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'Our Care through Our Eyes': a mixed-methods, evaluative study of a service-user, co-produced education programme to improve inpatient care of children and young people admitted following self-harm

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ABSTRACT

Introduction: Within Europe, the UK has one of the highest rates of self-harm, with a particularly high prevalence in children and young people (CYP). CYP who are admitted to paediatric hospital wards with self-harm are cared for by registered children's nurses who have been identified to lack specific training in caring for this patient group. This may impede the delivery of high quality care. Therefore, this study aims to co-produce, implement and evaluate an education programme for registered children's nurses to improve their knowledge, attitudes and confidence when caring for CYP admitted with self-harm.

Methods and analysis: This mixed-methods evaluative study will involve a three-stage design. Stage 1: A priority-setting workshop will be conducted with 19 registered children's nurses. A Delphi technique will be used to establish consensus of information needs. Stage 2: An online educational intervention will be co-produced with 25 CYP and 19 registered children's nurses based on the priorities identified in Stage 1. Stage 3: The intervention will be implemented and evaluated with 250 registered children's nurses at a single hospital. Online Likert scale questionnaires will be administered at baseline and postintervention to assess levels of knowledge, attitudes and confidence in caring for CYP who self-harm. Descriptive and inferential statistics will be used to analyse the data. Statistical significance will be assessed at the 5% (two-sided) level. One-to-one qualitative interviews will also be undertaken with approximately 25 participants to explore any perceived impact on clinical practice. An interpretive descriptive approach will guide qualitative data collection and analysis.

Ethics and dissemination: This study aims to develop, trial and evaluative a service-user, co-produced education programme for acute hospital registered children's nurses to improve the care of CYP admitted due to self-harm. The study has ethical approval from the National Health Services Research Ethics Committee and full governance clearance.

Strengths and limitations of this study

- The methodological approach to co-produce the educational intervention with children and young people (CYP) and nurses will ensure the final educational intervention will be sensitive to the learning needs of nurses.
- Interview accounts of registered children's nurses will support questionnaire findings of how the educational interventions have impacted on nurse knowledge, attitudes and confidence in caring for CYP who self-harm.
- There is a risk of social desirability bias through the implementation of self-reported questionnaires. However, this will be limited as the questionnaires are not completed face to face. Furthermore, as with all studies relying on voluntary participation, there is a risk of lack of respondent participation.
- The outcome measure relating to confidence has been developed specifically for this study. Owing to resource constraints the measure will not be validated. As such any conclusions based on this measure will be interpreted with caution.

INTRODUCTION

Despite a number of definitions used within the literature, for the purpose of this paper and study the term self-harm is defined as self-poisoning or self-injury, irrespective of the intent.[1]

Within Europe the UK has one of the highest rates of self-harm, with a particularly high and increasing prevalence in children and young people (CYP).[2] It is estimated that 7–14% of young people in the UK will self-harm at some point in their lives.[3] Each year in England, over 150 000 emergency department (ED) attendances are due to self-harm, resulting in over 25 000 annual

hospital admissions.[4] The majority of people who self-harm are aged between 11 and 25 years[5] with this age group having more hospital presentations for self-harm than any other.[6]

Following presentation to the ED, an initial assessment by a health professional who is trained in using a CYP mental health triage system should be undertaken.[7] This should urgently establish the CYPs likely physical risk and emotional and mental state in order for appropriate immediate intervention to be implemented.[7] Risks are established by identifying the following: characteristics of the index event (including suicidal intent, motivation, lethality and method); proximal risk factors (such as stressful events, the misuse of substances and recent changes to their physical and mental state); and distal risk factors (such as psychiatric, psychological and socio-demographic variables that are contributory or protective).[8] Immediate management in the ED is reported to involve addressing any medical or surgical care needs.[9] This could include suturing wounds or starting the administration of medications to reduce or reverse the effects of poisoning, while maintaining the safety of the CYP through minimising exposure to additional harm.[8] The National Institute for Health and Care Excellence (NICE) Guideline 16 indicates that ED health professionals should be trained in the assessment and early management of CYP who have self-harmed. This should be achieved through joint working between mental health services and the ED to develop regular education and training.[7]

Following this initial assessment and management in the ED, all CYP under the age of 16 years should be, 'admitted overnight to a paediatric ward and assessed fully the following day before discharge or further treatment and care is initiated' (ref. 7, p. 29). Therefore, CYP can spend significant time being cared for by nursing teams who work on paediatric wards who have no specialist training in relation to mental health. Nurses working in these settings are commonly the first health professionals encountered by CYP following a self-harm episode.[10] However, staff within acute ward areas may be ill prepared to meet the unique, holistic needs of self-harming individuals. Nurses who lack vital knowledge and understanding are likely to operate on misconceptions about why people self-harm.[11] Furthermore, a lack of confidence among staff in their ability to work with this client group nourishes negative attitudes.[12] Reviews of the literature suggest this to be common among health professionals including nurses.[13 14] Within the ED, CYP describe being treated differently from other patients, attributing this to their self-harming.[11] NICE Clinical Guideline 16 also reports that, 'The experience of care for people who self-harm is often unacceptable. All healthcare practitioners involved in the assessment and treatment of people who self-harm should ensure that the care they offer addresses this as a priority' (ref. 7, p. 50).

The way in which professionals respond to CYP who self-harm will directly impact on the person's engagement with support offered.[10] It is crucial then that nurses have training to equip them with the knowledge, skills and confidence necessary to provide the highest quality holistic care. Furthermore, planning and delivery of such training should involve those who self-harm.[7] Active training has been demonstrated to lead to consistent improvements in attitude and knowledge of health professionals caring for people who have self-harmed.[13] Collectively, there is justification for a CYP-led educational intervention that addresses deficits in nurses' knowledge, attitude and confidence in caring for hospitalised CYP who self-harm. Therefore, the purpose of this study is to co-produce, with service-users and nurses, an education programme for acute hospital registered children's nurses to improve the care of children and young people that self-harm.

Primary objectives

1. Identify priority areas for the development of an educational intervention which will take the form of reusable learning objects (RLOs). RLOs are on-line e-learning educational tools to support learning.
2. Co-produce (with CYP and nurses) RLOs relating specifically to the acute hospital care and experiences of CYP who have self-harmed.
3. Evaluate the impact of the RLOs on nursing staff knowledge of self-harm in CYP, alongside attitudes and level of confidence to manage care.
4. Explore the barriers and facilitators to implementation.

Secondary objective

1. Inform and support future implementation.

METHODS AND ANALYSIS

This study is a single-centre, pre–post evaluation, of a co-produced (with CYP who have previously been admitted to paediatric units following an incident of self-harm and registered children's nurses) nurse educational intervention. The educational intervention will seek to improve nursing staff knowledge of self-harm in CYP, including attitudes towards those who self-harm and level of confidence to manage care. One-to-one qualitative interviews with registered children's nurses will contextualise the data collected through the questionnaires and extend understanding of its implementation in practice. The use of multiple sources of data will provide contextualised, converging and emerging lines of inquiry.[15]

Educational intervention

The National Health Service (NHS) national learning strategy has identified e-learning as a central strategic delivery mechanism.[4] The nurse educational intervention will take the form of a series (2–4) of RLOs. In practice, RLOs are typically small, 'bite-sized' chunks of e-learning focusing on a particular narrow topic. They

can be made freely available on-line and have an established track record in educating health professionals. They are increasingly being used in health education[16] and improving health-related behaviours, such as in improving physician knowledge[17 18] and nurse prescribing.[19]

The ideas and general contents of the educational material for the RLOs will originate from three workshops. The first workshop will seek to evaluate and set nurse priorities (*stage 1*). This will then be followed by a CYP RLO development workshop and a final RLO development workshop with registered children's nurses (*stage 2*). These RLO workshops are designed to conceptualise and elicit the contents of the RLOs prior to production. The information from the RLO workshops will initially be transcribed. A literature review will be undertaken to ensure the contents of the RLO are factually correct and that published guidelines are used where necessary. There will also be checks against local NHS policies to ensure the RLOs are in line with this guidance.

RLO production will take an 'iterative development' process involving a series of steps: (1) concept development (gathered from the RLO workshops) and a detailed specification (which will include a working title, description of the learning resource, learning objectives, topics covered, key words format and presentation (2) specification peer review (here the clarity, factual content of the RLO and appropriateness of any animations will be assessed as well as any comments to improve the educational resource) (3) software development (RLO is produced in software by the developer) (4) peer review of RLOs (by trainee nurses and feedback) and (5) official release.

An 'iterative development' approach will be used ensuring a constant dialogue is maintained among developers, content authors and other stakeholders (such as experts in the field). For instance, the first peer-reviewer may identify errors in the content, and/or suggest content changes to improve the RLO, which would then be fed back to the author. Another example may be that during development, the developer might propose a particular feature which would necessitate changing the specification, or might identify a feature in the specification which cannot be implemented technically. These more technical issues will be iteratively resolved. After release, errors might be found which would require the RLO to go back to the development stage (usually such errors are minor and do not require the RLO to be further peer-reviewed).

Sample and recruitment

Setting

Eligible registered children's nurses (criteria outlined in box 1) will be recruited from a large University Hospital NHS Trust in England located in the Midlands geographical area.

Box 1 Eligibility criteria for the selection of registered children's nurses

Inclusion criteria
1. Registered children's nurse (Nursing and Midwifery Council, UK)
2. Providing acute inpatient care within the National Health Service (NHS) Trust at the time of the study

Exclusion criteria
1. Unwilling to provide consent to take part in the workshop
2. Unable or unwilling to return study questionnaires

Eligible CYP (criteria outlined in box 2) will be recruited from a community outpatient department as part of specialist Child and Adolescent Mental Health Services (CAMHS).

Sampling: registered children's nurses

Registered children's nurses will be involved in three aspects of this study:

1. Workshops that will prioritise learning needs (priority-setting workshop) and develop the educational intervention (RLO development workshop)

A sample of registered children's nurses will be identified by the Directorate Lead for Children and Young People's Nursing and be recruited using a theoretical sampling frame to ensure a mix of agenda for change (AfC) bandings, clinical settings and time since qualification as a registered children's nurse. One staff nurse (Band 5) and one junior sister/ward manager (Band 6 or 7) nurse from each of 10 clinical areas plus one matron (Band 8) will be invited to take part in the study. Participants will be selected to participate based on a first come first served basis (n=19). This will ensure nurses with a range of experiences are included in the priority setting workshop and numbers involved support data saturation recommendations (n=12) as outlined by Guest, Bunce and Johnson.[20] Prior permission will be

Box 2 Eligibility criteria for the selection of Children and Young People for reusable learning objects development workshop

Inclusion criteria
1. Children and young people (CYP) aged 10–18 years
2. Individual has been admitted as an inpatient to acute care services within the NHS Trust following an incident of self-harm within the previous 12 months.

Exclusion criteria
1. Those CYP deemed by the usual care team not to be suitable candidate for the workshop
2. CYP currently in receipt of acute care following self-harm
3. Parents/guardians unwilling to provide consent for their child to take part in the study (those aged 16–18 years will be allowed to consent for themselves)

sought from the ward sister, matron or Directorate Lead for Children and Young People's Nursing.

2. Pre–post questionnaire evaluation of the educational intervention

All registered children's nurses working in clinical areas caring for children (aged 5–18 years) will be invited to take part in the study and be sent a questionnaire via their work email address.

3. Qualitative appraisal of the educational intervention

Following completion of the postintervention questionnaire, a sample of registered children's nurses (n=approximately 25) will be invited to take part in a semistructured interview.

Sampling: CYP

CYP will be recruited to take part in a workshop from CAMHS as outlined in figure 1. Identification of eligible CYP, and initial contact, will be made by a practitioner from CAMHS. Verbal and/or written information about the workshop will be provided and if interested permission will be sought for their contact details to be given to a member of the research team. Parents/guardians or CYP >16 years will then be given a form and requested to complete a tear-off slip consenting for their contact details to be passed to the research team. This slip will be forwarded to and retained by the research team and a copy will also be put in the CAMHS notes. A research team member will then contact the parent/guardian or young person and provide further details of the workshops. If the parent/guardian/young person is interested, information sheets and consent forms will be posted. Participants will have at least 7 days following receiving the information sheet to decide whether to take part in the workshop.

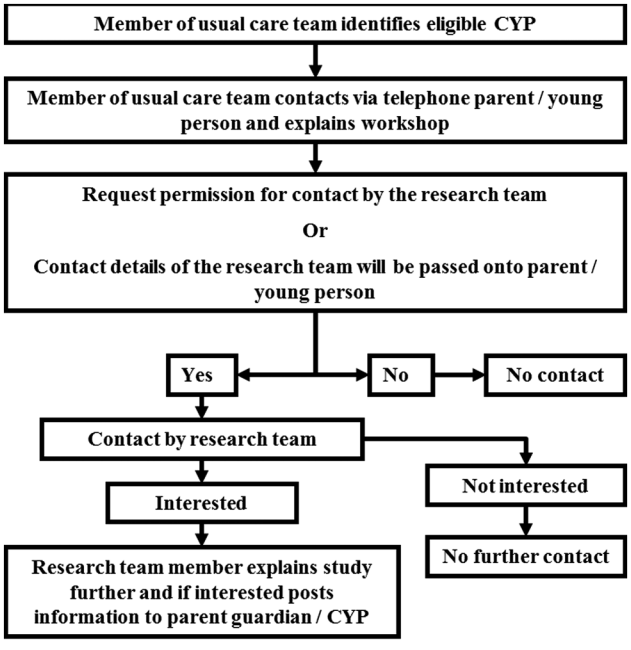

Figure 1 Flow diagram describing how children and young people will be identified and approached. CYP, children and young people.

Study procedures

This study will involve three stages that will be undertaken between August 2015 and January 2016:

Stage 1: A nurse evaluative/priority-setting workshop

A Delphi technique will be used to establish consensus of nurse information needs and educational topic priorities. This will take place during a workshop and will involve initial priority-setting and then two rounds of consensus. After the first round, a facilitator (JCM, AL and TC) will provide an anonymous summary of the findings. Nurses will then be encouraged to revise their earlier answers in the second round, in light of the replies of other members of the group.

Stage 2: Development of a co-produced educational intervention (RLO's)

This stage will involve the development and piloting of the RLO's and methods to evaluate them.

- Workshop 1: CYP

The CYP RLO workshop will involve a maximum of 25 CYP that have been admitted to inpatient care previously with self-harm. The workshop will begin by providing CYP with an outline of the day and a reminder that there are no right/wrong answers. An 'appreciative' method will be used throughout the workshop. The purpose of the workshop will be to help co-develop an e-learning training package for nurses to improve their care for CYP who self-harm. Examples of existing RLOs will be provided as well as an explanation of how they are developed. Small groups will work to explore (on flip-charts) what they think is important to include in a nurse training package. 'Story boards' will them be used to capture ideas from the CYP about possible ways to improve the care CYP receive from nurses (CYP can use drawings/cartoons if they wish). CYP will be given £20 worth of High Street vouchers for taking part in the workshop.

- Workshop 2: Registered children's nurses

This workshop will involve 19 registered children's nurses. It is likely that these participants will involve the same cohort of nurses who were involved in the stage 1 priority setting workshop. The purpose of the workshop will be to develop ideas that have emerged from the CYP RLO workshop and to ensure the RLOs are sensitive to the learning needs of nurses.

- Piloting of RLOs and evaluation tools

The RLOs and data collection tool will be piloted on 10 child field student nurses to test the functionality of the RLOs and face validity of the data collection instruments.

Stage 3: Implementation and evaluation of the educational intervention

Registered children's nurses at the Trust will be invited to take part in an evaluation of the RLOs. Nurses who have been involved in either stage 1 or stage 2 workshops will be excluded. There will be two work streams to the evaluation, preceded by a piloting of the RLOs and evaluation tools.

- Stage 3: Workstream 1: Single cohort pre–post questionnaire study

All registered children's nurses (n=250) will be invited to complete an initial baseline questionnaire (accessible online) over a period of 3 weeks. Following baseline data collection (with one reminder after 2 weeks), the educational intervention will be made available to participants for 30 days (series of RLOs accessible online via a computer). A follow-up (postintervention) questionnaire will then be sent and be available for 3 weeks duration (with one reminder after 2 weeks). The postintervention questionnaire will only be sent to those nurses who completed the baseline questionnaire. It will be explained in the information sheet that they can withdraw at any time. In the event of their withdrawal it will be explained that their data collected so far cannot be erased and we will seek consent to use the data in the final analyses where appropriate. Consent to take part will be implied through the completion of the questionnaires. Baseline and postintervention questionnaires will be identical and measure three areas: (1) Knowledge, this will be measured using a specific knowledge of adolescent self-harm questionnaire.[21] This is an 11-item scale where participants are asked to rate statements as either true or false. The scores are then summated to a give a total score. (2) Confidence, this will be measured using an outcome measure designed specifically for use in this study, as an appropriate and specific measure is not currently available. It comprises 7-Likert scale questions asking participants to rate their perceived ability to provide effective care to adolescents who have self-harmed. (3) Attitudes, through the Attitudes Towards Deliberate Self-Harm Questionnaire (ADSHQ)[12] which consists of 33 items on a 4-point Likert scale giving an overall summated score.

- Stage 3: Workstream 2: Qualitative study

This workstream involves qualitative one-to-one interviews with a purposive sample of nurses regarding their experience of using the RLOs and how this has impacted on their practice (n=up to 25). The objective of this is to capture the views and experiences of the nursing staff that have used the RLOs. Written consent will be taken before the start of the interview and permission sought for the interview to be audio recorded. It will be explained to the potential participant that entry into the study is entirely voluntary. The interviews will last for approximately 20–30 min and be conducted at the nurse's place of work (in a private room at the NHS Trust) or other convenient location.

Analyses

Workstream 1 statistical analyses

All statistical analyses will be conducted using IBM Statistical Package for Social Sciences (SPSS) 22. The cohort will initially be described according to demographic and baseline characteristics. The following characteristics will be described: registered children's nurse age, gender, educational achievement, clinical work area and years qualified. Continuous data will be presented using means and SDs if approximately normally distributed and medians and IQRs if non-normally distributed. Categorical data will be described using frequencies and percentages. In order to assess the effect of the education programme, baseline and postintervention data scores will be compared. Categorical variables will be analysed using the χ^2 test or Fisher's exact test as appropriate. Continuous data will be analysed using within group t test or Wilcoxon signed rank test as appropriate. Statistical significance will be assessed at the 5% (two-sided) level.

Workstream 2 qualitative data analysis

Qualitative data analysis will be informed by the interrelated concepts of interpretivism and reflexivity, balanced with pragmatism and transparency. Data analysis will start during the early stages of data collection and proceed iteratively in order for emergent findings to be incorporated into subsequent data collection, including the revision of data collection methods, such as interview topic guides.

All interviews will be transcribed verbatim. The data will be then imported into qualitative analysis package NVivo; QSR International Pty Ltd for the purpose of coding and thematic analysis. This will involve initial reading and re-reading of the transcribed data by multiple members of the research team to identify common codes and categories. Actively searching for disconfirming data will be undertaken as well as regular detailed discussions among the qualitative researchers. Consideration will then be given to how these issues group together in broader themes related to the research objectives. The principle of constant comparison will be used to test and refine the empirical conceptual consistency of codes and themes which have been synthesised and narrated.

ETHICS AND DISSEMINATION

Potential ethical issues

There were three main areas that were identified for ethical consideration when developing the protocol that include: CYP involvement in RLO workshops; informed consent; and the time for nurses to participate in workshops and work through the educational intervention.

CYP involvement in RLO workshops

Conducting research with CYP generates a multitude of ethical challenges that must be identified and

addressed.[10 22] Self-harm is a sensitive issue and appropriate safeguards were designed to minimise the risk of CYP becoming distressed before, during or after the workshop:

- Only CYP who are deemed well enough, are considered 'appropriate' to participate, and are not likely to become distressed will be invited to take part in the workshop. This 'appropriateness' will be determined by their usual care team. Parental consent/assent procedures for those under 16 will also be in place. Parents therefore will be an additional safeguard and it is unlikely that parents would consent if they felt their child would become distressed. Furthermore, all CYP will receive an age appropriate participant information sheet informing them of the intentions of the workshop. It will be explained that the workshop is voluntary.
- Although self-harm is a sensitive topic, we do not anticipate that CYP will become distressed (see the safeguard above). The team of researchers are experienced in working with young people with mental health problems and will discuss self-harm issues in a sensitive way. Furthermore, the workshop will take an 'appreciative approach' where CYP views are valued and the tasks themselves will focus on ways to improve nursing care for CYP. Nevertheless, should any CYP become distressed during the workshop, there will be sufficient facilitators to be able to accommodate their needs. They will also be signposted to their usual care team who will be informed directly by the research team; this will be openly disclosed to the CYP and their parent/guardian.

Informed consent

Following identification and initial contact of CYP/parents by the usual care team, verbal and written consent will be obtained for contact details to be passed on to the research team. For CYP/parents that provide consent to contact, the research team will then telephone to provide further details of the workshop. If interested in participating in the workshop an information sheet will be sent via postal mail. Following dispatch of this information the research team will re-contact the CYP/parent to reconfirm interest and provide a date for the workshop.

On the day of the workshop, all participants will provide written informed consent to take part. The Investigator will answer any questions that the participant has concerning study participation. The Informed Consent Form will be signed and dated by the participant before they enter the workshop.

Where the participant is a child under 16 years, an age appropriate participant information sheet will be provided. This will be accompanied by a discussion with a member of the research team using age appropriate language to ensure the child comprehends the purpose of the workshop and what it involves. If the child volunteers to participate, written parental consent will be taken and the child will provide written assent at the beginning of the workshop. If there is disagreement between parent and child under 16 years with regard to participation in the workshop the child will not take part.

Time for nurses to participate in workshops and work through the educational intervention

Prior permission has been sought from the Directorate Lead for Children and Young People's Nursing for nurses to attend the priority-setting and RLO workshops. The workshops will be conducted in summer months which we anticipate will be less pressurised.

Furthermore, we are aware that nurses are busy. Working through the e-learning material will not take long (approximately 1 h). They will be made available online, via a computer, and will be available for the duration of the intervention period (30 days) so this may be undertaken with minimal impact on their clinical roles.

Methods of dissemination of findings

This paper serves as an important step in the dissemination of the findings by outlining the project background and aims, details of methods used and the practical challenges that may be faced and how these will be overcome. The findings from this study will contribute to addressing the significant gap in the educational needs of nurses. This study will also report the feasibility of the educational intervention, alongside the barriers and facilitators to implementation. Collectively, the findings from this study will act as the first stage in developing and informing any potential interventions (as outlined by the Medical Research Council[23]) to support psychosocial well-being in this patient population.

The research findings will be disseminated to regional, national and international audiences including service users, clinicians, academics, service commissioners and policymakers. In addition, we will continue to work with CYP service users to further develop appropriate interventions, determined by the findings from the study. Following the evaluation, the RLOs will be made freely available on-line. Individuals and publicly-funded educational and other institutions may link to and use the RLOs on the University of Nottingham website without restriction for non-commercial educational purposes. Dissemination will also include presentations at relevant research conferences, and we will publish papers in open access, peer-reviewed journals.

Ethics approval

The study will be conducted in accordance with the ethical principles that have their origin in the Declaration of Helsinki, 1996; the principles of Good Clinical Practice, and the Department of Health Research Governance Framework for Health and Social care, 2005.

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Contributors JCM is the Chief Investigator for the study. JCM and TC are responsible for the overall development and design of the study. JC, HW, AH and MA contributed to developing the study protocol. AL refined the protocol and drafted the paper. All named authors contributed to editing and approved the final manuscript.

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