

**Co-producing a digital educational programme for  
registered children's nurses to improve care of children and  
young people admitted with self-harm**

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Keyword:	Nurse Education, Information Technology, Children and Young People (CYP) participation, Self-harm, Digital Educational Intervention
Abstract:	<p>Despite the increasing prevalence of hospital admissions for self-harm in children and young people (CYP), there is paucity of registered children's nurse (rCN) training or involvement of children to improve care for this often stigmatised patient group. This paper describes a participatory approach towards using co-production with CYP and rCN to develop a digital educational programme to improve nurses' knowledge, attitudes and confidence in caring for CYP with self-harm injuries.</p> <p>A priority-setting workshop with rCNs was used to establish consensus of information needs. This was followed by an e-learning content development workshop undertaken with CYP whom had previously experienced hospital admissions for self-harm injuries. Findings from the nurse priority-setting workshop identified three educational priorities: 1. Knowledge of self-harm; 2. Effective communication and 3. Risk management. The CYP subsequently developed these topic areas to ensure the contents and design of the e-learning resource had fidelity by reflecting the experiences of CYP and needs when cared for in hospital. This paper illustrates that involving service users to co-develop educational materials is a feasible and important step in designing educational resources and ensures the content is relevant, appropriate and sensitive to both the recipient of care and those responsible for its delivery.</p>

**Abstract**

Despite the increasing prevalence of hospital admissions for self-harm in children and young people (CYP), there is paucity of registered children's nurse (rCN) training or involvement of children to improve care for this often stigmatised patient group. This paper describes a participatory approach towards using co-production with CYP and rCN to develop a digital educational programme to improve nurses' knowledge, attitudes and confidence in caring for CYP with self-harm injuries. A priority-setting workshop with rCNs was used to establish consensus of information needs. This was followed by an e-learning content development workshop undertaken with CYP whom had previously experienced hospital admissions for self-harm injuries. Findings from the nurse priority-setting workshop identified three educational priorities: 1. Knowledge of self-harm; 2. Effective communication and 3. Risk management. The CYP subsequently developed these topic areas to ensure the contents and design of the e-learning resource had fidelity by reflecting the experiences of CYP and needs when cared for in hospital. This paper illustrates that involving service users to co-develop educational materials is a feasible and important step in designing educational resources and ensures the content is relevant, appropriate and sensitive to both the recipient of care and those responsible for its delivery.

**Keywords:** Children and Young People (CYP) participation, Digital Educational Intervention, Information Technology, Nurse Education, Self-harm

## Introduction

Within Europe, the United Kingdom (UK) has one of the highest rates of self-harm with between 7-14% of children and young people (CYP) self-harming at some time (Hawton and James, 2005; YoungMinds, 2011). One international comparative community study of 7 countries indicated that prevalence rates for females ranged from 3.6% (the Netherlands) to 11.8% (Australia) with England second at 11.1% (Madge, Hewitt, Hawton et al., 2008) In England, injuries resulting from self-harm lead to over 200,000 Emergency Department attendances annually (Hawton, Bergen, Casey et al., 2007) and CYP have more hospital presentations for self-harm than any other age group (Diggins, Kelley, Cottrell et al., 2017). CYP admitted to hospital wards with self-harm injuries spend significant time being cared for by registered children's nurses (rCNs) who are often the first health professionals encountered by CYPs following a self-harm episode (Anderson and Standen, 2007). However, there is a distinct paucity of mental health training for rCNs, resulting in feelings of unpreparedness to meet the unique and often challenging needs of CYP who self-harm (Horrocks, Hughes, Martin et al., 2005). This has resulted in rCNs expressing a lack of confidence in their ability to work with this often stigmatised patient group (Hodgson, 2016). In addition, previous studies have shown that rCN attitudes towards patients with mental health problems are not always positive and at times are shown to be stigmatising, resulting in discriminatory behaviour that can impact negatively on the patient's experience and wellbeing (Ross and Goldner,

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9 2009). There have been urgent calls for rCN training in mental health and effective  
10 provision of care for patients who have self-harmed and present at the emergency  
11 department (Hodgson 2016; Coulter, Roberts and Dixon, 2013). CYPs admitted for  
12 treatment following self-harm feel they are treated differently from other patients and  
13 their views indicate there are still significant improvements needed to change the  
14 attitudes and behaviour of health professionals to ensure they receive a high-quality  
15 service (Horrocks, Hughes, Martin et al., 2005; McHale et al 2010). There is little  
16 evidence to suggest CYP are actively involved in the development of care and  
17 consequently their voices remain seldom heard.  
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31 Improvements to the way services are delivered is increasingly being influenced by the  
32 philosophy of co-production where health professionals and service users work in  
33 partnership to improve the patients' experience (Coulter, Roberts and Dixon, 2013;  
34 Batalden, Batalden, Margolis, et al., 2015). The co-production concept is broad and can  
35 range from service co-planning and co-commissioning, service co-design and co-  
36 delivery, through to co-assessment, co-monitoring and co-evaluation (Bovaird and  
37 Loeffler, 2013). Central to this model of co-involvement is the active contribution of  
38 service users that allow services to be tailored whilst also empowering the contribution  
39 of front-line health care staff (Needham and Carr, 2009). In the mental health context,  
40 co-production has been reported to assist in the delivery of services through the equal  
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9 and reciprocal relationship between professionals, service users, and their families (Slay  
10 and Stephens, 2013). This paper extends the co-production philosophy to illustrate an  
11 application towards co-producing a digital educational programme with a vulnerable  
12 patient group (CYP who self-harm) and rCNs. Due to the unique nature and care needs  
13 of these individuals, using a co-production approach with CYP provides an opportunity  
14 to promote equity of care by learning ‘first-hand’ how CYP admitted with self-harm  
15 injuries would like to be cared for. This ‘bottom up’ approach not only facilitates  
16 collaboration, it also increases the likelihood of effective care as the strategies  
17 prescribed within the resource have come directly from CYP themselves.  
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31 A digital educational intervention was identified as an appropriate, convenient and cost  
32 efficient method to enable easy access to the training (DoH, 2001; Ruggeri, Farrington,  
33 and Brayne 2013) Furthermore, e-learning is seen as a central strategic delivery  
34 mechanism being an effective and flexible way to deliver health professional training  
35 (DoH, 2001; Lymn, Bath-Hextall and Wharrad, 2008; Windle and Wharrad, 2010). In  
36 this paper, we report on the benefits and challenges of the co-production process in this  
37 context as well as the themes generated during nurse and CYP workshops.  
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#### 46 **The Our Care through Our Eyes Study**

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48 The work described in this paper forms part of a wider project that aimed to evaluate the  
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9 attitudes and level of confidence to manage care. Further details are reported in the  
10 study protocol (Manning, Latif, Carter et al., 2015).  
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## 13 14 15 **Methods**

### 16 17 **Sampling and recruitment**

#### 18 19 **Nurses priority-setting workshop**

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21 Registered children's nurses were recruited from a large University Hospital NHS Trust  
22 located in the Midlands area of England. Nurses were recruited using a theoretical  
23 sampling frame to ensure a mix of Agenda for Change (AfC) bandings, children clinical  
24 setting (Paediatric Critical Care; Renal and Urology; Medical Short Stay; Children's  
25 Assessment Unit; Oncology; Neuro; General Surgery; ENT/Orthopaedics/Maxillo-  
26 facio; Medical Long Stay) and time since qualification as a children's nurse. One staff  
27 nurse (AfC Band 5) and one junior sister / ward manager (AfC Band 6 or 7) from each  
28 of 10 clinical areas plus one matron (AfC Band 8) were identified by their line manager  
29 and invited to take part in the study to ensure incorporation of a range of nurse  
30 experiences (n=19).  
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#### 46 47 **CYP for e-learning development workshop**

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49 CYP from Child and Adolescent Mental Health Services (CAMHS) Tier 3 were  
50 recruited to take part in a workshop. The inclusion criteria were that CYP were aged 10-  
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9 18 years and that the individuals had been admitted as an inpatient to acute care services  
10 within hospital for the treatment of self-harm injuries within the previous 12 months.  
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12 CYP were excluded if they were deemed by the care team not to be a suitable candidate  
13 for the workshop, currently in receipt of acute care for the treatment for self-harm, or if  
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15 parents/guardians were unwilling to provide consent for their child to take part in the  
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17 study (those aged 16-18 were allowed to consent for themselves). Eligible CYP were  
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19 approached by a member of the usual care team. An information sheet was provided to  
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21 the young person (if >16 years) and to their parent / guardian (if <16 years) and  
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23 appropriate time given (about a week) to decide whether to take part in the workshop  
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25 before informed consent / assent was taken. Seven CYP were identified to be eligible  
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27 and were approached to take part in the workshop.  
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### 35 **Towards a co-production approach**

#### 36 **Nurse priority-setting workshop**

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38 From the 19 nurses invited, 7 attended (37%) the nurse priority-setting workshop.  
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40 Participants included four Band 7, one Band 6 and two Band 5 nurses. Participants  
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42 represented five out of the ten clinical areas (Paediatric Critical Care; Medical Short  
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44 Stay; Medical Long Stay; Children's Assessment Unit; Oncology), and their average  
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46 years since qualification was 10.6 years. An adapted Delphi technique was used to  
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48 establish consensus of nurse information needs and educational topic priorities. This  
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9 involved initial discussion about the challenges of caring for CYP who self-harm,  
10 summarising responses and gaining feedback on priority areas. After the first round, a  
11 facilitator provided an anonymous summary of the findings. Nurses were then  
12 encouraged to revise their earlier answers in the second round, in light of the replies of  
13 other members of the group, until consensus was determined. In most cases three  
14 iterations are often sufficient to collect the needed information and to reach a consensus  
15 (Custer, Scarcella, and Stewart, 1999).  
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### 24 25 26 **CYP e-learning development workshop** 27

28 Conducting research with CYP generates a multitude of ethical challenges that must be  
29 identified and addressed (Baxter et al 1998; Alderson 2004). Due to the CYP belonging  
30 to a vulnerable group (Owens, Hansford, Sharkey et al., 2016), appropriate safeguards  
31 were included to minimise the risk of CYP becoming distressed during the workshop.  
32 Separate workshops were undertaken for CYP and nurses to allow the CYP to speak  
33 freely and honestly without the fear of offending nurses. CYP were informed that there  
34 were no right / wrong answers and that their views are valued, and appropriate  
35 professional support was available should the CYP have become distressed.  
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48 The CYP workshop was held on a weekend in a local community centre. Four CYP  
49 agreed and consented to participate. Participants were all female and had a mean age of  
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9 15 years. It was facilitated by three members of the study team (one of which was a  
10 registered mental health nurse) as well as an emotional health and well-being worker  
11 from a local NHS Trust. During the workshop, CYP worked in small groups to explore  
12 (on flip-charts) what they thought was important to include in a nurse training package.  
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‘Story boards’ were used to capture ideas and drawings from the CYP about possible ways to improve the care CYP receive from nurses (Illustration 1). Particular attention was paid to listening and capturing the participant voices. CYP were given £20 worth of High Street vouchers for taking part in the workshop. All participants provided written informed consent, assent where appropriate, to take part.

### **Ethical approval**

This study was conducted in accordance with the ethical principles of ICH Good Clinical Practice. Full ethical approval has been received from East Midlands Research Ethics Committee (REC ref: Derby 15/EM/0236), along with research governance clearance from the appropriate National Health Service (NHS) Trust.

### **Findings**

#### **Nurse priority-setting workshop:**

#### **Delphi technique round 1: Exploring nurse experiences and challenges**

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9 The first round of the Delphi technique involved an initial discussion about the  
10 challenges of caring for CYP who self-harm. A range of issues were reported  
11 demonstrating the need for further nurse training and support. These discussions are  
12 summarised in Table 1. The most frequently reported areas of need were more training  
13 in risk assessment and supervision. The lack of formal guidelines and perceived lack of  
14 resource resulted in feelings of uncertainty over how supervision of CYP should be  
15 undertaken and managed. This round of the Delphi exercise also revealed a general lack  
16 of knowledge about self-harm and lack of confidence to how to provide care for CYP  
17 on the ward.  
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### 31 **Delphi technique round 2: Refining initial ideas**

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33 Following the first round, participants were asked to focus on the list of challenges  
34 identified and consider what an educational intervention should cover to improve their  
35 knowledge, skills and their confidence in providing care to this patient group. Seven  
36 topic areas were identified: communication with CYP and families, knowledge of self-  
37 harm and pathways of care, supervision, assessing and managing risk, establishing and  
38 negotiating boundaries and behaviours, improving the ward environment and resources  
39 for CYP.  
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### 51 **Delphi technique round 3: Prioritisation of topics**

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9 The final stage of the Delphi exercise involved participants ranking the areas identified  
10 in round 2 to allow for prioritisation of topic areas. It was explained that the top 3-4  
11 areas would be developed into a digital education programme. There was consensus that  
12 the following four areas would be most useful to develop e-learning:  
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- 15 1. Assessing and managing risk
- 16 2. Communication with CYP and families
- 17 3. Supervision
- 18 4. Knowledge of self-harm and pathways of care

#### 26 **CYP e-learning development workshop**

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28 At the beginning of the workshop, CYP were provided with background information on  
29 the purpose of the study and the four priority areas that emerged from the nurse priority  
30 setting workshop. This was not to set the agenda, but rather to open up the discussion. It  
31 became apparent that these areas resonated closely with the CYP as areas that rCN  
32 could improve. All participants shared their personal experiences of being in hospital to  
33 discuss and decide what to include in the digital education programme. Participants  
34 were encouraged to self-reflect on their experience in hospital to provide insights into  
35 what the training should be focused upon. From initial discussions between the CYP it  
36 was felt that the priority themes 'assessing and managing risk' and 'supervision' should  
37 be explored under one theme. This created 3 areas for development into the digital  
38 education programme:  
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### 1. Understanding self-harm and care pathways

To improve nurses' knowledge of self-harm, participants suggested personal biographies with life histories to illustrate the complex picture before presenting to Emergency Departments (ED). They also suggested that nurses must appreciate that CYP tend to have complex social situations and should appreciate the reasons why people self-harm and be aware of care pathways within hospital and following discharge.

### 2. Effective communication

CYP were asked to reflect on their experience of care during their stay in hospital following self-harm. They reported that nurses mainly provide 'physical care' i.e. the care was deemed too 'clinical'. The questions that the nurses asked were perceived to be generic and not appreciative of their emotional state or recent experiences. CYP felt largely neglected due to nurses not speaking to them which led to a general sense of feeling unimportant, misunderstood and isolated. These feelings led the CYP to want to 'hide' how they felt. As such, it was hard for CYP to communicate how they felt during their time on the ward which led to them seeing the nurses as not on the 'same side' as them. The e-learning should therefore emphasise the nurses' responsibility to build up a rapport with CYP without being afraid or avoiding the topic of self-harm. Video clips could be used to illustrate examples of good / poor communication.

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11 CYP preferred nurses to use a direct approach, and asking open questions when asking  
12 about self-harm to foster a culture of openness. They also wanted nurses to appreciate  
13 that during admission, CYP were often uncommunicative and not wanting to engage.  
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15 Nevertheless, although acknowledging this, CYP still preferred nurses to attempt  
16 dialogue and not abandon their efforts despite the lack of response.  
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### 24 **3. Assessing risk and managing safety**

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26 Three areas were identified as being important: 1. Risk assessment through appropriate  
27 and respectful collaboration; 2. Strategies to reduce risk including distracting the CYP  
28 so that they could focus on something positive during their stay in hospital. For example,  
29 they saw distraction while on wards as a means to reduce the risk of further self-harm  
30 and to manage problematic behaviour often associated with boredom; and 3.  
31 supervising the CYP through developing a sense of partnership with the CYP. CYP  
32 emphasised that successful supervision lay in building rapport and creating care plans in  
33 partnership.  
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### 46 **Discussion**

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48 This paper outlines the development of a digital education programme for rCNs caring  
49 for CYP admitted to hospital with self-harm. Through meaningful engagement with  
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9 rCNs and CYP service users, an evident level of co-production was found to be feasible  
10 and the methods used acceptable. Moreover, despite the challenges of participant  
11 recruitment, the co-production approach offered unique insights and learning on how to  
12 improve care for CYP who self-harm. This study further builds on the evidence base,  
13 for example the study by Manikam et al (2016), which illustrates the benefits of co-  
14 production with CYP in healthcare and the different insights patients, public and  
15 professionals can offer research and services. In light of calls to make services more  
16 responsive to the needs of patients (Dunston et al., 2009; Realpe and Wallace, 2010),  
17 we have shown that co-production can be extended to the development of training  
18 materials for nurse professionals, and subsequently advocate for its wider application.  
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33 Discussions by rCNs focussed on professional concerns and deficits in the provision of  
34 care to CYP culminating in four priority learning areas being identified (1-assessing and  
35 managing risk, 2-communication with CYP and families, 3-supervision, 4-knowledge of  
36 self-harm and pathways of care). Although there are a number of empirical studies have  
37 identified deficits in nurses' knowledge and skills in caring for people who self-harm  
38 and recommend that further training interventions should be developed (Thompson et al.  
39 2008; Cooke and James, 2009; Conlon and O'Tuathail, 2012), there is little detail as to  
40 the content and mode of delivery these should take. Therefore this study has provided  
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9 new insights as to the focus the training should adopt to meet the educational needs of  
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11 rCNs caring for CYP admitted to hospital with self-harm.  
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15 It was evident that CYPs adopted a more appreciative standpoint to exploring and  
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17 developing the e-learning programme. CYPs used experiential knowledge to offer rich  
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19 and insightful suggestions on how to improve care and how the e-learning could be  
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21 made engaging (i.e. through the use of video stories). In this sense, the co-production  
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23 approach was particularly useful to ensure the CYP voice which was heard and  
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25 acknowledged and delivered in an appropriate and stimulating format. Through using  
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27 this approach, insights and recommendations and ways to improve care were made. As  
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29 such, the resources produced are uniquely placed to address the clearly-defined  
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31 knowledge gaps reported by nurses. The nurse training programme that was  
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33 subsequently developed is openly accessible and available via the following link:  
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35 <http://sonet.nottingham.ac.uk/rlos/mentalhealth/octoe/>.  
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42 Evidence suggests that the attitudes of hospital staff towards individuals who repeatedly  
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44 self-harm are largely negative and that training can lead to consistent improvements in  
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46 health professional's attitudes and knowledge (Saunders, Hawton, Fortune et al., 2012).  
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48 The findings from the 'our care through our eyes study are reported elsewhere  
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50 (Manning, Carter, Latif et al., 2016). In short, the evaluation found the e-learning  
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9 produced by the co-production approach improved nurse's knowledge, attitudes and  
10 confidence. Furthermore, nurses reported being more knowledgeable; having the skills  
11 and ability to effectively communicate; and stimulating both a reflection on own  
12 practice and of CYP emotional health and wellbeing in a broader context. The e-  
13 learning method also makes such training sustainable and acceptable given that it can be  
14 delivered at low cost to the service provider.  
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#### 24 **Strengths and limitations of this study**

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26 The e-learning was produced by active involvement of service users and rCN working  
27 on the frontline. In this sense the final resource was sensitive to nurse learning needs  
28 and included a strong patient voice. The main challenge was with recruitment both with  
29 nurses and CYP. Despite workshops being arranged in the summer months to avoid  
30 winter work pressures, staffing pressures were a barrier to participation. Recruitment of  
31 CYP was equally challenging reflecting the sensitive nature of self-harm and ethical  
32 safeguards needed to ensure CYP were suitable for the workshop. Despite the  
33 significant effort and working with CAMHS colleagues to build trust, CYP engagement  
34 remained low with no males being recruited. Future lessons could include more  
35 attractive incentives, a web based forum to hold 'virtual' workshops or considering on a  
36 case-by-case basis CYP who are currently in receipt of acute care for the treatment for  
37 self-harm.  
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## Conclusion

Despite recruitment challenges, this study illustrates that involving service users to co-develop educational materials for nurses is a feasible and important step in designing educational resources and ensures the contents of the learning material is relevant, appropriate and sensitive to both the recipient of care and those responsible for its delivery.

## Authors' contributions

JM, AL and TC were responsible for the overall development, design and data collection for the study. JLB contributed to the study design and responsible for CYP recruitment. HW led on the development of the e-learning. AL, TC and JM drafted the paper. All authors contributed to editing and approved the final manuscript.

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**Declaration of Conflicting Interests**

The authors have not declared any competing interests.

For Peer Review

## References

- Anderson M, Standen PJ (2007) Attitudes towards suicide among nurses and doctors working with children and young people who self-harm. *Journal of Psychiatric and Mental Health Nursing* 14(5): 470-477.
- Batalden M, Batalden P, Margolis P, Seid M, Armstrong G, Opipari-Arrigan L and Hartung H (2015) Coproduction of healthcare service. *BMJ quality & safety*: doi:10.1136/bmjqs-2015-004315.
- Bovaird T, Loeffler E (2013) The role of co-production for better health and wellbeing: Why we need to change. In Loeffler E, Power G, Bovaird T, Hine-Hughes F, eds. *Co-production of health and wellbeing in Scotland*. Birmingham, UK: Governance International.
- Conlon M and O'Tuathail C (2012) Measuring emergency department nurses' attitudes towards deliberate self-harm using the self-harm antipathy scale. *International Emergency Nursing* 20, 3–13.
- Cooke E and James V (2009) A self-harm training needs assessment of school nurses. *Journal of Child Health Care* 13, 260–274.
- Coulter A, Roberts S and Dixon A (2013) Delivering better services for people with long-term conditions: building the house of care. London: The King's Fund. Available at: <http://www.kingsfund.org.uk/publications/delivering-better-services-people-long-term-conditions>.
- Custer RL, Scarcella JA, and Stewart BR (1999) The modified Delphi technique - a rotational modification. *Journal of Career and Technical Education*. 15(2)
- Department of Health (2001) *Working Together—Learning Together. A Framework for Lifelong Learning in the NHS*. London: Department of Health.
- Diggins E, Kelley R, Cottrell D, House A and Owens D (2017) Age-related differences in self-harm presentations and subsequent management of adolescents and young adults at the emergency department. *Journal of affective disorders* 208: 399-405.
- Dunston, R., Lee, A., Boud, D., Brodie, P. and Chiarella, M. (2009) Co-Production and Health System Reform – From Re-Imagining To Re-Making. *Australian Journal of Public Administration*, 68: 39–52. doi:10.1111/j.1467-8500.2008.00608.x.

1  
2  
3 Hawton K, Bergen H, Casey D, et al. (2007) Self-harm in England: a tale of three cities. Multicentre  
4 study of self-harm. *Social Psychiatry and Psychiatric Epidemiology* 42: 513–521.  
5  
6 doi:10.1007/s00127-007-0199-7.  
7

8  
9 Hawton K and James A (2005) Suicide and deliberate self-harm in young people. *British Medical*  
10  
11 *Journal* 330(7496): 891-894.  
12

13 Hodgson K (2016) Nurses' attitudes towards patients hospitalised for self-harm. *Nursing Standard*  
14  
15 30(31): 38-44.  
16

17 Horrocks J, Hughes J, Martin C, House A, and Owens D (2005) *Patient experiences of hospital care*  
18  
19 *following self-harm—a qualitative study*. Leeds: University of Leeds.  
20

21 Manikam L, Shah R, Reed K., Santini G and Lakhanpaul M (2016) Using a co-production  
22  
23 prioritization exercise involving South Asian children, young people and their families to identify  
24  
25 health priorities requiring further research and public awareness. *Health Expect.*  
26  
27 doi:10.1111/hex.12524  
28

29 Lymn JS, Bath-Hextall F and Wharrad HJ (2008) 'Pharmacology education for nurse prescribing  
30  
31 students—a lesson in reusable learning objects', *Biomedcentral Nursing*, 7(1): 2.  
32

33 Manning JC, Carter J, Latif A, Horsley A, Armstrong M, Cooper J, Crew J, Wood D, Callaghan P and  
34  
35 Wharrad H (2016) A service-user co-produced digital education programme for acute hospital nurses  
36  
37 to improve the care of children and young people that self-harm. Nottingham: University of  
38  
39 Nottingham. Available at:

40  
41 [http://www.bfn.org.uk/library/directory\\_listings/346/Our%20Care%20Through%20Our%20Eyes%2](http://www.bfn.org.uk/library/directory_listings/346/Our%20Care%20Through%20Our%20Eyes%20Report.pdf)  
42  
43 [0Report.pdf](http://www.bfn.org.uk/library/directory_listings/346/Our%20Care%20Through%20Our%20Eyes%20Report.pdf).  
44

45 Manning JC, Latif A, Carter J, Cooper J, Horsley A, Armstrong M and Wharrad H (2015) 'OurCare  
46  
47 through Our Eyes': a mixed-methods, evaluative study of a service-user, co-produced education  
48  
49 programme to improve inpatient care of children and young people admitted following self-harm.  
50  
51 *BMJ open* 5(12): p. e009680.  
52  
53  
54  
55  
56  
57  
58  
59  
60

1  
2  
3 Madge N, Hewitt A, Hawton K, Wilde E.J.D, Corcoran P, Fekete S et al (2008) Deliberate self-harm  
4 within an international community sample of young people: comparative findings from the Child &  
5 Adolescent Self-harm in Europe (CASE) Study. *Journal of child Psychology and Psychiatry* 49(6):  
6  
7 667-677.  
8  
9

10  
11 McHale J and Felton A (2010) Self-harm: what's the problem? A literature review of the factors  
12 affecting attitudes towards self-harm. *Journal of Psychiatric and Mental Health Nursing* 17(8): 732-  
13  
14 740.  
15  
16

17  
18 Needham C and Carr S (2009) SCIE Research Briefing 31: *Co-production: An emerging evidence*  
19  
20 *base for adult social care transformation*, London: Social Care Institute for Excellence.

21  
22 Owens C, Hansford L, Sharkey S, and Ford T (2016) Needs and fears of young people presenting at  
23  
24 accident and emergency department following an act of self-harm: secondary analysis of qualitative  
25  
26 data. *The British Journal of Psychiatry* 208(3): 286-291.

27  
28 Realpe A. and Wallace LM. (2010) *What is co-production?* London: The Health Foundation.

29  
30 Ross CA and Goldner EM (2009). Stigma, negative attitudes and discrimination towards mental  
31  
32 illness within the nursing profession: a review of the literature. *Journal of Psychiatric and Mental*  
33  
34 *Health Nursing* 16(6): 558-567.

35  
36 Ruggeri K, Farrington C and Brayne C (2013) A global model for effective use and evaluation of e-  
37  
38 learning in health. *Telemedicine and e-Health* 19(4): 312-321.

39  
40 Saunders KE, Hawton K, Fortune S and Farrell S (2012) Attitudes and knowledge of clinical staff  
41  
42 regarding people who self-harm: a systematic review. *Journal of Affective Disorders* 139(3): 205-216.

43  
44 Slay J and Stephens L (2013). *Co-production in mental health: A literature review*. London: new  
45  
46 economics foundation.

47  
48 Thompson AR., Powis J and Carradice A (2008) Community psychiatric nurses' experience of  
49  
50 working with people who engage in deliberate self-harm. *International Journal of Mental Health*  
51  
52 *Nursing* 17, 153-161.

53  
54 Windle R and Wharrad H (2010) Reusable learning objects in health care education. In  
55  
56 *Interprofessional e-learning and collaborative work: practices and technologies*. Bromage A,  
57

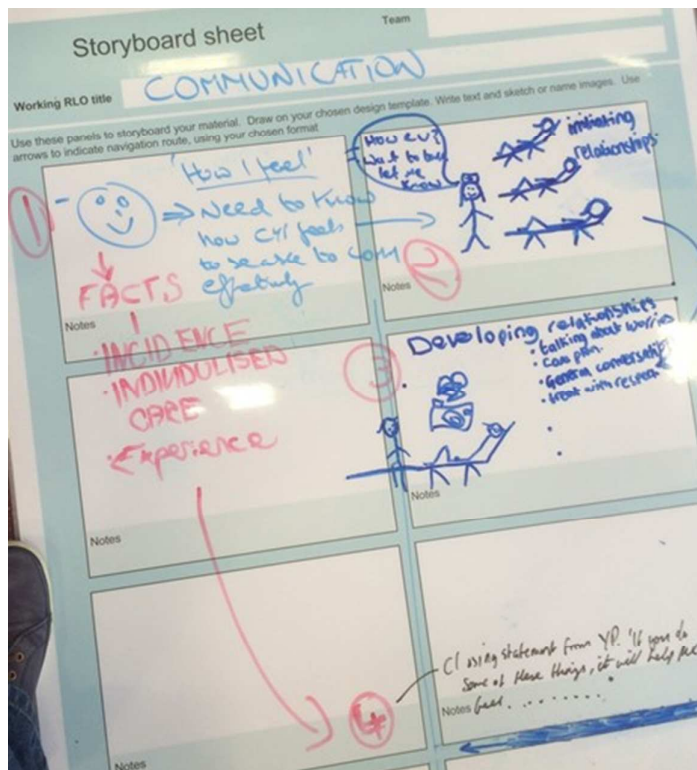
1  
2  
3 Clouder L, Thistlethwaite J and Gordon F. (Eds) Information Science Reference (IGI Global):  
4  
5 Hershey, NY. pp. 244-259.

6  
7 YoungMinds (2011) *100,000 children and young people could be hospitalised due to self-harm by*  
8  
9 *2020 warns YoungMinds*. 5 December. London: YoungMinds.

10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
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For Peer Review

Illustration 1: Effective communication storyboard



Review

**Table 1: Experiences of the children's nurses of the challenges of caring for CYP**

Topic area	Example extracts of the challenges when caring for CYP
Location / environment	Wards being unsuitable placed when CYP are waiting for a CAMHS assessment as they are alongside other young people who have more overt illness
Risk assessment/ supervision	Lack of knowledge / skills to make a risk assessment Unclear as to who is responsible for supervising or providing 1:1 care while on the ward
Care needs	CYP who are on medicines take priority over CYP who self-harm due to care perceived as 'time critical' Staff attitudes towards CYP who self-harm
Care on the ward	Reports of avoiding conversations with CYP who self-harm for fear saying something wrong Lack of confidence to care for this group
CYP behaviour	Poor behaviour of CYP CYP being bored on wards
Family support	Nurses need support on how to manage parents and families of CYP who self-harm
Review by Child and Adolescent Mental Health Services (CAMHS)	Frustration with CAMHS delays particularly over weekends which mean the CYP waiting on the ward for several days