (Jorm et al., 2010a; Pereira et al., 2014), suggesting the importance of a control group to help rule out other confounding variables.

The systematic review highlighted that only four studies looked at the impact of training on the ultimate beneficiaries (i.e. young people), each using different methods of assessment. It was important for me to address this overlooked component in the empirical study and evaluate the impact that the training has had on young people. On reflection, I added to heterogeneity within the literature by not measuring behaviour change in a standardised way. If I were to conduct the study again, I would have used objective measures, such as collecting referral data, using one of the 10 validated measures reviewed by Wei and colleagues (2015) to address this potential reporting bias.

**Recruitment to the empirical study**

Recruiting to an RCT can be challenging, particularly within a health care setting where time is often limited, which can result in reduced statistical power to detect effects and create bias sampling (Bucci et al., 2015). Common barriers to engagement in research often include time constraints, lack of reward (financial) and recognition, and

research being of insufficient interest or relevance to participants (Ross et al., 1999). The importance of building relationships with members of staff is considered a foundation to successful recruitment (Peckham et al., 2018). Having these points in mind, meetings were arranged with the support of my supervisor, with the line managers of the different profession groups to build relationships to enable recruitment of their staff. Aims, benefits (e.g. financial incentive, certificates of recognition), eligibility criteria, and barriers to participation were addressed in these meetings. This process engaged line managers, almost as champions of the research, which greatly helped with recruitment to advocate for the study, reinforce questionnaires to be complete, and arrange cover for their staff. Having an honorary contract is likely to have also helped, as I was seen to be working from within the hospital for the benefit of clients rather than as an external agent generating more work for staff.

Issues with time constraints were managed by increasing flexibility by running multiple training sessions at different times and days of the week, having a room that was easily accessible, and understanding that people may have to leave the training if they are 'bleeped'. Pressures were removed from line managers by setting up calendar invites and sending reminders to staff about the training and questionnaires. Reflecting on my approach to engagement and recruitment, I notice that it was quite a time consuming operation that may not have been possible if it were not for my availability to attend these meetings, have flexibility over my clinical days, and have a large personal investment in the study. Although digital training studies may be a cheaper alternative to classroom training that requires a trainer and a room, unless the issues of staff time constrains, rewards, recognition and vested interest are present, additional researcher time and

energy (and therefore cost) is a likely factor that may need to be held in mind when considering recruitment targets.

Although every effort was made to be as accommodating as possible, there were two professional groups who wanted to sign up to the research but were unable to due to the RCT design. Catering were very understaffed and would only have been able to complete the training online and there were concerns from the porter's line manager that reading online content and questionnaires would arouse distress for staff due to low English literacy levels. This made me reflect on how to make training as accessible as possible to all staff. Even if services save time and potentially money by delivering training online, if it is not in a format that is accessible to their staff then this is irrelevant. Ideally one may be able to select which training method they would prefer or have the option of tailored training (e.g. in their language or increased visual material) in order to provide meaningful training to specific groups.

**Methodology and analysis of the empirical study**

A number of measures were omitted from the empirical study that would have been interesting to include, specifically a measure of stigmatised attitudes pre- and post-training and completing the Mental Health Literacy Scale (O'Connor & Casey, 2015) again post-training. A balance had to be made based on the number of measures that staff could realistically complete that would not deter them from engaging in the follow-up measures and using measures that accurately reflected the training content, while still adding valid information to the literature. When reflecting on the low attrition rates within each group, I believe that having this balance of relevant questionnaires per

timepoint may have contributed in helping to keep participants motivated to continue with the study as the duration of questionnaire completion reduced at each timepoint.

The process of selecting measures has highlighted the need for more standardised child mental health literacy measures, with improved reliability and validity, that capture the three components of literacy (i.e. knowledge, stigma, and help-seeking efficacy) in the one measure. There will be times when professionals may need to undergo training on specific mental health conditions, and there is a gap in the literature for disorder specific mental health literacy measures. In the feedback to the training, one participant noted that the stigma questionnaire was too generic, and that how they would respond to someone with depression would be different to someone with a diagnosis of schizophrenia. These gaps are important to address so that we can begin to evaluate the increasing number of local, national, and international disorder specific and general child mental health literacy trainings in a systematic and standardised way.

There are many more analyses that could have been investigated given the collected data, but for concerns regarding type 1 error were not investigated. For example, it would be interesting to know whether there were any moderating factors such as length of time at GOSH, role, or any demographic information that would make it more likely for the training to impact mental health literacy levels, whether helping behaviour is associated with a change in knowledge, stigma and/or confidence levels, or whether there were any differences between clinical and non-clinical staff in terms of literacy and confidence levels. This would help identify how training could be best tailored for different professional roles. It was unlikely that any findings would have been generalisable within this study given the small sample size of each professional group. A

much larger sample size would also be needed if the two active training groups were to be directly compared.

Overall, the study was also very time consuming on an administrative level for a period of seven months. Thinking about high attrition rates of previous RCTs (e.g. Kidger et al., 2016; Pereira et al., 2014), future studies again need to factor the need for a research assistant who can respond to recruitment emails, confirm eligibility criteria, send the information sheet consent form, and baseline questionnaires, send participants were sent reminders to attend the face-to-face  training, complete the questionnaires in advance, and re-arrange training dates at short notice to accommodate staff.

Furthermore, I noticed some participants completing only half of the questionnaire on Qualtrics, so a word version of the measures was developed that could be emailed to participants. Although this ultimately involved more data entry upon completion of the study (and more time and cost in a future study), on reflection, this and administration time dedicated to the study, may have contributed to the low attrition rates as participants could stop and start the questionnaire when interrupted at work without losing their progress or print it out and scan it back. This is supported by a Ebert and colleagues (2018) who found that response rate were lower when a survey was to be completed online compared to on paper, however costs do need to be taken into consideration when deciding which method to use as web-based questionnaire completion were found to be more cost-effective by a factor of 10.

**Dual role of clinician and researcher**

Another aspect for reflection was my position as a researcher and a clinician, particularly when I was delivering the face-to-face training. When getting to know the participants in the room, I would ask what led them to sign up to the study. For many people, there was a personal reason for attending the training as they themselves or someone they know has experienced mental illness or was a patient at GOSH. There were times when participants asked for advice on their own children's mental health, about their colleague, or about concerns they had about their own parents. I remember being quite conscious of not wanting to steer the conversation away from the specific training material (so it remained comparable to the digital group) but also feeling the pull to reassure and provide participants with information that would be helpful for them to know. This sometimes involved acknowledging someone's question and asking that they speak to me upon completion of the training.

Furthermore, as a clinician I often work using the Power Threat Meaning framework (Johnstone et al., 2018) rather than using disorder specific formulations. This fits with the concept of understanding a client's symptoms in terms of their context rather than conceptualising them under diagnostic labels. However, offering a training that helps professionals to recognise symptoms of specific mental health conditions, I was quite conscious that this conflicted with my clinical practice and I noticed the urge to almost dismiss the label and spend more time helping professionals to understand the reasons *why* someone might be presenting in a certain way when it came to thinking about factors that make someone more vulnerable to developing a mental health problems. This is a critique of mental health literacy training in general, where we take

the stance that people lack literacy and need educating in Western psychiatric and psychological concepts. This issue has been discussed in length by Derek Summerfield (2008; 2012), who argues that we marginalise indigenous knowledge systems and traditional forms of healing in addition to locating distress within the individual rather than considering the wider social and moral disruptions that are in play. This begs the question as to whether deficit-based mental health literacy training programs are the best way to support professionals in helping young people access appropriate forms of support. Perhaps engaging more service users in co-designing and co-producing training programs, rather than user involvement that stops at the consultation stage (as in my empirical study) may be more appropriate so that services are designed in partnership with people who have relevant lived experience.

## Impact

### Beneficiaries and benefits

Young people with chronic physical health conditions are up to six times more likely to develop mental health problems than their physically healthy peers. The Five Year Forward View (NHS England, 2014) and the Governments-Response to the Five Year Forward View for Mental Health (Department of Health and Social Care, 2017) highlight the importance of increasing mental health literacy among professionals who have contact with children to improve detection of mental health problems and promote early intervention in addition to supporting the development of parity of esteem between mental and physical health. Access to treatment can be delayed if professionals hold stigmatised beliefs and do not have the knowledge or skills to recognise early-warning

signs (Reavley, Morgan, & Jorm, 2014). Steps have been taken to improve workforce-skills (e.g. The Children and Young People's Improving Access to Psychological Therapies programme; CYP-IAPT) however no action has been taken until now to improve the child mental health literacy of frontline staff in paediatric hospitals.

As discussed above, this was the first known formal evaluation of the MindEd content to improve mental health literacy of professionals who are in contact children or adolescents. Given the positive findings in this study, there is now empirical evidence for the effectiveness of MindEd material in increasing mental health literacy, including supporting young people to get appropriate support. For example, in the follow-up questionnaire, one participant said:

> I recognised a parent was having difficulty with attachment to her child following the training. When I was in the room, she was very detached from her baby and would not comfort/settle them and I had to encourage her to feed him. I spoke to my line manager and I have introduced a local Early Help Support Service for early intervention and mum now has emotional/psychology support which she is finding helpful. She has helped me with strategies to be able to work alongside mum and support her as much as possible.

These results can be used to further promote the MindEd website among non-mental health professionals and the feedback from the training (e.g., increasing interactive components) can be used to improve and tailor modules in line with professional needs and requirements in order to reach a larger proportion of people in contact with children. Not only are these modules a time-efficient way of increasing

mental health literacy, digital training provides a convenient way to transmit knowledge and skills, particularly within the current climate where services are often under time pressures and stretched, making it difficult to release staff for face-to-face training.

**Maximising and evidencing the impact**

The last number of years have seen policy change in relation to increasing mental health awareness and support within schools. Following the recommendations from Future in Mind (Department of Health, 2015) and the Five-Year Forward View for Mental Health (Mental Health Taskforce, 2016), the recent Green Paper (Department of Health and Social Care and Department of Education, 2017) reports that every school will have a designated senior lead for mental health. This champion will be the identified link between the school and child and adolescent mental health services, providing rapid advice, consultation, and signposting. An emphasis has also been placed on a whole school approach to promoting wellbeing and early identification of mental health problems, ensuring that one member of staff in every primary and secondary school receives training in mental health awareness, and including content on recognising typical development and responding to atypical development in initial teacher training. Reflecting on the changes being put in place for schools, one could propose that the same structure be implemented within paediatric hospitals.

Heath Education England (2019) has recently recommended that each NHS organisation should create a new board-level role to promote the mental health wellbeing of their staff. However, there does not appear to be an equivalent position for promoting wellbeing amongst clients in hospital. It could therefore be recommended that paediatric

hospitals establish the equivalent of a school mental health champion within each ward of the hospital, or among each professional group, so that young people can be provided similar advice, consultation, and appropriate signposting that has been proposed within schools.

The results from the current study show that the MindEd modules can be used as an effective free resource to promote awareness of mental health and wellbeing among frontline hospital staff. The impact of the training could be capitalised by incorporating the training into the mandatory staff induction packages that each new staff member must complete and pass before progressing onward. This would ensure that all professionals have the same basic knowledge and skills, regardless of role. As discussed above, this fits with evidence suggesting that whole systems approach more effective in supporting people with mental health problems than targeting individual members of the system (Cohen, 2017; Killaspy, Harden, Holloway, & King, 2005). It would also be relatively straight forward to include MindEd modules onto the list of digital courses that staff members need to review and pass on an annual basis, akin to clinical governance refresher courses, as to ensure the positive effects of training are maintained (Lipson, 2014).

Another way to target professional groups is to include specific MindEd modules in the curriculum of incoming staff (e.g. healthcare assistants) who train at the hospital. Akin to pre-service teachers receiving training on typical and atypical child development, modules could be selected to best suit the role or the clinical group that they will be supporting and can be evaluated using disorder specific outcome measures that link to the

training; ideally ones developed by designers of each module that reflects the learning objectives.

## Dissemination

Dissemination is a crucial component of research that allows for findings to be communicated to those involved as well as the wider public. Findings of the empirical study have been presented by my internal supervisor (Dr Helen Pote) in February 2019 at a symposium to prominent researchers in the mental health literacy field (Jorm and his colleagues) at the Melbourne School of Population and Global Health, Australia. My external supervisor (Professor Roz Shafran) also presented some of the results during an internal talk entitled 'Psychological Services Research Committee' at the Institute of Child Health at GOSH in October 2018. The empirical study has also been presented to the current trainee clinical psychologists at Royal Holloway, University of London in May 2019. Given that my findings support of effectiveness of digital mental health literacy training methods, I would like to also present the findings at the European Society for Research on Internet Interventions (ESRII) or The International Society for Research on Internet Interventions (ISRII) in 2020, in addition to having the systematic review and empirical paper published in a relevant journals, such as Early Intervention in Psychiatry and BMC Psychiatry, respectively.

I had the unique opportunity to disseminate information about the design and development of the MindEd training when I was also approached in December 2018 by a practice educator for mental health at GOSH (Mr Jack Levine) who wanted to implement structured mental health study days for hospital staff across the Trust (see Appendix 11).

Jack was seeking advice on implementing a staff mental health training program using the knowledge that I had gained from the empirical project. We had a 30-minute telephone consultation about the MindEd content that is already available that he could potentially use, standardised ways to measure change in mental health literacy, and my personal reflections on delivering face-to-face trainings in the context of a hospital setting. Speaking with Jack again in April 2019, I learned that he successfully piloted two mental health study days for staff within the hospital and is looking establish regular protected time throughout the year dedicated to increasing mental health awareness within the Trust.

Finally, a discussion of how best to disseminate the results to participants and beneficiaries will be held with research collaborators and the young person's advisory group. A one-page summary of the research study and findings may be the most appropriate way to disseminate to these groups. The summary could be emailed to line managers and participants involved in the study. I will contact the Lead for Patient and Public Involvement and Engagement in Research within the hospital and provide this summary to the young person's advisory group who supported with the development of the study and also identify whether it would be appropriate to upload the summary of findings to their website for patients and families.

## References


Aarons, G. A., Monn, A. R., Leslie, L. K., Garland, A. F., Lugo, L., Hough, R. L., & Brown, S. A. (2008). Association between mental and physical health problems in high-risk adolescents: A longitudinal study. *Journal of Adolescent Health*, *43*(3), 260-267.

Anderson, M., Werner-Seidler, A., King, C., Gayed, A., Harvey, S. B., & O'Dea, B. (2018). Mental Health Training Programs for Secondary School Teachers: A Systematic Review. *School Mental Health*, *1*(2), 1-20.

Andersson, G., Cuijpers, P., Carlbring, P., Riper, H., & Hedman, E. (2014). Guided Internet-based vs. face-to-face cognitive behavior therapy for psychiatric and somatic disorders: A systematic review and meta-analysis. *World Psychiatry*, *13*(3), 288-295.

Ajzen, I. (1988). *Attitudes, personality, and behaviour.* Milton Keynes, UK: Open University Press.

Bapat, S., Jorm, A., & Lawrence, K. (2009). Evaluation of a mental health literacy training program for junior sporting clubs. *Australasian psychiatry*, *17*(6), 475-479.

Barbaresi, W. J., & Olsen, R. D. (1998). An ADHD educational intervention for elementary schoolteachers: A pilot study. *Journal of Developmental and Behavioral Pediatrics*, *19*(2), 94-100.

Bingham, H., & O'Brien, A. J. (2018). Educational intervention to decrease stigmatizing attitudes of undergraduate nurses towards people with mental illness. *International journal of mental health nursing*, *27*(1), 311-319.

Bond, K. S., Jorm, A. F., Kitchener, B. A., & Reavley, N. J. (2015). Mental health first aid training for Australian medical and nursing students: an evaluation study. *BMC Psychology, 3*(1), 11-20.

Bond, K. S., Jorm, A. F., Kitchener, B. A., & Reavley, N. J. (2016). Mental Health First Aid training for Australian financial counsellors: An evaluation study. *Advances in Mental Health, 14*(1), 65-74.

Booth, A., Scantlebury, A., Hughes-Morley, A., Mitchell, N., Wright, K., Scott, W., & McDaid, C. (2017). Mental health training programmes for non-mental health trained professionals coming into contact with people with mental ill health: A systematic review of effectiveness. *BMC psychiatry, 17*(1), 196.

Breslin, G., Shannon, S., Haughey, T., Donnelly, P., & Leavey, G. (2017). A systematic review of interventions to increase awareness of mental health and well-being in athletes, coaches and officials. *Systematic reviews, 6*(1), 177.

Brijnath, B., Protheroe, J., Mahtani, K. R., & Antoniades, J. (2016). Do web-based mental health literacy interventions improve the mental health literacy of adult consumers? Results from a systematic review. *Journal of Medical Internet Research, 18*(6), 1-11.

British Medical Association. (2017). *Breaking down barriers: the challenge of improving mental health outcomes*. UK: British Medical Association.

Bucci, S., Butcher, I., Hartley, S., Neil, S. T., Mulligan, J., & Haddock, G. (2015). Barriers and facilitators to recruitment in mental health services: Care coordinators' expectations and experience of referring to a psychosis research

trial. *Psychology and Psychotherapy: Theory, Research and Practice*, *88*(3), 335-350.

Burns, S., Crawford, G., Hallett, J., Hunt, K., Chih, H. J., & Tilley, P. M. (2017). What's wrong with John? A randomised controlled trial of Mental Health First Aid (MHFA) training with nursing students. *BMC Psychiatry*, *17*(1), 111-123.

Carr, W., Wei, Y., Kutcher, S., & Heffernan, A. (2018). Preparing for the classroom: Mental health knowledge improvement, stigma reduction and enhanced help-seeking efficacy in Canadian preservice teachers. *Canadian Journal of School Psychology*, *33*(4), 314-326.

Chen, S., Wu, Q., Qi, C., Deng, H., Wang, X., He, H., ... & Liu, T. (2017). Mental health literacy about schizophrenia and depression: a survey among Chinese caregivers of patients with mental disorder. *BMC psychiatry*, *17*(1), 89.

Cheng, C., deRuiter, W. K., Howlett, A., Hanson, M. D., & Dewa, C. S. (2013). Psychosis 101: Evaluating a training programme for northern and remote youth mental health service providers. *Early intervention in psychiatry*, *7*(4), 442-450.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.

Cohen, M. (2017). A systemic approach to understanding mental health and services. *Social Science & Medicine*, *191*(1), 1-8.

Cook, D. A., Levinson, A. J., Garside, S., Dupras, D. M., Erwin, P. J., & Montori, V. M. (2008). Internet-based learning in the health professions: a meta-analysis. *Jama*, *300*(10), 1181-1196.

Corkum, P., Elik, N., Blotnicky-Gallant, P. A., McGonnell, M., & McGrath, P. (2019). Web-based intervention for teachers of elementary students with ADHD: Randomized controlled trial. *Journal of attention disorders*, *23*(3), 257-269.

Corrigan, P. W., & Watson, A. C. (2007). The stigma of psychiatric disorders and the gender, ethnicity, and education of the perceiver. *Community mental health journal*, *43*(5), 439-458.

Davies, E. B., Beever, E., & Glazebrook, C. (2018). A pilot randomised controlled study of the mental health first aid eLearning course with UK medical students. *BMC Medical Education*, *18*(1), 45-57.

Davies, S., Heyman, I., & Goodman, R. (2003). A population survey of mental health problems in children with epilepsy. *Developmental medicine and child neurology*, *45*(5), 292-295.

Day, J. (2002). The Effect of Race on the Diagnosis of Oppositional Defiant Disorder. *Information Analyses*, *70*(1), 1 - 47.

Department of Health and Social Care and Department for Education. (2017). *Transforming Children and Young People's Mental Health Provision: A Green Paper*. Retrieved from https://www.gov.uk/government/consultations/transforming-children-and-young-peoples-mental-health-provision-a-green-paper

Department of Health and Social Care. (2017). *The Government's response to the Five Year Forward View for Mental Health*. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/582120/FYFV_mental_health__government_response.pdf

Department of Health. (2015). *Future in mind: Promoting, protecting and improving our children and young people's mental health and wellbeing.* Retrieved from https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/414024/Childrens_Mental_Health.pdf

Dickens, G. L., Hallett, N., & Lamont, E. (2016). Interventions to improve mental health nurses' skills, attitudes, and knowledge related to people with a diagnosis of borderline personality disorder: Systematic review. *International journal of nursing studies*, *56*, 114-127

Dunham, K. (2004). Young adults' support strategies when peers disclose suicidal intent. *Suicide and Life-Threatening Behavior*, *34*(1), 56-65.

Durcan., G. (2016). Mental Health and Criminal Justice: Views from consultations across England & Wales. London: Centre for Mental Health. Retrieved from https://socialcare.wales/research-and-data/research-on-care-finder/mental-health-and-criminal-justice-views-from-consultations-across-england-and-wales

Ebert, J. F., Huibers, L., Christensen, B., & Christensen, M. B. (2018). Paper or web-based questionnaire invitations as a method for data collection: Cross-sectional comparative study of differences in response rate, completeness of data, and financial cost. *Journal of medical Internet research*, *20*(1), 1-26.

El-Den, S., O'reilly, C. L., Chen, T. F., & Moles, R. (2016). the development of mental health vignettes to assess the mental health first aid skills of final year Bpharm students. *Research in Social and Administrative Pharmacy*, *12*(5), e44.

Eustache, E., Gerbasi, M. E., Fawzi, M. S., Fils-Aimé, J. R., Severe, J., Raviola, G. J., ... & Pierre, E. L. (2017). Mental health training for secondary school teachers in

Haiti: A mixed methods, prospective, formative research study of feasibility, acceptability, and effectiveness in knowledge acquisition. *Global Mental Health*, *4*(1), 1-16.

Evans-Lacko, S., Little, K., Meltzer, H., Rose, D., Rhydderch, D., Henderson, C., & Thornicroft, G. (2010). Development and psychometric properties of the mental health knowledge schedule. *The Canadian Journal of Psychiatry*, *55*(7), 440-448.

Evans-Lacko, S., London, J., Japhet, S., Rüsch, N., Flach, C., Corker, E., ... & Thornicroft, G. (2012). Mass social contact interventions and their effect on mental health related stigma and intended discrimination. *BMC public health*, *12*(1), 489.

Evans-Lacko, S., Rose, D., Little, K., Flach, C., Rhydderch, D., Henderson, C., & Thornicroft, G. (2011). Development and psychometric properties of the reported and intended behaviour scale (RIBS): a stigma-related behaviour measure. *Epidemiology and Psychiatric Sciences*, *20*(3), 263-271.

Fountain, R. L. (2017). *Is Knowing Half the Battle? The Effects of Acceptance and Commitment Therapy Compared to Psychoeducation on Stigma Towards Mental Illness.* (Unpublished Masters thesis). Murray State University, Kentucky, USA.

Gabbidon, J., Clement, S., van Nieuwenhuizen, A., Kassam, A., Brohan, E., Norman, I., & Thornicroft, G. (2013). Mental Illness: Clinicians' Attitudes (MICA) Scale—Psychometric properties of a version for healthcare students and professionals. *Psychiatry research*, *206*(1), 81-87.

Giangreco, A., Sebastiano, A., & Peccei, R. (2009). Trainees' reactions to training: An analysis of the factors affecting overall satisfaction with training. *The International Journal of Human Resource Management, 20*(1), 96–111.

Goffman, E. (1963). *Stigma: Notes on the Management of Spoiled Identity.* Englewood Cliffs, NJ: Prentice-Hall.

Goodman, A., Joyce, R., & Smith, J. P. (2011). The long shadow cast by childhood physical and mental problems on adult life. *Proceedings of the National Academy of Sciences, 108*(15), 6032-6037.

Graham, I. D., Logan, J., Harrison, M. B., Straus, S. E., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in knowledge translation: time for a map? *Journal of continuing education in the health professions*, *26*(1), 13-24.

Gulliver, A., Griffiths, K. M., & Christensen, H. (2010). Perceived barriers and facilitators to mental health help-seeking in young people: a systematic review. *BMC psychiatry*, *10*(1), 113.

Hadlaczky, G., Hökby, S., Mkrtchian, A., Carli, V., & Wasserman, D. (2014). Mental Health First Aid is an effective public health intervention for improving knowledge, attitudes, and behaviour: a meta-analysis. *International Review of Psychiatry*, *26*(4), 467-475.

Hart, L. M., Mason, R. J., Kelly, C. M., Cvetkovski, S., & Jorm, A. F. (2016). 'teen Mental Health First Aid': a description of the program and an initial evaluation. *International journal of mental health systems, 10*(1), 1-18.

Health Education England. (2019). *NHS Staff and Learners' Mental Wellbeing Commission.* Retrieved from

https://www.hee.nhs.uk/sites/default/files/documents/NHS%20%28HEE%29%20-%20Mental%20Wellbeing%20Commission%20Report.pdf

Higgins, J. P. T., Sterne, J. A. C., Savović, J., Page, M. J., Hróbjartsson, A., Boutron, I., ... & Eldridge, S. (2016). A revised tool for assessing risk of bias in randomized trials. *Cochrane Database Syst Rev*, *10*(1), 29-31.

Holgado-Tello, F. P., Chacon-Moscoso, S., Barbero-Garcia, I., & Sanduvete-Chaves, S. (2006). Training satisfaction rating scale: development of a measurement model using polychoric correlations. *European Journal of Psychological Assessment*, *22*(4), 268-279.

Hussein, S. A., & Vostanis, P. (2013). Teacher training intervention for early identification of common child mental health problems in Pakistan. *Emotional and Behavioural Difficulties*, *18*(3), 284-296.

Johnstone, L., Boyle, M., Cromby, J., Dillon, J., Harper, D., Kinderman, P., & Read, J. (2018). *The power threat meaning framework*. UK: British Psychological Society. Retrieved from https://www.bps.org.uk/sites/bps.org.uk/files/Policy/Policy%20-%20Files/PTM%20Framework%20%28January%202018%29_0.pdf

Jorm, A. F. (2012). Mental health literacy: empowering the community to take action for better mental health. *American Psychologist*, *67*(3), 231.

Jorm, A. F., & Wright, A. (2007). Beliefs of young people and their parents about the effectiveness of interventions for mental disorders. *Australian and New Zealand Journal of Psychiatry*, *41*(8), 656-666.

Jorm, A. F., Blewitt, K. A., Griffiths, K. M., Kitchener, B. A., & Parslow, R. A. (2005). Mental health first aid responses of the public: Results from an Australian national survey. *BMC psychiatry, 5*(1), 1-9.

Jorm, A. F., Kitchener, B. A., Fischer, J. A., & Cvetkovski, S. (2010b). Mental health first aid training by e-learning: A randomized controlled trial. *Australian & New Zealand Journal of Psychiatry, 44*(12), 1072-1081.

Jorm, A. F., Kitchener, B. A., O'Kearney, R., & Dear, K. B. (2004). Mental health first aid training of the public in a rural area: a cluster randomized trial. *BMC Psychiatry, 4*(1), 33-42.

Jorm, A. F., Kitchener, B. A., Sawyer, M. G., Scales, H., & Cvetkovski, S. (2010a). Mental health first aid training for high school teachers: a cluster randomized trial. *BMC Psychiatry, 10*(1), 51-63.

Jorm, A. F., Korten, A. E., Jacomb, P. A., Christensen, H., Rodgers, B., & Pollitt, P. (1997). "Mental health literacy": a survey of the public's ability to recognise mental disorders and their beliefs about the effectiveness of treatment. *Medical Journal of Australia, 166*(4), 182-186.

Jorm, A. F., Wright, A., & Morgan, A. J. (2007). Where to seek help for a mental disorder? *Medical Journal of Australia, 187*(10), 556-560.

Kelly, C. M., Jorm, A. F., & Wright, A. (2007). Improving mental health literacy as a strategy to facilitate early intervention for mental disorders. *Medical Journal of Australia, 187*(7), 26-30.

Kelly, C. M., Kitchener, B. A., & Jorm, A. F. (2010). *Youth mental health first aid manual* (2nd ed). Melbourne: Orygen Youth Health Research Centre.

Kelly, C. M., Mithen, J. M., Fischer, J. A., Kitchener, B. A., Jorm, A. F., Lowe, A., & Scanlan, C. (2011). Youth mental health first aid: a description of the program and an initial evaluation. *International Journal of Mental Health Systems*, *5*(1), 1-9.

Kidger, J., Stone, T., Tilling, K., Brockman, R., Campbell, R., Ford, T., ... & Gunnell, D. (2016). A pilot cluster randomised controlled trial of a support and training intervention to improve the mental health of secondary school teachers and students–the WISE (Wellbeing in Secondary Education) study. *BMC public health*, *16*(1), 1060.

Killaspy, H., Harden, C., Holloway, F., & King, M. (2005). What do mental health rehabilitation services do and what are they for? A national survey in England. *Journal of mental health*, *14*(2), 157-165.

Kitchener, B. A., & Jorm, A. F. (2002). Mental health first aid training for the public: evaluation of effects on knowledge, attitudes and helping behavior. *BMC psychiatry*, *2*(1), 10.

Kitchener, B. A., & Jorm, A. F. (2004). Mental health first aid training in a workplace setting: a randomized controlled trial. *BMC Psychiatry*, *4*(1), 23-31.

Knaak, S., Mantler, E., & Szeto, A. (2017). Mental illness-related stigma in healthcare: Barriers to access and care and evidence-based solutions. *Healthcare Management Forum*, *30*(2), 111-116.

Knapp, M., McDaid, D., & Parsonage, M. (2011). Mental health promotion and mental illness prevention: The economic case. Retrieved from

http://eprints.lse.ac.uk/39303/1/Mental_health_promotion_and_mental_illness_prevention(author).pdf

Kutcher, S. (2009). *The mental health and high school curriculum: Understanding mental health and mental illness*. Halifax, NS: The Printing House Limited.

Kutcher, S., Gilberds, H., Morgan, C., Greene, R., Hamwaka, K., & Perkins, K. (2015). Improving Malawian teachers' mental health knowledge and attitudes: An integrated school mental health literacy approach. *Global Mental Health*, *2*(1), 1-10.

Kutcher, S., Wei, Y., & Coniglio, C. (2016). Mental health literacy: past, present, and future. *The Canadian Journal of Psychiatry*, *61*(3), 154-158.

Kutcher, S., Wei, Y., Gilberds, H., Ubuguyu, O., Njau, T., Brown, A., ... & Perkins, K. (2016). A school mental health literacy curriculum resource training approach: Effects on Tanzanian teachers' mental health knowledge, stigma and help-seeking efficacy. *International journal of mental health systems*, *10*(1), 50.

Kutcher, S., Wei, Y., McLuckie, A., & Bullock, L. (2013). Educator mental health literacy: A programme evaluation of the teacher training education on the mental health & high school curriculum guide. *Advances in school mental health promotion*, *6*(2), 83-93.

Langley, A., Nadeem, E., Kataoka, S., Stein, B., & Jaycox, L. (2010). Evidence-based mental health programs in schools: Barriers and facilitators of successful implementation. *School Mental Health*, *2*(3), 105-113.

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., ... & Moher, D. (2009). The PRISMA statement for reporting systematic reviews

and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *PLoS medicine*, *6*(7), 1-34.

Lipson, S. K. (2014). A comprehensive review of mental health gatekeeper-trainings for adolescents and young adults. *International Journal of Adolescent Medicine and Health*, *26*(1), 309-320.

Lipson, S. K., Speer, N., Brunwasser, S., Hahn, E., & Eisenberg, D. (2014). Gatekeeper training and access to mental health care at universities and colleges. *Journal of Adolescent Health*, *55*(5), 612-619.

Liu, G., Jack, H., Piette, A., Mangezi, W., Machando, D., Rwafa, C., ... & Abas, M. (2016). Mental health training for health workers in Africa: a systematic review. *The Lancet Psychiatry*, *3*(1), 65-76.

Loades, M. E., & Mastroyannopoulou, K. (2010). Teachers' recognition of children's mental health problems. *Child and Adolescent Mental Health*, *15*(3), 150-156.

Martínez, V., Espinosa, D., Zitko, P., Marín, R., Schilling, S., Schwerter, C., & Rojas, G. (2015). Effectiveness of the workshop "Adolescent depression: What can schools do?". *Frontiers in psychiatry*, *6*(1), 67.

Marwood, M. S., & Hearn, J. (2018). *Evaluating mental health literacy in UK medical students*. Unpublished raw data. Retrieved from http://php.nhs.uk/wp-content/uploads/sites/26/2018/10/Stream-L-Marrison-Strank-1.pdf

McVey, G., Gusella, J., Tweed, S., & Ferrari, M. (2008). A controlled evaluation of web-based training for teachers and public health practitioners on the prevention of eating disorders. *Eating Disorders*, *17*(1), 1-26.

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). *Evaluation of evidence-based practices in online learning: A meta-analysis and review of online learning studies*. Retrieved from http://repository.alt.ac.uk/629/1/US_DepEdu_Final_report_2009.pdf

Mental Health Taskforce. (2016). *The five year forward view for mental health.* Retrieved from https://www.england.nhs.uk/wp-content/uploads/2016/02/Mental-Health-Taskforce-FYFV-final.pdf

Mind. (2016). *Better equipped, better care Improving mental health training for GPs and practice nurses*. Retrieved from https://www.mind.org.uk/media/5063246/find-the-words-report-better-equipped-better-care.pdf

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Annals of internal medicine*, *151*(4), 264-269.

Moor, S., Ann, M., Hester, M., Elisabeth, W. J., Robert, E., Robert, W., & Caroline, B. (2007). Improving the recognition of depression in adolescence: Can we teach the teachers? *Journal of adolescence*, *30*(1), 81-95.

Moor, S., Sharrock, G., Scott, J., McQueen, H., Wrate, R., Cowan, J., & Blair, C. (2000). Evaluation of a teaching package designed to improve teachers' recognition of depressed pupils—a pilot study. *Journal of adolescence*, *23*(3), 331-342.

Moore, A., & Gammie, J. (2018). *Revealed: Hundreds of children wait more than a year for specialist help*. Retrieved from https://www.hsj.co.uk/quality-and-performance/revealed-hundreds-of-children-wait-more-than-a-year-for-specialist-help/7023232.article

Morgan, A. J., Ross, A., & Reavley, N. J. (2018). Systematic review and meta-analysis of Mental Health First Aid training: Effects on knowledge, stigma, and helping behaviour. *PloS one*, *13*(5), e0197102.

Murphy, M., & Fonagy, P. (2012). *Mental health problems in children and young people*. London: Department of Health.

National Institute for Mental Health in England. (2003). *Inside outside: Improving mental health services for black and minority ethnic communities in England*. London, UK: National Institute for Mental Health in England.

NHS England. (2014). *Five Year Forward View*. Retrieved from www.england.nhs.uk/wp-content/uploads/2014/10/5yfv-web.pdf

Nutbeam, D., Wise, M., Bauman, A., Harris, E., & Leeder, S. (1993). *Goals and Targets for Australia's Health in the Year 2000 and Beyond: Report Prepared for the Commonwealth Department of Health, Housing & Community Services*. Sydney: Public Health Department.

O'Connor, M., & Casey, L. (2015). The Mental Health Literacy Scale (MHLS): A new scale-based measure of mental health literacy. *Psychiatry research*, *229*(1-2), 511-516.

Offer, D., Howard, K. I., Schonert, K. A., & Ostrov, E. (1991). To whom do adolescents turn for help? Differences between disturbed and nondisturbed adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry*, *30*(4), 623-630.

Parry-Langdon, N., Clements, A., Fletcher, D., & Goodman, R. (2008). *Three years on: survey of the development and emotional well-being of children and young people.* UK: Office for National Statistics.

Peckham, E., Arundel, C., Bailey, D., Callen, T., Cusack, C., Crosland, S., ... & McCloud, T. (2018). Successful recruitment to trials: findings from the SCIMITAR+ Trial. *Trials*, *19*(1), 53.

Pereira, C. A., Wen, C. L., Miguel, E. C., & Polanczyk, G. V. (2015). A randomised controlled trial of a web-based educational program in child mental health for schoolteachers. *European child & adolescent psychiatry*, *24*(8), 931-940.

Pinquart, M., & Shen, Y. (2011). Behavior problems in children and adolescents with chronic physical illness: a meta-analysis. *Journal of pediatric psychology*, *36*(9), 1003-1016.

Powers, J. D., Wegmann, K., Blackman, K., & Swick, D. C. (2014). Increasing awareness of child mental health issues among elementary school staff. *Families in Society*, *95*(1), 43-50.

Proctor, E. K., Landsverk, J., Aarons, G., Chambers, D., Glisson, C., & Mittman, B. (2009). Implementation research in mental health services: an emerging science with conceptual, methodological, and training challenges. *Administration and Policy in Mental Health and Mental Health Services Research*, *36*(1), 24-34.

Reavley, N. J., Morgan, A. J., & Jorm, A. F. (2014). Development of scales to assess mental health literacy relating to recognition of and interventions for depression, anxiety disorders and schizophrenia/psychosis. *Australian & New Zealand Journal of Psychiatry*, *48*(1), 61-69.

Rice, S. M., Purcell, R., & McGorry, P. D. (2018). Adolescent and young adult male mental health: transforming system failures into proactive models of engagement. *Journal of Adolescent Health*, *62*(3), S9-S17.

Rose, T., Leitch, J., Collins, K. S., Frey, J. J., & Osteen, P. J. (2017). Effectiveness of youth mental health first aid USA for social work students. *Research on Social Work Practice*, *29*(3), 291-302.

Ross, S., Grant, A., Counsell, C., Gillespie, W., Russell, I., & Prescott, R. (1999). Barriers to participation in randomised controlled trials: a systematic review. *Journal of clinical epidemiology*, *52*(12), 1143-1156.

Rossetto, A., Jorm, A. F., & Reavley, N. J. (2014). Examining predictors of help giving toward people with a mental illness: results from a national survey of Australian adults. *SAGE Open*, *4*(2), 1-11.

Rüsch, N., Evans-Lacko, S. E., Henderson, C., Flach, C., & Thornicroft, G. (2011). Knowledge and attitudes as predictors of intentions to seek help for and disclose a mental illness. *Psychiatric Services*, *62*(6), 675-678.

Sadler, K., Vizard, T., Ford, T., Marchesell, F., Pearce, N., Mandalia, D., ... & Goodman, R. (2018). *Mental Health of Children and Young People in England, 2017*. Retrieved from https://dera.ioe.ac.uk/32622/1/MHCYP%202017%20Summary.pdf

Saunders, T. (2019). *Evaluating the effectiveness, usability and feasibility of MindAid, a digital mental health first aid training tool for secondary school teachers.* (Unpublished Doctoral thesis). Royal Holloway, University College London, Surrey, UK.

Sitzmann, T., Kraiger, K., Stewart, D., & Wisher, R. (2006). The comparative effectiveness of web-based and classroom instruction: A meta-analysis. *Personnel psychology*, *59*(3), 623-664.

Spiker, D. A., & Hammer, J. H. (2018). Mental health literacy as theory: current challenges and future directions. *Journal of Mental Health*, *28*(3), 238-234.

Summerfield, D. (2008). How scientifically valid is the knowledge base of global mental health? *The British Medical Journal, 336*, 992–994.

Summerfield, D. (2012). Afterword: Against 'global mental health'. *Transcultural Psychiatry, 49*(3–4), 519–530

Suryavanshi, M. S., & Yang, Y. (2016). Peer Reviewed: Clinical and Economic Burden of Mental Disorders Among Children with Chronic Physical Conditions, United States, 2008–2013. *Preventing Chronic Disease*, *13*(71), 1-10.

Svensson, B., & Hansson, L. (2014). Effectiveness of mental health first aid training in Sweden. A randomized controlled trial with a six-month and two-year follow-up. *PLoS One*, *9*(6), 1-6.

Vermaas, J. D., Green, J., Haley, M., & Haddock, L. (2017). Predicting the mental health literacy of clergy: An informational resource for counselors. *Journal of Mental Health Counseling*, *39*(3), 225-241.

Vieira, M. A., Gadelha, A. A., Moriyama, T. S., Bressan, R. A., & Bordin, I. A. (2014). Evaluating the effectiveness of a training program that builds teachers' capability to identify and appropriately refer middle and high school students with mental health problems in Brazil: an exploratory study. *BMC public health*, *14*(1), 210-221.

Wei, Y., & Kutcher, S. (2014). Innovations in Practice: ‘Go-to’Educator Training on the mental health competencies of educators in the secondary school setting: a program evaluation. *Child and Adolescent Mental Health*, *19*(3), 219-222.

Wei, Y., Hayden, J. A., Kutcher, S., Zygmunt, A., & McGrath, P. (2013). The effectiveness of school mental health literacy programs to address knowledge, attitudes and help seeking among youth. *Early Intervention in Psychiatry*, *7*(2), 109-121.

Wei, Y., Kutcher, S., Hines, H., & MacKay, A. (2014). Successfully embedding mental health literacy into Canadian classroom curriculum by building on existing educator competencies and school structures: the mental health and high school curriculum guide for secondary schools in Nova Scotia. *Literacy Information and Computer Education Journal*, *5*(3), 1649-1654.

Wei, Y., McGrath, P. J., Hayden, J., & Kutcher, S. (2015). Mental health literacy measures evaluating knowledge, attitudes and help-seeking: a scoping review. *BMC psychiatry*, *15*(1), 291.

Wilkins, D. & Kemple, M. (2011). *Delivering Male Effective Practice in Male Mental Health.* UK: Men’s Health Forum.

Wright, A., & Jorm, A. F. (2009). Labels used by young people to describe mental disorders: Factors associated with their development. *Australian and New Zealand Journal of Psychiatry*, *43*(10), 946-955.

Yamaguchi, S., Foo, J. C., Nishida, A., Ogawa, S., Togo, F., & Sasaki, T. (2019). Mental health literacy programs for school teachers: A systematic review and narrative synthesis. *Early intervention in psychiatry*, *10*(1), 1-12.

Yap, M. B. H., & Jorm, A. F. (2012). Young people's mental health first aid intentions and beliefs prospectively predict their actions: Findings from an Australian national survey of youth. *Psychiatry Research*, *196*(2-3), 315-319.

Yap, M. B. H., Reavley, N. J., & Jorm, A. F. (2012). Intentions and helpfulness beliefs about first aid responses for young people with mental disorders: Findings from two Australian national surveys of youth. *Journal of affective disorders*, *136*(3), 430-442.

Zhang, D., Zhao, J. L., Zhou, L., & Nunamaker Jr, J. F. (2004). Can e-learning replace classroom learning? *Communications of the ACM*, *47*(5), 75-79.

Zingg, W., Castro-Sanchez, E., Secci, F. V., Edwards, R., Drumright, L. N., Sevdalis, N., & Holmes, A. H. (2016). Innovative tools for quality assessment: integrated quality criteria for review of multiple study designs (ICROMS). *Public Health*, *133*(1), 19-37.

## Appendices

## Appendix 1

## Sample Search strategy (Medline)

| # | Searches | Results |
|---|---|---|
| 1 | child/ | 1599383 |
| 2 | adolescent/ | 1912958 |
| 3 | exp young adult/ | 719639 |
| 4 | pediatrics/ | 50640 |
| 5 | student/ | 51865 |
| 6 | exp pupil/ | 9022 |
| 7 | exp minors/ | 2489 |
| 8 | (child* or adolesc* or teen* or young person* or minor* or young people or pediatric* or paediatric* or youth or juvenile or emerging adult or young adult or student or pupil or young men or young males or young women or young females).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 3849705 |
| 9 | 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 | 3862362 |
| 10 | exp teacher/ or exp school teacher/ | 796 |
| 11 | exp sport/ | 169216 |
| 12 | exp social worker/ | 378 |
| 13 | exp hospital personnel/ | 87746 |
| 14 | exp medical staff/ | 26608 |
| 15 | exp nurse/ | 84053 |
| 16 | exp nursing assistant/ or exp health care personnel/ or exp nursing staff/ | 67273 |
| 17 | exp health visitor/ | 713 |
| 18 | exp physician/ | 126346 |
| 19 | exp general practitioner/ | 6686 |
| 20 | exp emergency police dispatcher/ or exp police/ | 4686 |
| 21 | exp pediatrician/ | 575 |
| 22 | (teacher or educator or coach or club leader or social worker or hospital staff or frontline staff or hospital employee or nurse or health care assistant or support worker or health visitor or resident advisor or physician or doctor or general practitioner or police or pediatrician or paediatrician or | 742615 |

| | | |
|---|---|---|
| | play worker or professional*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | |
| 23 | 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 | 1063240 |
| 24 | (mental health adj3 training).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 1017 |
| 25 | (mental health adj3 training program*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 121 |
| 26 | (mental health adj3 training course).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 13 |
| 27 | (mental health adj3 training package).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 4 |
| 28 | (mental health adj3 training resource).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 0 |
| 29 | (mental health adj3 teaching).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 104 |
| 30 | (mental health adj3 teaching program*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 4 |
| 31 | (mental health adj3 teaching course).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, | 0 |

| | | |
|---|---|---|
| | keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | |
| 32 | (mental health adj3 teaching package).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 0 |
| 33 | (mental health adj3 teaching resource).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 0 |
| 34 | (mental health adj3 educat*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 1389 |
| 35 | (mental health adj3 educat* program*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 79 |
| 36 | (mental health adj3 educat* course).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 0 |
| 37 | (mental health adj3 educat* package).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 1 |
| 38 | (mental health adj3 educat* resource).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 3 |
| 39 | (mental health adj3 learning program*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 3 |

| | | |
|---|---|---|
| 40 | (mental health adj3 learning course).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 2 |
| 41 | (mental health adj3 learning package).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 0 |
| 42 | (mental health adj3 learning resource).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 2 |
| 43 | mental health training.mp. | 310 |
| 44 | mental health literacy training.mp. | 5 |
| 45 | mental health literacy intervention.mp. | 4 |
| 46 | mental health literacy teaching.mp. | 0 |
| 47 | mental health first aid.mp. | 95 |
| 48 | MHFA.mp. | 35 |
| 49 | mental health awareness training.mp. | 5 |
| 50 | mental health promotion.mp. | 561 |
| 51 | mental illness prevention.mp. | 23 |
| 52 | mental illness training.mp. | 4 |
| 53 | 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 | 3056 |
| 54 | exp Mental Health/ | 32863 |
| 55 | exp Mental Disorders/ | 1158322 |
| 56 | (mental health or mental illness or mental disorder or mental disease or psychiatric illness or psychosis or schizophrenia or psychotic disorder or behaviour disorder or behavioral disorder or mood disorder or communication disorder or personality disorder or emerging personality disorder or bipolar disorder or bipolar affective disorder or depression or anxiety disorder or eating disorder or anorexia or bulimia or disordered eating or adhd or attention deficit hyperactivity disorder or attention deficit disorder or conduct disorder or oppositional defiant disorder or autism or autism spectrum disorder or learning disabilities or intellectual disabilities or mental retardation or learning difficulties or special needs or obsessive compulsive disorder or ptsd or post traumatic stress disorder or panic disorder or phobic disorder or social anxiety disorder or social phobia or | 768628 |

| | | |
|---|---|---|
| | social anxiety or generalised anxiety disorder or generalized anxiety disorder or separation anxiety disorder or attachment disorder).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | |
| 57 | 54 or 55 or 56 | 1460999 |
| 58 | exp questionnaire/ | 939307 |
| 59 | (questionnaire* or question* or survey*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms] | 1285946 |
| 60 | 58 or 59 | 1668338 |
| 61 | 9 and 23 and 53 and 57 and 60 | 210 |

## Appendix 2

### Newsletter recruitment advert

**Free training:** We are offering a free child mental health awareness training for frontline hospital staff who have regular contact with patients but no formal training in mental health. The training will help to you to recognise common mental health problems, understand why they may develop and know what you can do to act on your concerns. To help us understand which training method is most effective, you will be randomly allocated to receive either a 3 hour face-to-face, online training (to be completed within 2 weeks) or a control group (that will receive the training in 2-weeks) and will be required to complete some questionnaires before and after training.

**Benefits?** (1) The skills you learn will be transferable across your professional and personal life, (2) you will receive a certificate upon completion that will count towards your Continuing Professional Development, (3) you will be entered into a draw to win £100 upon completion of the post-training questionnaires, and (4) your contribution will help us to demonstrate the importance of making child mental health awareness training mandatory at GOSH.

Please email Jennifer.OConnell@gosh.nhs.uk with the subject heading "Mental health training" if you are interested in signing up.

## Appendix 3

### Debrief email and additional information

Dear ,

Thank you very much for participating in the Basic child mental health awareness training study at Great Ormond Street Hospital (ethics number 238067). I am enclosing your certificates of completion of the 'What Goes Wrong' and 'Mind and Body: The Interface' MindEd modules and you have been in entered into a draw for a chance to win £100. I will be in touch once the study has concluded to announce the winner.

These MindEd modules were selected for this training study to provide a broad overview of common mental health conditions and to highlight the overlap between mental and physical health, given the context that you work in. However, there are over 1,300 MindEd modules freely available from the MindEd website (www.MindEd.org.uk<http://www.MindEd.org.uk>) that may be more tailored for your individual role or interests. Please see the enclosed attachment to learn more about the MindEd educational resource available for professionals and for families and young people.

I also wanted to highlight that there is a free mental health drop-in centre in the hospital reception (by the pharmacy). Many young people and their families that experience problems with how they are feeling and behaving do not have access to services that they might find helpful. This facility, called the "Lucy Project", is part of a research project that aims to increase access to mental health and psychological services. You can find out more about this facility on their website: https://gospsychmed.wixsite.com/drop-in-centre/contact-us

Kind regards,
Jennifer

### Additional MindEd modules that are available

MindEd is a free educational resource on children and young people's mental health for all adults who have contact with children and young people. The 'What goes wrong' and 'Mind and Body: The interface' modules were selected for this training study to provide a broad overview of common mental health conditions and to highlight the overlap between mental and physical health, given the context that you work in. However, there are over

1,300 MindEd modules freely available that may be more tailored for your individual role or interests.

To support you in making the best use of the vast MindEd website (www.minded.org.uk), this information session has been developed. Click the link - > click 'play' -> click 'continue' https://www.minded.org.uk/LearningContent/LaunchForGuestAccess/512992

- **For Professionals & Volunteers**

This section is for you if you volunteer, work or are studying to work with infants, children or teenagers. MindEd has e-learning applicable across the health, social care, education, criminal justice and community settings. It is aimed at anyone from beginner through to specialist. See the table below for a list of suitable modules.

Click here for a catalogue of modules: https://www.minded.org.uk/catalogue/TileView

*MindEd also has a section for Parent/Carers and young people that you can signpost families to:*

- **For Parents/carers and young people**

Are you a parent or carer who is concerned about the mental health of your child or teenager? Do you just want some hints and tips on parenting? MindEd for Families has advice and information from trusted experts and will help you to understand what problems occur, what you can do to best support your family, and how to take care of yourself. MindEd for Families is written by a team of specialists and parents, working together.

Click here: https://mindedforfamilies.org.uk/young-people

*MindEd has also launched additional resources for the mental health and wellbeing of older people:*

- **For older people**

Are you concerned about the mental health of an older family member, parent or grandparent? Or are you concerned about your own mental health as you get older? MindEd for Families has advice and information from trusted experts and will help you to understand what problems occur, what you can do to take care of yourself, and your family. MindEd for Families is written by a team of specialists and older people, working together.

Click here: https://mindedforfamilies.org.uk/older-people

Below is a list of some MindEd modules that are currently available and suitable for professionals. You can find them, and more specialised content, using the catalogue here: https://www.minded.org.uk/Catalogue/TileView

**MindEd Core Content (Universal)**

| Introducing the MindEd content | Normal Psychological Development | Common Problems and First Help | Problems for specific ages and Vulnerable groups |
|---|---|---|---|
| Supporting Young Healthy Minds: Making Best Use of MindEd | Introducing Child Development | Mental Health and Well-being | Presentations - An Introduction |
| People Working in Child Mental Health | Attachment and Human Development | Mindfulness | Preschool Presentations |
| | Development of Children's Thinking | What Goes Wrong? | Primary School Presentations |
| | Developing Play and Language | Sad, Bored or Isolated | Secondary School Presentations |
| | Emotional Development | The Loner | Easily and Dangerously Missed Presentations |
| | Family Life Cycle | Autism and Related Problems | Vulnerable Groups - An Overview |
| | Child Developmental Theories | Avoiding School and Social Isolation | Complex Neurodevelopmental Problems |
| | Development of Morals | The Worried Child | Mild to Severe Learning Disability |
| | Social Development | Sleep Difficulties | Hard to Reach Families |
| | How Environment Affects Children's Mental Health | Sleep Issues in Teenagers | Children Adopted or In Care |
| | Assessing Infants and Mothers | The Aggressive/Difficult Child | Chronic Disability; Child Carers |

| | | | |
|---|---|---|---|
| | Supporting Infants and Mothers | Mood Swings and Muddled Thinking | Victims Including Domestic Abuse |
| | | Self-harm and Risky Behaviour | CYP in Criminal Justice |
| | | Loss and Grief | Assessing Infants and Mothers |
| | | Substance Misuse | Supporting Infants and Mothers |
| | | Sexualised Behaviour | |
| | | Tics and Twitches | |
| | | Unexplained Physical Symptoms | |
| | | Eating Problems | |
| | | Family Relationship Problems | |
| | | Flashbacks, Trauma, Bullying | |
| | | Poor Concentration and Overactivity 1 | |
| | | Poor Concentration and Overactivity 2 | |
| | | Sexuality and Mental Health | |
| | | Working With Strong Emotions | |
| | | Mind and Body: The Interface | |
| | | Children and Young People's Digital Lives | |

| Providing Care in the Right Way | Collaborative Working | Therapy Techniques | Cultural and legal Issues | Keeping the Body in Mind - Universal and Specialist Audience |
|---|---|---|---|---|
| People Working in Child Mental Health | Communicating With Families | Assessing Infants and Mothers | Culture, Beliefs and Mental Health | Physical Health - Promotion and Risks |
| Continuity and Coherence in Thinking | Listening Skills | Supporting Infants and Mothers | Spirituality, Religion and Mental Health | Unexplained Physical Symptoms |
| Wrap Around Approach | Engaging Children and Young People | Some Specialised Therapies | Legal and Ethical Framework | Mind and Body: The Interface |
| Designing Home/Community Interventions | Motivation and Empowerment | Medication and Children and Young People | Safeguarding | Tics and Twitches |
| Designing School and Hospital Interventions | The Expert Young Person | Working With Strong Emotions | The Children Act | Sleep Difficulties |
| Designing Interventions in Justice Settings | Acceptable, Accessible Services | Mind and Body: The Interface | The Mental Health Act | Sleep Issues in Teenagers |
| Taking a History | Achieving Collaboration | Assessing Infants and Mothers | Children and Young People's Digital Lives | Impacts of Hospital Admission on Children and Families |
| Basic Diagnosis | Empowering Children and Young People to Improve Outcomes | Supporting Infants and Mothers | Online Risk And Resilience | Impacts of Paediatric Intensive and High Dependency Care |
| Using Careful Observations | Evidence to Inform Practice | Some Specialised Therapies | Online Safety and Wellbeing: Getting the Focus Right | |

| | | | | |
|---|---|---|---|---|
| Understanding Psychometric Assessments | Monitoring Change: Important for Client and Professional | Medication and Children and Young People | | |
| Putting Information Together | Measuring What Happens | Working With Strong Emotions | | |
| | Using Measures in Treatment | Mind and Body: The Interface | | |
| | Supervising Practice | | | |

# Appendix 4

## Health Research Authority and Clinical Research Adoption Committee

## Ethics approval

NHS
Health Research Authority

Professor Roz Shafran
UCL Great Ormond Street Institute of Child Health
30 Guildford Street
London
WC1N 1EH

Email: hra.approval@nhs.net

21 March 2018

Dear Professor Shafran

**Letter of HRA Approval**

| | |
|---|---|
| **Study title:** | **Evaluating the effectiveness of traditional and digital training in improving child mental health literacy rates in frontline staff at Great Ormond Street Hospital** |
| **IRAS project ID:** | **238067** |
| **Sponsor** | **Royal Holloway, University of London** |

I am pleased to confirm that **HRA Approval** has been given for the above referenced study, on the basis described in the application form, protocol, supporting documentation and any clarifications received. You should not expect to receive anything further from the HRA.

**How should I continue to work with participating NHS organisations in England?**
You should now provide a copy of this letter to all participating NHS organisations in England, as well as any documentation that has been updated as a result of the assessment.

Following the arranging of capacity and capability, participating NHS organisations should **formally confirm** their capacity and capability to undertake the study. How this will be confirmed is detailed in the "*summary of HRA assessment*" section towards the end of this letter.

You should provide, if you have not already done so, detailed instructions to each organisation as to how you will notify them that research activities may commence at site following their confirmation of capacity and capability (e.g. provision by you of a 'green light' email, formal notification following a site initiation visit, activities may commence immediately following confirmation by participating organisation, etc.).

It is important that you involve both the research management function (e.g. R&D office) supporting each organisation and the local research team (where there is one) in setting up your study. Contact details of the research management function for each organisation can be accessed here.

**How should I work with participating NHS/HSC organisations in Northern Ireland, Scotland and Wales?**
HRA Approval does not apply to NHS/HSC organisations within the devolved administrations of Northern Ireland, Scotland and Wales.

UCL INSTITUTE OF CHILD HEALTH

Great Ormond Street Hospital for Children NHS Trust

Joint Research and Development Office
Division of Research and Innovation

08.01.2018

Jennifer O'Connell
Trainee Clinical Psychologist
Royal Holloway, University of London

**PI:** Dr Helen Pote
**R&D number:** 18PP12
**Title:** Evaluating the effectiveness of traditional and digital training in improving child mental health literacy rates in frontline staff at Great Ormond Street Hospital

Dear Jennifer,

We were pleased to review your application and have no objections to the conduct of this project at GOSH.

You will shortly be contacted by R&D Governance who will support you through the process of obtaining the necessary approvals before your project can begin. You must not commence your project before receiving R&D approval. Please find attached further information regarding the next stages in the research administration process.

**Decision: Approval**

Regards,

Owen J. Arthurs

Dr Owen Arthurs
**Chair**
**Clinical Research Adoption Committee**

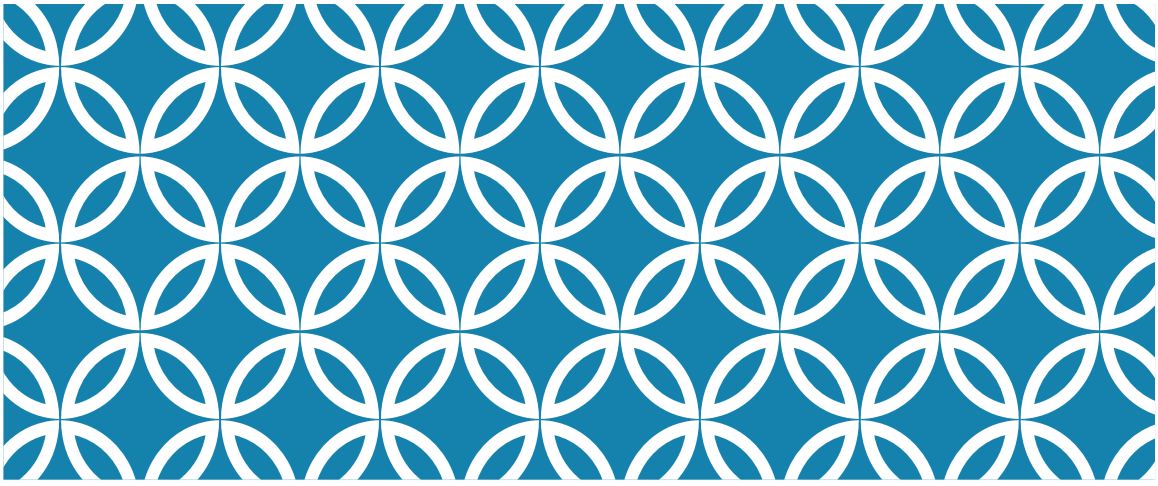
Joint Research and Development Office
Division of Research and Innovation
UCL Institute of Child Health, 30 Guilford Street, London WC1N 1EH
Tel: 020 7905 2700 Fax: 020 7905 2201
www.gosh.nhs.uk

The child first and always

**Appendix 5**

**Child mental health literacy training**

(Double click on electronic copy to access)



CHILD MENTAL HEALTH AWARENESS TRAINING FOR FRONTLINE STAFF

Prepared by Jennifer O'Connell
using MindEd content
Trainee Clinical Psychologist
Jennifer.OConnell@gosh.nhs.uk

## Appendix 6

## Outcome measures

### Demographics

**1. What is your gender?** Male ☐ Female ☐ Other ☐

**2. How old are you?** (in years) _____

**3. Please choose one option that best describes your ethnic group or background**

**White**
☐English / Welsh / Scottish / Northern Irish / British
☐Irish
☐Gypsy or Irish Traveller
☐Any other White background, please describe
_____

**Mixed / Multiple ethnic groups**
☐White and Black Caribbean
☐White and Black African
☐White and Asian
☐Any other Mixed / Multiple ethnic background, please describe
_____

**Asian/Asian British**
☐Indian
☐Pakistani
☐Bangladeshi
☐Chinese
☐Any other Asian background, please describe
_____

Black/ African/Caribbean/Black British
☐African
☐Caribbean

☐Any other Black / African / Caribbean background, please describe
_____

**Other ethnic group**
☐Arab
☐Any other ethnic group, please describe _____

**4. What is your religion?**

☐No religion
☐Christian (all denominations)
☐Buddhist
☐Hindu
☐Jewish
☐Muslim
☐Sikh
☐Any other religion, please describe
_____
☐Prefer not to say

**5. How many years have you been in education? _____**

**6. How long have you worked at Great Ormond Street Hospital? _____**

**7. What is your job title? _____**

**8. How many patients do you interact with in your average week at GOSH?** (Please provide an estimated number) _____

**9. Approximately how many hours a week do you work at GOSH? _____**

**10. Have you had any specialist training in child and adolescent mental health?**
☐Once off training
☐Multiple ad hoc training sessions
☐A Long course
☐None
☐Other, please specify _____

Gabriel is a 9-year-old boy living with his mother, father and three sisters. He is often disobedient at home and school. He never seems to feel guilty after misbehaving. He frequently destroys his things, and steals, and has run away from home at least six times. He regularly gets into fights and seems to only hang around children who get into trouble. He has physically attacked others twice his size. Gabriel argues with everyone. He doesn't get along with his sisters or any of the children in the neighbourhood. He is mean and cheats whenever he plays with them. He's always swearing, having temper tantrums, and threatening people. Gabriel frequently destroys his sister's belongings. He also breaks articles of furniture in the home and other things that don't belong to him. He's mostly irritable and stubborn. Gabriel is a patient of Great Ormond Street Hospital.

**1. What would you call the problem that Gabriel is presenting with? _____**

**2. Do you think that Gabriel has a mental health condition?** Yes ☐ No ☐ Don't know ☐

**3. If Gabriel was a child you came across in the hospital, how concerned would you be about his wellbeing?**

| Not at all concerned | A little concerned | Moderately concerned | Quite a bit concerned | Extremely concerned |
|---|---|---|---|---|
| | | | | |

**4. List 5 symptoms that are concerning**

| |
|---|
| |

**5. Imagine Gabriel was acting this way in GOSH. Can you think of 3 reasons why he might be like this?**

| | |
|---|---|
| i | |
| ii | |
| iii | |

**6. If you are concerned about Gabriel, what would you do? (<u>Select one or more options from the answers below</u>)**

☐It is not my role to identify and report concerns I have about children. This is for medical staff to identify and respond to.

☐Speak with my line manager about my concerns. They will raise it with the relevant professionals

☐Ignore him, Gabriel is acting out for attention.

☐ Privately think that his parents need to be more hands on

☐Have the urge to tell him to 'snap out of it'

☐Voice my concerns directly to the department of child and adolescent mental health services at the hospital

☐If I am aware of the professional the patient is seeing, inform them directly of my concerns

☐ Inform the parent that there is specialist mental health support available in the hospital

**7. How confident would you feel about speaking to your line manager regarding your concerns about Gabriel?**

| Not at all confident | A little confident | Moderately confident | Quite a bit confident | Extremely confident |
|---|---|---|---|---|
| | | | | |

Justine is a 15-year-old who has been feeling unusually sad and miserable for the last few weeks. She is tired all the time and has trouble sleeping at night. Justine doesn't feel like eating and has lost weight. She can't keep her mind on her studies and her marks have dropped. She puts off making any decisions and even day-to-day tasks seem too much for her. Her parents and friends are very concerned about her. Justine is a patient at Great Ormond Street Hospital.

**1. What would you call the problem that Justine is presenting with? _____**

**2. Do you think that Justine has a mental health condition?** Yes ☐ No ☐ Don't know ☐

**3. If Justine was a young person you came across in the hospital, how concerned would you be about her wellbeing?**

| Not at all concerned | A little concerned | Moderately concerned | Quite a bit concerned | Extremely concerned |
|---|---|---|---|---|
| | | | | |

**4. List 5 symptoms that are concerning**

| |
|---|
| |

**5. Imagine Justine was acting this way in GOSH. Can you think of 3 reasons why she might be like this?**

| | |
|---|---|
| i | |
| ii | |
| iii | |

**6. If you were concerned about Justine, what would you do? (Select one or more options from the answers below)**

☐It is not my role to identify and report concerns I have about children. This is for the medical staff to identify and respond to.

☐Speak with my line manager about my concerns. They will raise it with the relevant professionals

☐Ignore her, Justine is acting out for attention.

☐ Privately think that her parents need to be more hands on

☐ Have the urge to tell her to 'snap out of it'

☐Voice my concerns directly to the department of child and adolescent mental health services at the hospital

☐If I am aware of the professional the patient is seeing, inform them directly of my concerns

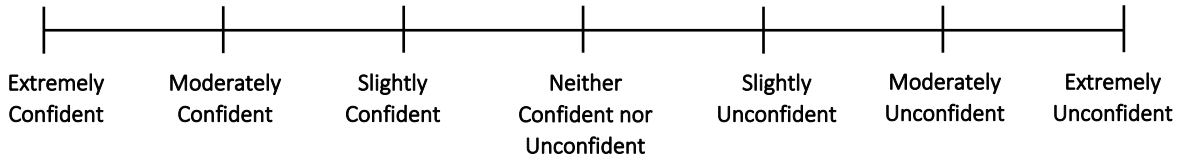
☐ Inform the parent that there is specialist mental health support available in the hospital

**7. How confident would you feel about speaking to your line manager regarding your concerns about Justine?**

| Not at all confident | A little confident | Moderately confident | Quite a bit confident | Extremely confident |
|---|---|---|---|---|
| | | | | |

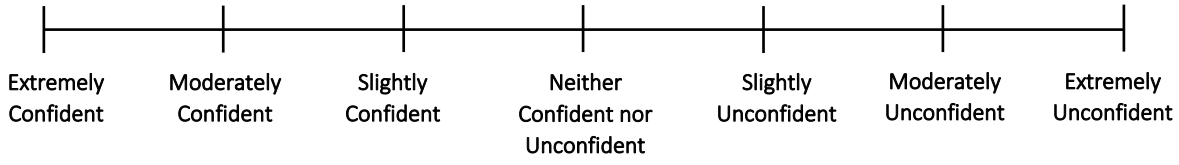
**Visual Analogue Scales**

1. How confident are you are at **recognising** mental health problems in patients at GOSH?




2. How many patients have you **recognised** as having mental health difficulties in the past two weeks? (Please provide an estimated number) _____

3. How confident do you think you are at knowing **what to do** when you recognise mental health problems in patients?




4. Have you reported concerns about a patient you have had to your line manager in the past two weeks? Yes ☐ No ☐ N/a- I have not recognised any concerns☐

5. How many times have you reported a concern about a patient in the past two weeks? (Please provide an estimated number)**.** (Write N/A if Q4 was not applicable) _____

6. Please describe your reason for acting (or not acting) on these concerns? (Write N/A if Q4 was not applicable)

_____
_____
_____

## Mental Health Literacy Scale

The purpose of these questions is to gain an understanding of your knowledge of various aspects to do with mental health. When responding, we are interested in your degree of knowledge. Therefore when choosing your response, consider that:

Very unlikely = I am certain that it is NOT likely

Unlikely = I think it is unlikely but am not certain

Likely = I think it is likely but am not certain

Very Likely = I am certain that it IS very likely

1
If someone became extremely nervous or anxious in one or more situations with other people (e.g., a party) or performance situations (e.g., presenting at a meeting) in which they were afraid of being evaluated by others and that they would act in a way that was humiliating or feel embarrassed, then to what extent do you think it is likely they have **Social Phobia**

Very unlikely Unlikely Likely Very Likely

2
If someone experienced excessive worry about a number of events or activities where this level of concern was not warranted, had difficulty controlling this worry and had physical symptoms such as having tense muscles and feeling fatigued then to what extent do you think it is likely they have **Generalised Anxiety Disorder**

Very unlikely Unlikely Likely Very Likely

3
If someone experienced a low mood for two or more weeks, had a loss of pleasure or interest in their normal activities and experienced changes in their appetite and sleep then to what extent do you think it is likely they have **Major Depressive Disorder**

Very unlikely Unlikely Likely Very Likely

4
To what extent do you think it is likely that **Personality Disorders** are a category of mental illness

Very unlikely Unlikely Likely Very Likely

5
To what extent do you think it is likely that **Dysthymia** is a disorder

Very unlikely Unlikely Likely Very Likely

6
To what extent do you think it is likely that the diagnosis of **Agoraphobia** includes anxiety about situations where escape may be difficult or embarrassing

Very unlikely Unlikely Likely Very Likely

7
To what extent do you think it is likely that the diagnosis of **Bipolar Disorder** includes experiencing periods of elevated (i.e., high) and periods of depressed (i.e., low) mood

Very unlikely Unlikely Likely Very Likely

8
To what extent do you think it is likely that the diagnosis of **Drug Dependence** includes physical and psychological tolerance of the drug (i.e., require more of the drug to get the same effect)

Very unlikely Unlikely Likely Very Likely

9
To what extent do you think it is likely that in general in the U.K., **women are MORE likely to experience a mental illness of any kind compared to men**

Very unlikely Unlikely Likely Very Likely

10
To what extent do you think it is likely that in general, in the U.K., **men are MORE likely to experience an anxiety disorder compared to women**

Very unlikely Unlikely Likely Very Likely

When choosing your response, consider that:

Very Unhelpful = I am certain that it is NOT helpful
Unhelpful = I think it is unhelpful but am not certain
Helpful = I think it is helpful but am not certain
Very Helpful = I am certain that it IS very helpful

11
To what extent do you think it would be helpful for someone to **improve their quality of sleep** if they were having difficulties managing their emotions (e.g., becoming very anxious or depressed)

Very unhelpful Unhelpful Helpful Very helpful

12
To what extent do you think it would be helpful for someone to **avoid all activities or situations that made them feel anxious** if they were having difficulties managing their emotions

Very unhelpful Unhelpful Helpful Very helpful

When choosing your response, consider that:

Very unlikely = I am certain that it is NOT likely
Unlikely = I think it is unlikely but am not certain
Likely = I think it is likely but am not certain
Very Likely = I am certain that it IS very likely

13
To what extent do you think it is likely that **Cognitive Behaviour Therapy (CBT)** is a therapy based on challenging negative thoughts and increasing helpful behaviours

Very unlikely Unlikely Likely Very Likely

14
Mental health professionals are bound by confidentiality; however, there are certain conditions under which this does not apply.

To what extent do you think it is likely that the following is a condition that would allow a mental health professional to **break confidentiality**:

*If you are at immediate risk of harm to yourself or others*

Very unlikely Unlikely Likely Very Likely

15
Mental health professionals are bound by confidentiality; however, there are certain conditions under which this does not apply.

To what extent do you think it is likely that the following is a condition that would allow a mental health professional to **break confidentiality**:

*if your problem is not life-threatening and they want to assist others to better support you*

Very unlikely Unlikely Likely Very Likely

Please indicate to what extent you agree with the following statements:

| | Strongly Disagree | Disagree | Neither agree or disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| 16. I am confident that I know where to seek information about mental illness | | | | | |
| 17. I am confident using the computer or telephone to seek information about mental illness | | | | | |
| 18. I am confident attending face to face appointments to seek information about mental illness (e.g., seeing the GP) | | | | | |
| 19. I am confident I have access to resources (e.g., GP, internet, friends) that I can use to seek information about mental illness | | | | | |

Please indicate to what extent you agree with the following statements:

| | Strongly Disagree | Disagree | Neither agree or disagree | Agree | Strongly agree |
|---|---|---|---|---|---|
| 20. People with a mental illness could snap out if it if they wanted | | | | | |
| 21. A mental illness is a sign of personal weakness | | | | | |
| 22. A mental illness is not a real medical illness | | | | | |
| 23. People with a mental illness are dangerous | | | | | |
| 24. It is best to avoid people with a mental illness so that you don't develop this problem | | | | | |
| 25. If I had a mental illness I would not tell anyone | | | | | |
| 26. Seeing a mental health professional means you are not strong enough to manage your own difficulties | | | | | |
| 27. If I had a mental illness, I would not seek help from a mental health professional | | | | | |
| 28. I believe treatment for a mental illness, provided by a mental health professional, would not be effective | | | | | |

Please indicate to what extent you agree with the following statements:

| | Definitely unwilling | Probably unwilling | Neither unwilling or willing | Probably willing | Definitely willing |
|---|---|---|---|---|---|
| 29. How willing would you be to move next door to someone with a mental illness? | | | | | |
| 30. How willing would you be to spend an evening socialising with someone with a mental illness? | | | | | |
| 31. How willing would you be to make friends with someone with a mental illness? | | | | | |

| | Definitely unwilling | Probably unwilling | Neither unwilling or willing | Probably willing | Definitely willing |
|---|---|---|---|---|---|
| 32. How willing would you be to have someone with a mental illness start working closely with you on a job? | | | | | |
| 33. How willing would you be to have someone with a mental illness marry into your family? | | | | | |
| 34. How willing would you be to vote for a politician if you knew they had suffered a mental illness? | | | | | |
| 35. How willing would you be to employ someone if you knew they had a mental illness? | | | | | |

**Reported and Intended Behaviour Scale**

**Instructions:** The following questions ask about your experiences and views in relation to people who have mental health problems (for example, people seen by healthcare staff).

| | | **Agree strongly** | **Agree slightly** | **Neither agree nor disagree** | **Disagree slightly** | **Disagree strongly** | **Don't know** |
|---|---|---|---|---|---|---|---|
| **1** | In the future, I would be willing to live with someone with a mental health problem. | | | | | | |
| **2** | In the future, I would be willing to work with someone with a mental health problem. | | | | | | |
| **3** | In the future, I would be willing to live nearby to someone with a mental health problem. | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **4** | In the future, I would be willing to continue a relationship with a friend who developed a mental health problem. | | | | | | |

## Mental Health Knowledge Schedule

**Instructions:** For each of statements 1– 6 below, respond by ticking one box only. Mental health problems here refer, for example, to conditions for which an individual would be seen by healthcare staff.

| | | **Agree strongly** | **Agree slightly** | **Neither agree nor disagree** | **Disagree slightly** | **Disagree strongly** | **Don't know** |
|---|---|---|---|---|---|---|---|
| **1** | Most people with mental health problems want to have paid employment. | | | | | | |
| **2** | If a friend had a mental health problem, I know what advice to give them to get professional help. | | | | | | |
| **3** | Medication can be an effective treatment for people with mental health problems. | | | | | | |
| **4** | Psychotherapy (e.g. talking therapy or counselling) can be an effective treatment for people with mental health problems. | | | | | | |
| **5** | People with severe mental health problems can fully recover. | | | | | | |
| **6** | Most people with mental health problems go to a healthcare | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | professional to get help. | | | | | | |

**Instructions:** Say whether you think each condition is a type of mental illness by ticking one box only.

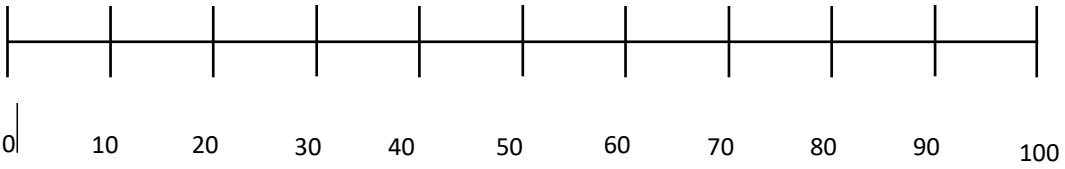
| | | **Agree strongly** | **Agree slightly** | **Neither agree nor disagree** | **Disagree slightly** | **Disagree strongly** | **Don't know** |
|---|---|---|---|---|---|---|---|
| **1** | Depression | | | | | | |
| **2** | Stress | | | | | | |
| **3** | Schizophrenia | | | | | | |
| **4** | Bipolar disorder (manic-depression) | | | | | | |
| **5** | Drug addiction | | | | | | |
| **6** | Grief | | | | | | |

## Training Satisfaction Rating Scale

| | | **Totally Agree** | **Agree** | **Neither Agree nor Disagree** | **Disagree** | **Totally Disagree** |
|---|---|---|---|---|---|---|
| **1** | In my opinion the planned objectives were met | | | | | |
| **2** | The issues were dealt with in as much in depth as the length of the course allowed | | | | | |
| **3** | The length of the course was adequate for the objectives and content | | | | | |
| **4** | The method was well suited to the objectives and content | | | | | |
| **5** | The method used enabled us to take an active part in training | | | | | |
| **6** | The training enabled me to share professional experiences with colleagues | | | | | |
| **7** | The training was realistic and practical | | | | | |
| **8** | The documentation given out was of good quality | | | | | |
| **9** | The training context was well suited to the training process | | | | | |
| **10** | The training received is useful for my specific job | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **11** | The training received is useful for my personal development | | | | | |
| **12** | The training merits a good overall rating | | | | | |

**1. How satisfied were you with the training you received?**




Very Unsatisfied

Very Satisfied

**2. Is there anything that you would change about the training you received?**

| |
|---|
| |

**3. In future, would you prefer face-to-face or online child mental health training**?

☐Face-to-face ☐Online ☐No preference

## Appendix 7

### Vignette oppositional defiant disorder and depression scoring guide

| Oppositional defiant disorder (Gabriel/Gabrielle) Vignette Total = 18 | | | | |
|---|---|---|---|---|
| | Question | Correct answer | Scoring | |
| 1a) | What would you call the problem that Gabriel is presenting with? | Oppositional defiant disorder | 1 for correctly identified problem<br>Other reasonable answers will be coded | 1 |
| 1b) | Do you think that Gabriel has a mental health problem? | YES | 0 = No/don't know<br>1 = Yes | 1 |
| 1c) | If Gabriel was a child you came across in the hospital, how concerned would you be about his wellbeing? | | 0 = Not at all<br>0 = A little bit<br>0 = Moderately<br>1 = quite a bit<br>1 = extremely | 1 |
| 1d) | List the symptoms that Gabriel is displaying that may be cause for concern: | Often disobedient<br>No guilt after beh<br>Physically violent<br>Argues with everyone<br>Damaging property<br>Always having temper tantrums | One point per identified symptom | 5 |
| 1e) | Please suggest 3 possible reasons for why he may be displaying this behaviour | Learning difficulty<br>Restless and fidgety<br>Ineffective parenting<br>Low mood<br>Temperament<br>Traumatic event<br>Link to hospital/physical health | One point per identified symptom or other reasonable answer | 3 |
| 1f) | If you are concerned about Gabriel, what would you do? (Select one or more) | **Prescribed**<br>Speak to line manager<br><br>**Useful /suggested for F2F**<br>Speak to CAMHS in the hospital<br>Speak to the professional they're seeing<br>Inform about services in the hospital | 2 points = only prescribed techniques marked + useful<br>1 = useful no prescribed<br>0 = answers that have any proscribed technique marked. | 2 |

| | | | | |
|---|---|---|---|---|
| | | **Proscribed**<br>It's not my role<br>Ignore<br>Parents need to be more hands on<br>Snap out | | |
| 1h) | How confident would you feel about speaking to your line manager regarding your concerns about Gabriel? | | 1 = Not at all<br>2 = A little bit<br>3 = Moderately<br>4 = Quite a bit<br>5 = Extremely | 5 |
| **Depression (Justin/Justine) Vignette Total = 18** | | | | |
| | Question | Correct answer | Scoring | |
| 1a) | What would you call the problem that Justine is presenting with? | Depression | 1 for correctly identified problem<br>Other reasonable answers will be coded | 1 |
| 1b) | Do you think that Gabriel has a mental health problem? | Yes | 0 = No/don't know<br>1 = Yes | 1 |
| 1c) | If Justine was a child you came across in the hospital, how concerned would you be about her wellbeing? | | 0 = Not at all<br>0 = A little bit<br>1 = Moderately<br>1 = quite a bit<br>0 = extremely | 1 |
| 1d) | List the symptoms that Justine is displaying that may be cause for concern: | Sad and miserable for a few weeks<br>Tired all of the time<br>Can't sleep<br>Loss of appetite/weight loss<br>Concentration difficulties<br>Puts off decisions<br>Day to day tasks too much | One point per identified symptom | 5 |
| 1e) | Provide 3 reasons why Justine may be displaying this behaviour | Life changes<br>Stress<br>Loss<br>Parental dispute/separate<br>Link to hospital/ PH<br>Traumatic event<br>Genetics / hormones | One point per identified symptom or other reasonable answer | 3 |

| | | | | |
|---|---|---|---|---|
| 1f) | If you are concerned about Gabriel, what would you do? (Select one or more) | **Prescribed/suggested for F2F/useful**<br>Speak to line manager<br>Speak to CAMHS in the hospital<br>Speak to the professional they're seeing<br>Inform about services in the hospital<br>**Proscribed**<br>It's not my role<br>Ignore<br>Parents need to be more hands on<br>Snap out | 2 points = only prescribed techniques marked + useful<br>1 = useful no prescribed<br>0 = answers that have any proscribed technique marked. | 2 |
| 1h) | How confident would you feel about speaking to your line manager regarding your concerns about Gabriel? | | 1 = Not at all<br>2 = A little bit<br>3 = Moderately<br>4 = Quite a bit<br>5 = extremely | 5 |

## Appendix 8

## Information about the proposed study and questions for the young person's advisory group

Hello! Thank you for taking the time to answer a few questions I have about training hospital staff in mental health awareness.

**Who am I?**

My name is Jennifer O'Connell and I am a Trainee Clinical Psychologist at Royal Holloway, University of London. My job involves working with a team of professionals to support people with their emotional health and wellbeing. When I qualify in 2019 I want to specialise in supporting children and young people. I have an honorary contract at Great Ormond Street Hospital for the next year and a half to complete a research project.

**What is my project about?**

The title of my project is "Training Frontline Hospital Staff in Mental Health Awareness". My aim is to deliver a training session on basic 'mental health awareness' to hospital staff who have no formal training in mental health (e.g. receptionists, health care assistants, security staff, managers, porters, catering staff). I believe that all professionals who are in contact with children and young people should have basic mental health 'first aid' skills.

**What is 'Mental Health'?**

Mental health includes our emotional, psychological and social wellbeing. It affects how we think, feel and act. It also helps determine how we handle stress, relate to others and make choices.

**Why is this project important?**

Young people who have long-term physical health conditions (e.g. epilepsy, diabetes, cancer, asthma, congenial heart disease) often have many more stressful things going in their life than other young people of the same age. For example, these young people

may have to take medication, they may miss school for appointments and they may be unable to do all of the same things that their peers do. These stressful things can understandably impact on a young person's mental health.

Mental health problems such as depression and anxiety, for example, are very treatable, but a young person may not be able to recognise that this is what they are experiencing. It is therefore important for professionals (e.g. hospital staff) who are in contact with young people to be able to recognise signs of mental health problems and know how to respond (e.g. how to speak to a young person with mental health concerns or how to refer a young person for specialist support).

The training I aim to deliver will give staff the knowledge and skills to be able to recognise common mental health problems in young people and know how to act to support young people in hospital.

**What am I asking of you?**

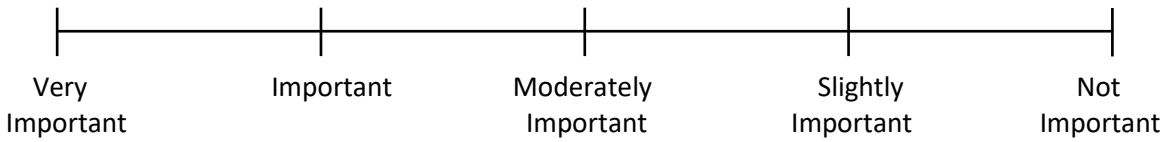
Now that you know a little about the project I am carrying out, I would like to ask you some short questions about your opinion of this project.

1. How old are you? _____ and what is your gender? _____

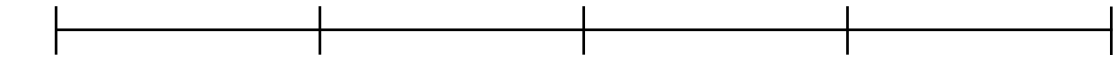
2. Do you think that children and young people who have long-term physical health problems are more likely to need support with their mental health than peers who don't have physical health problems?

Yes ☐ No ☐

3. In your opinion, how important is it to train professionals who have regular contact with children and young people about mental health awareness?




4.a. How important do you think it is for **<u>all</u>** hospital staff members (e.g. receptionists, security staff, managers, catering staff) to receive formal training in basic mental health awareness? (e.g. being able to recognise signs of mental health problems and know how to act?).



Very Important | Important | Moderately Important | Slightly Important | Not Important

4.b. If you have any comments on question 4.a. please write them here:

_____
_____

5. In your opinion, what are the benefits of **all** hospital staff members receiving 'mental health awareness' training?

_____
_____
_____

6. In your opinion, what are the disadvantages of **all** hospital staff members receiving 'mental health awareness' training?

_____
_____
_____

7.a. Which method of training do you think will be more effective for training all hospital staff in mental health awareness? (Please select only one):

- Face to face training would be more effective than online training ☐
- Online training would be more effective that face to face training ☐
- Both methods would deliver the same standard of training ☒

7.b. If you have any comments on question 7.a. please write them here:

_____
_____

8. The proposed training aims to provide all hospital staff information on the following topics:

**Mind and body: The interface**
This session will describe how mental health problems in young people can affect physical health and how mental health problems can develop as a consequence of poor physical health. It will also look at what help and services are available for both young people and their family.

**What can go wrong**

Young people may present with mental health difficulties in a wide variety of ways that differ according to their age and developmental stages. This session will describe the broad presentations that tend to be seen (e.g. depression, anxiety, anger, psychosis and developmental problems) and give a broad view of some of the influences that bring about these difficulties.

What are your views on these proposed topics for the training?_____
_____
_____

9. In your opinion, are there any other basic mental health knowledge or skills that should be included in the training?

_____
_____
_____

10. It is important to measure the impact that this training has had on staff and young people at GOSH. We have some ideas (see box below) on how to do this, but we would really appreciate your ideas on how this could be done.

**Our ideas**

***Staff will complete these questions before and after training to assess improvements in mental health awareness:***

**Mental health literacy questionnaire** for staff to complete that measures mental health recognition, knowledge of factors relating to mental health and attitudes about mental health problems.

**Short descriptions (or 'vignettes') about different young people** and staff will have to decide whether they think the young person has a problem, rate the severity of the problem, decide whether it requires professional help, identify the most appropriate help and try name the problem.

**Stigma questionnaire** to measure changes in staff's views about mental health

**Specific questions about how the training has impacted staff and young people at GOSH:**

e.g. How confident are you that you know how to recognise mental health needs of young people at GOSH?

e.g. How confident are you in knowing what to do when you recognise mental health needs in young people?

e.g. Have you acted on any concerns that you have had in the past 2 weeks?

e.g. What was your reason for acting or not acting?

In your opinion, what do you think is the most appropriate way to measure the impact of this training? (i.e. how will we know if this training has been beneficial for young people and/or their families).

_____
_____
_____

## Appendix 9

## Participant information sheet




### Mental Health Awareness Training for Frontline Staff

**We would like to invite you to participate in a research study that aims to train frontline staff in supporting children with their mental health when they visit hospital**

**Why train staff in mental health awareness?**

When children visit hospital they are often worried, fearful, feeling low or they might be experiencing some more serious mental health problems. Young people who have long-term physical health conditions (e.g. epilepsy, diabetes, cancer, asthma, congenial heart disease) often have many more stressful things going in their life than other young people of the same age. This study aims to deliver a training session on basic child and adolescent 'mental health awareness' to hospital staff who have no formal training in child mental health. We believe that all professionals who are in regular contact with young people should have basic mental health 'first aid' skills so they can respond to them sensitively and know where to send them for further help.

**Who is the training for?**

The training is aimed at frontline hospital staff that have not had formal training in child mental health. This includes, but is not limited to: Receptionists, Health Care Assistants, Housekeeping employees, Service Managers, Patient Advice and Liaison Service employees, Clinical Site Practitioners, Security staff, Porters, Catering staff and Volunteers. The training is being delivered through English.

**What will I learn from the training?**

The training aims to provide staff with the knowledge and skills to be able to recognise common mental health problems in young people and know how to act to support young people in hospital. All staff members will receive the same training content, but some will receive it face to face form the trainer at GOSH and some online. The training method you get will be random, this will help us compare the best way of delivering training to staff and we will seek your feedback on this.

There are two modules which take 3 hours in total to complete:

1. "Mind and Body Interaction": How mental health problems in young people can affect physical health and how mental health problems can develop as a consequence of poor physical health.
2. "What can go wrong". This session will describe the common ways young people show their low mood and anxieties. You will also learn some conversation starters useful for discussing mental health with young people.

**How will the impact of this training be measured?**

The training will be evaluated using a handful of questionnaires before and 2 weeks after training. The questionnaires will ask about your mental health recognition, knowledge of factors relating to mental health and attitudes about mental health problems and treatments. You will also be asked about your experience of child and adolescent mental health problems at GOSH. The information you give in the questionnaires is completely confidential (using an anonymous ID), will be stored securely and not be shown to anyone but the researcher.

**What are the incentives to sign up to the training?**

- This training can be considered part of your 'Continuing Professional Development' and can be placed on your CV.
- There will be a certificate on completion of the post-training questionnaires.
- If you complete the training, you will be entered into a draw to receive one of two £50 cash prizes.

**How do I sign up for the training or find out more information?**

If you are interested in signing up to the training or would like to know more about the training, please contact Jennifer O'Connell, who will be delivering the Training.
Email: Jennifer.OConnell@gosh.nhs.uk

This project is being completed by Jennifer O'Connell, Trainee Clinical Psychologist, Royal Holloway, University of London and supervised at Great Ormond Street Hospital by Professor Roz Shafran (r.shafran@ucl.ac.uk) and Dr Helen Pote (Royal Holloway, University of London). The research study is being conducted as partial fulfilment of the Doctorate in Clinical Psychology qualification.

**Appendix 10**

**Consent form**

**Mental Health Awareness Training for Frontline Staff**

**CONSENT FORM**

You have been asked to participate in a study about training frontline hospital staff in child and adolescent mental health awareness, which is being carried out by Jennifer O'Connell, Trainee Clinical Psychologist.

| | **Please complete the following:** | **Please circle or delete as appropriate** |
|---|---|---|
| 1 | I have read the information sheet (Version 1 11.01.18) that describes this study. | Yes / No |
| 2 | I have had an opportunity to ask questions and discuss this study. | Yes / No |
| 3 | I have received satisfactory answers to all my questions. | Yes / No |
| 4 | I understand that I do not have to take part in this study. | Yes / No |
| 5 | I understand that I am free to withdraw from the study at any time without giving any reason. | Yes / No |
| 6 | I understand that the personal information I provide will only be used for the purposes of this study. The information will be treated as strictly confidential and handled in accordance with the provisions of the Data Protection Act 2018. | Yes / No |
| 7 | I confirm that I am not currently participating in another research study or training on youth mental health. | Yes / No |
| 8 | I agree to take part in the study. | Yes / No |

**Participant signature: ……  Date: ……..**

**Participant name: ……**

**Researcher signature: ……  Date: ……..**

**Researcher name: ……....**

*This consent form will be stored separately from the anonymous information that you provide*

# Appendix 11

## Request for information about establishing mental health training in the hospital

**From:** Jack Levine
**Sent:** Monday, December 03, 2018 4:09 PM
**To:** Jennifer O'Connell
**Cc:** Nicola Wilson
**Subject:** MH training

Hi Jennifer,

I saw your post on the Gosh Newsletter. Interestingly I'm currently working with lead practice educator Nicola Wilson and other CAMHS staff to implement some pan trust MH teaching, initially in the form of two internal study days. We have been speaking to people around the trust about work they are already doing in this area (idea is to not reinvent the wheel and use resources already available), and it would be great to meet with you and hear about your study and what form your teaching is going to be taking.

Are you free tomorrow morning at all? Otherwise I work Monday & Tuesday 8-6 so could meet next week perhaps?

Thanks

Jack

**Jack Levine**
Practice Educator for Mental Health
Mildred Creak Unit
Great Ormond Street Hospital for Children NHS Foundation Trust
Great Ormond Street
London WC1N 3JH
✉ Jack.levine@gosh.nhs.uk
☎ +44 (0)207 405 9200 ext. 5876