Evaluating the use of simulation dolls to assess parenting capacity [DAP]

Introduction:

This document has been prepared by the University of Hertfordshire research team (Dr. Lisa Whiting; Professor Brian Littlechild and Julia Petty) who have been commissioned by East and North Hertfordshire and Herts Valleys Commissioning Groups to undertake a research study that aims to evaluate the use of RealCare baby infant simulation dolls in terms of the development of the parenting capacity of expectant parents (mothers and fathers who are aged 18 years and over) where there is a safeguarding concern for their unborn child.

Initially, a review of the existing literature is presented; this is followed by an overview of each stage of the proposed research.

Literature review and background:

A literature search was undertaken via PubMed and CINAHL (Cumulative Index of Nursing and Allied Health Literature) in October 2019, focussing on the use, value and effectiveness of simulation dolls in health and social care – this led to the retrieval of 14 papers. The literature revealed that there had been consideration of the following areas: Dementia care (6 papers); the effect on attitudes towards pregnancy and parenting in the teenage population (6 papers plus one relating to medical students). In addition, one paper focussed on the use of simulation dolls for students who have an intellectual disability.

Use of simulation dolls in relation to dementia care:

In terms of the first of these areas, an increasing body of evidence suggests the use of dolls can have a positive impact on people with dementia in residential care. It is suggested by advocates of doll therapy that its use can alleviate distress and promote comfort and wellbeing for this group of people (Mitchell and O'Donnell, 2013). James et al (2006) introduced dolls into an 'Elderly Mentally Ill' (EMI) home as part of a non-pharmacological intervention to address the decline in cognitive and social function as well as the distress that people with dementia experience. An evaluation into the effectiveness of the dolls yielded positive findings in that they provided sensory stimulation

and purposeful activity. A literature review by Higgins (2010) that explored the benefits and potential problems of using dolls as a therapeutic intervention in dementia supported this conclusion.

A review by Mitchell (2014) recognised the increasing use of dolls as a therapeutic device for people with dementia and the promotion of wellbeing was linked to a reduction in challenging behaviour, greater engagement with others and increased dietary intake. To concur, Mitchell and Templeton (2014) undertook a critical review of eleven published papers on doll therapy and the majority of studies found that the use of dolls could be therapeutic for some people living with dementia, reporting increased levels of engagement and communication with a reduction in episodes of distress. Limitations to the therapy included confusion over the ownership of the doll and healthcare professional uncertainty about issues pertaining to autonomy with some feeling uncomfortable about its use in clinical practice. Nonetheless, positive findings were reported overall in this field.

Use of simulation dolls in relation to teenage pregnancy and parenting:

Research into attitudes towards pregnancy and parenting is more limited, with less favourable findings to date. Very few commentators have articulated positive views towards doll-based interventions in this area. Underwood (2002) wrote a review article on the value of computerised babies, strongly supporting how they can encourage teenagers to delay parenting. McCormack and Sim (2005) also proposed that the simulated doll or virtual parenting interventions are valuable ways to modify attitudes toward teen pregnancy and parenting and to delay pregnancy until the participants have a better understanding of the demands and responsibilities of caring for an infant. However, these anecdotal views do not appear to be confirmed by research findings. Kralewski and Stevens-Simon (2000) for example, investigated the effect of age on the efficacy of a computerised infant simulator doll, ‘Baby Think It Over’ (BTIO), in relation to increasing middle school girls' knowledge about the responsibilities of parenthood and discouraging plans for teenage childbearing. Little learning about the difficulties of parenting took place during the study and caring for BTIO had no

effect on the intent of students to become teenage parents. Bath et al (2000) also explored whether attitudes to parenting were altered in seventy final year medical students following a period spent caring for a simulated BTIO infant. On assessing the impact of the experience, 79% considered the experience straightforward, with 35% expressing a little more empathy and 15% a lot more empathy for parents as a result. However, thoughts regarding impact on lifestyle were unaltered and caring for BTIO was not considered to be a realistic experience, nor was it perceived to be particularly useful. The study concluded that simulated infants were of only limited value in increasing medical student understanding of parental concerns.

In 2011, Herrman et al (2011) evaluated the effectiveness of simulation as a strategy to influence a group of seventy-nine teenagers' perceptions of pregnancy and parenting. The participants undertook 6 weekly BTIO classes and an infant simulator experience. Analysis of the 'Thoughts on Teen Parenting Survey' (TTPS) found no significant differences in the mean pre/post-test suggesting that the effectiveness of using infant simulators to influence the perceptions of teenagers about the reality of parenting was minimal. Furthermore, Brinkman et al (2016) undertook a pragmatic randomised controlled trial to evaluate the impact of a school-based Virtual Infant Parenting (VIP) program to prevent teenage pregnancy that included students taking care of an infant simulator. In fifty-seven schools in Perth, Australia between 2003 and 2006, the VIP programme was administered to girls aged 13–15 years in the intervention schools, while girls of the same age in the control schools received the standard health education curriculum. Participants were followed until they reached 20 years of age via data linkage to hospital medical and termination of pregnancy clinic records. Overall, the study concluded that the infant simulator-based VIP programme did not achieve its aim of reducing teenage pregnancy. A commentary by Quinlivan (2016) rationalised the findings in relation to the complexities within this area of enquiry.

Use of simulation dolls and students with an intellectual disability:

Finally, the most recent study available on the therapeutic use of simulator dolls was undertaken by Janeslätt et al (2019) and aimed to evaluate an intervention using a Toolkit that included the 'Real-Care-Baby' (RCB) simulator among six students, aged 17-20 years of age, who had intellectual disabilities. The students participated in eight educational sessions and a 3-day caring session with the RCB. Data collected with questionnaires and interviews revealed that it was possible to evaluate the intervention using these instruments to provide further insights about parenthood and to add to our knowledge about possible intervention strategies regarding reproduction and parenting among students with intellectual disability.

Summary of the literature:

In summary, there is limited empirical evidence to support the therapeutic use of simulated dolls and no published evidence of the short or long-term impact (Brinkman et al, 2010). However, positive effects have been reported, particularly in terms of dementia care. In addition, the literature relating to parenting and pregnancy in the teenage population has primarily focussed on pregnancy prevention, rather than the development of parenting skills. This highlights the need for further research to identify best practice, including education, and increase awareness in both healthcare professional and carer populations, tailored to specific vulnerable groups of people. In particular, there appears to have been no previous consideration of the use of simulated dolls with expectant parents (mothers and fathers who are aged 18 years and over) where there is a safeguarding concern for their unborn child – this evaluative study seeks to address that omission.

Aim: To evaluate the use of RealCare baby infant simulation dolls in terms of the development of the parenting capacity of expectant parents (mothers and fathers who are aged 18 years and over) where there is a safeguarding concern for their unborn child.

Objectives:

- To ascertain the experiences and perceptions of expectant parents, (where there is a safeguarding concern for their unborn child) of RealCare baby infant simulation dolls in terms of the development of their parenting capacity.
- To evaluate quantitative data relating to parental responses to the RealCare baby infant simulation dolls.

Research approach:

A mixed methods evaluative approach, incorporating quantitative and qualitative data collection strategies will be employed. Garbarino and Holland (2009: 11) suggest that the use of mixed methods in evaluative work has *"been convincingly made"*; Moule and Goodman (2014) concur, stating that the combination of methods enables different perspectives to be appreciated. Greene et al (1989) proposed five purposes for mixed methods evaluations (Table 1.1)

- Triangulation:
  Uses different methods to investigate the same phenomenon with the aim of confirming the findings;
- Complementarity:
  Quantitative and qualitative approaches are utilised to examine overlapping as well as different aspects of a phenomenon – this potentially enhances the richness of the data;
- Development:
  Quantitative and qualitative methods are used successively with the first approach informing the latter;
- Initiation:
  This aims to increase the depth and breadth of the investigation; it can highlight contradictions, inconsistencies, different perspectives and prompt the modification of questions;
- Expansion:
  This increases the scope of the research by drawing on different methods for the different components.

Table 1.1: Purposes for mixed-method evaluation designs (Greene et al, 1989)

The mixed methods approach for this study is likely to be underpinned by complementarity, initiation and expansion.

The use of evaluation research has become well established within health and social care professions in recent years; this is partly due to the increased need to assess the effectiveness of organisations (Moule and Goodman, 2014). An evaluation research approach will be adopted for this study as this *"methodology is used to measure the worth or merit of something"* (Ellis, 2010: 110) – this is congruent with the key objectives of the research. Bowling (2009) identifies that evaluation research takes two forms: Formative and summative; it is the formative type that is particularly pertinent for this proposed study since the research focusses on collecting data whilst the usage of RealCare baby infant simulation dolls with expectant parents (where there is a safeguarding concern for their unborn child) is in the early stages of implementation; formative evaluation research aims to inform and enhance the way a programme develops – in addition it often includes both quantitative and qualitative data collection methods (Ellis, 2010). Summative evaluation, on the other hand, normally measures whether the aims of an initiative have been met – the objectives of the programme act as a 'benchmark' to facilitate this (Ellis, 2010). Moule and Goodman (2014) identify different approaches to evaluation research (Table 1.2):

Goal-orientated: The aim is to measure whether an intervention has achieved specific, precise and measureable goals.
Experimental: The aim is to generate findings that are generalisable; the focus is on analytical methods and quantifiable data.
Goal-free: The emphasis on goals can mean that important data is missed. This approach focusses more on whether the needs of the individuals/locality are being met.
Utilisation focused: This evaluation approach suggests that an intervention/programme should be judged on its usefulness to its intended users. Therefore, the primary users should be identified, engaged and involved throughout the evaluation.
Economic: This form of evaluation involves quantifying and costing the resources that are involved in an intervention/programme.
Mixed method: The approach utilises both quantitative and qualitative research data collection approaches.

Table 1.2: Evaluation research approaches

It is anticipated that both the mixed methods and utilisation focused approaches will be drawn on for this study.

Reference group:

Public and patient involvement in health research is widely advocated and accepted (INVOLVE, 2012; Staniszewska et al, 2018). One of the most recognised methods of involving members of the public, who have relevant expertise, in decision making processes, is via a reference group. This is felt to be the most appropriate strategy to inform the planning of the proposed research approaches – both in terms of the recruitment of participants as well as data collection strategies. The aim will be to establish a parental reference group (of 2-6 people) prior to the receipt of ethical approval so that the research processes outlined in the sections below can be more fully explored and the finer details of their operationalisation clarified. The parent reference group may continue throughout the research study, but the actual longevity of it will be decided in due course; the key role will to offer advice in relation to areas such as:

- The facilitation of the recruitment of participants;
- The documentation (e.g. the participant information sheet and consent form);
- Data collection, including the location, time of day;
- Provision and usage of the RealCare baby infant simulation dolls.
- Data analysis

Sampling:

As this proposed evaluative research is exploratory in nature, and, in addition, the focus of the work involves vulnerable people, it is difficult to establish the sample size in advance. However, it is anticipated that a smaller numbers of participants will be recruited (between 10-20) and that this will allow the research team to gain insight into expectant parental experiences and will also facilitate the emergence of rich and detailed data; in fact, Parahoo (2014) comments that time is better spent undertaking in-depth interviews, rather than being concerned with interviewing large numbers of participants. In addition, the composition and characteristics of the sample population will be more important than the size alone (Macnee, 2004). Research projects with a qualitative element frequently utilise a purposive sampling technique to help ensure that participants most suited to the needs of the study are invited to take part (Polit and Beck, 2017).

Participants will be expectant parents (mothers and fathers who are aged 18 years and over) where there is a safeguarding concern for their unborn child. Purposive

sampling will be used to recruit expectant parents, who fulfil the inclusion criteria and who are from backgrounds that include the Black, Asian and minority ethnic population, via an NHS Trust in the South East England; recruitment will be facilitated by an appropriate member of staff who is based in the NHS Trust. Participants will be provided with a pre-programmed RealCare baby infant simulation doll for approximately a one-week duration to help prepare them for forthcoming parenthood – appropriate pre-education and training will be offered in terms of the handling of the doll.

Inclusion criteria

The participants will be eligible to participate in the research study if the criteria below are met. Participants should:

- Be 18 years of age or over at the point of enrolment to the study;
- Have conceived naturally;
- Be fluent in the English language;
- Be pregnant with a single infant;
- Be expecting their first child;
- There is a safeguarding concern for the unborn child.

Data collection:

Building a rapport:

The eminent author, Spradley (1979), provided valuable advice in relation to the building of rapport with participants in order to gain insight into participants' perspectives – this has since been reiterated by others (McGarry, 2007; Bell et al, 2016; Prior, 2018). Given the sensitive nature of the research, strategies will be incorporated into the research study to facilitate the building of a rapport as well as a trusting professional relationship with the participants. It is anticipated, for example, that a member of the research team will be 'allocated' to each participant so that there is consistent approach to communication; in addition, prior to data collection, a number of telephone conversations/meetings will be held with each participant to explain the study and the use of the dolls as well as to gain consent.

Quantitative data:

This will be collected from the pre-programmed RealCare baby infant simulation dolls to assess the participants' parenting capacity in terms of, for example, feeding, changing and comforting the doll.

Qualitative data:

Interviews are now one of the most commonly used methods of collecting data (DiCiccoBloom and Crabtree, 2006) with a number of texts (Fontana and Frey, 2005; Burns and Gray, 2018; Polit and Beck, 2017) differentiating between their types (structured; semi-structured and unstructured). A semi-structured approach will be employed for this proposed study as it will provide participants with the opportunity to talk about their experiences, whilst also allowing the use of a set of 'prompt' questions to optimise the data collection. A mutually convenient date, time and location for the interviews will be arranged with each expectant parent, shortly after their experience with the RealCare baby infant simulation dolls – whilst the home environment may be more familiar and comfortable for the participants, it may be more appropriate for a 'neutral' location to be used. The individual face-to-face interviews will be held in private, last for approximately 60-90 minutes and will (with the participant's consent) be digitally recorded.

Data analysis:

Quantitative:

The data from the RealCare baby infant simulation dolls will be quantitative in nature; therefore, as is usual practice, analysis will be undertaken once all of the dolls have been returned. Descriptive statistics will be used as these enable data to be succinctly summarised (Parahoo, 2014), these will include measures such as:

- Frequency;
- Central tendency;
- Dispersion.

Data, once analysed, will be presented graphically to aid assimilation of the information.

Qualitative:

As there will be one data set, a thematic approach will be drawn on to analyse the interviews. A number of models have been offered to facilitate thematic analysis, but all use a similar staged framework (Creswell and Creswell, 2018). These approaches identify commonalities and differences in qualitative data, before focusing on emerging relationships – this enables the drawing out of descriptive and/or explanatory conclusions clustered around themes (Gale et al, 2013). The most appropriate model to use will be decided on in due course, but the six stage 'bottom-up' Qualitative Process of Data Analysis offered by Creswell (2012) is one that offers a clear and structured approach to aid the identification of common themes (Table 1.3).

6. Coding of the text so that themes can be used in the research report;
5. Coding of the text so that material/descriptions can be used in the research report;
4. Coding of the data – codes are assigned to elements of the text;
3. Reading of the data several times to facilitate a sense and understanding of it;
2. Preparation for data analysis (for example, transcription);
1. Data collection.

Table 1.3: The Qualitative Process of Data Analysis (Creswell, 2012)

Ethical Issues:

Ethical approval will be sought via the Health Research Authority with all research governance policies at the relevant NHS Trust also being adhered to.

Following their participation, all expectant parents will be offered any required support and advice, primarily via the referral to relevant professionals – this will aim to further facilitate a positive transition to parenthood. The findings will be used to inform practice as well as the development of future research bids.

Timeline:

Activity	Timeframe
Parent reference group	January - December 2021
Ethical approval	January - September 2020
Recruitment of participants	September 2020 – August 2021
Data collection	September 2020 – August 2021
Data analysis	September 2020 – December 2021
Dissemination	August 2021 – January 2023

Budget:

Item/resource	Number/rationale	Cost
Travel and subsistence costs to deliver/collect dolls and undertake interviews	Approximately 10-20 participants	£1000.00
Transcription of interviews	Approximately 10-20	£1000.00
Digital encrypted recorders x2	2 x recorders for the interviews	£500.00
Encrypted memory sticks x 2	2 x encrypted memory sticks to store confidential data/information	£70.00
Participant vouchers [for expectant parents]	£25.00 voucher per expectant parent as a 'thank you'. Maximum of 20 x 25 = £500.00	£500.00
Parental reference group	Travel, refreshments and £25.00 voucher per parent as a 'thank you'	£1000.00
Staff time/overhead costs	To include: Ethics preparation; Data collection; Data analysis; Preparation of dissemination strategies (please see below)	£4,130.00
Stationery, printing and unforeseen expenses	For: Information sheets, consent forms, 'thank you' letters etc.	£300.00
Dissemination: One international and one national conference for two members of the research team	Travel and accommodation costs	£3,000.00
Dissemination: Open access journal publication	Publishing fee for one peer reviewed paper	£3,500.00
TOTAL		**£15,000.00**

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