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A Study Space Analysis for Multiple Interviewing of Child Witnesses

This article presents a study space analysis of 44 published research studies examining the use of multiple interviews with child victims/witnesses. Study space analysis is a method of detecting gaps in the existing literature and thus determining whether ecologically valid situations that arise in practice have actually been addressed and studied. The use of this methodology is particularly useful for techniques which are being considered for changes in policy or practice, ensuring that the literature is sufficient to warrant change. Multiple or repeated interviewing has been argued by some authors to be ready for change. However, in the present study space analysis, it is concluded that despite a growing literature, there are still some key variables which require research examination prior to policy change. In particular, research is needed involving samples of children between 11 and 18 years old, participants with multiple needs and interviews regarding repeated events. Findings from the online supplementary material also identify the need for studies with longer delays between the event and the initial interview, more than two interviews of a child, phased multiple interviews and interviews conducted by professional interviewers. © 2020 John Wiley & Sons, Ltd.

KEY PRACTITIONER MESSAGES:

- Some researchers suggest that interviewing a child more than once about an event can be beneficial for police investigations as it leads to additional accurate details.
- This study concludes that there are key variables yet to be studied under controlled conditions and thus more research is required before comprehensive policy change is recommended.
- Future research is required with adolescent participants, children with multiple needs and interviews about repeated events.

KEY WORDS: study space analysis; child victims; investigative interviewing; multiple interviewing; police

Introduction

Multiple interviewing involves interviewing a witness/victim more than once about the same event(s). Guidelines worldwide discourage using multiple interviews (e.g. England and Wales' *Achieving Best Evidence in Criminal Proceedings: Guidance on Interviewing Victims and Witnesses, and Guidance on Using Special Measures* (henceforth ABE), Ministry of Justice,

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‘Multiple interviewing of child witnesses is an area ripe for policy and practice change’

‘Study space analysis is a way of amalgamating and evaluating published research on a subject’

2011; New Zealand Law Commission, 1996; The Scottish Executive, 2011). In some countries, guidelines suggest that multiple interviews may only be considered in certain circumstances. For example, ABE guidelines stipulate multiple interviews to be considered only: when there is not enough time to fully discuss the event(s) in one interview; when other sources (including the perpetrator) reveal new information that needs discussion with the child; or when the child tells someone they have further information to give to the police (Ministry of Justice, 2011).

Multiple interviewing of child witnesses is an area ripe for policy and practice change, or at least expansion. La Rooy *et al.* (2010) argue that the robust literature on reminiscence (when a person recalls new information during a second recall attempt) warrants a change in guidelines, encouraging the use of multiple interviews in a broader range of circumstances. Furthermore, Block *et al.* (2013) conducted a cost-effectiveness analysis. They concluded that the economic benefits of additional convictions and reduced victimisation related to increased disclosure from routine second interviews with suspected child victims of sexual abuse outweighed the additional resources required.

La Rooy *et al.* (2010) state that multiple interviews should be used to obtain further information with the limitation that these interviews should be conducted according to best practice (as should all investigative interviews). Although this statement was supported by a brief review of the literature and four case examples, it follows on from La Rooy *et al.*'s (2009) more extensive qualitative review. This narrative review of the literature on multiple interviews of children aged two to 13 identified that children generally gave less accurate information in second and subsequent interviews than in the first, but that this additional information can still be relevant, accurate and vital for prosecutions (such as in the case examples in La Rooy *et al.*, 2010). However, although this review concluded that further research is required for a full understanding of the benefits and risks of multiple interviewing, it did not systematically examine the research to determine where significant gaps in knowledge remain. The present analysis aims to determine whether there are sufficient studies using ecologically valid methods to support La Rooy *et al.*'s (2010) recommendations, and whether the research is sufficient to extend them to all children, including 13–18-year-olds.

Study space analysis (SSA) is a way of amalgamating and evaluating published research on a subject, and thus determining whether the research is sufficiently applicable to practice to warrant changes. Unlike meta-analysis, SSA does not look at whether a technique has a statistically robust effect on outcomes, or indeed the results of the studies at all, but looks at the topics that current research has covered, the breadth of these topics and their relation to the associated field of practice (Malpass *et al.*, 2008). The benefits of this procedure include detecting whether key variables or conditions have been explored, and thus determining whether a topic has sufficiently progressed to warrant evidence-based policy changes.

Policy changes should be based on high-quality, methodologically rigorous studies that address diverse variables related to both theory and changing ecological conditions (Malpass *et al.*, 2008). For example, when examining the effectiveness of a new investigative interviewing technique, it is important to compare the new technique to current practice and other similar evidence-

based improvements. Furthermore, it is important to determine whether the technique compares favourably for an array of participants; varying in age, participation in the to-be-remembered (TBR) event (e.g. participant or observer, victim or witness) and gender, among other factors. If an interviewing technique were brought into practice, it is likely to be used with a variety of witnesses and victims in different situations (e.g. different lengths of delay between the crime and interview). Therefore, it should have been empirically tested with a similarly broad group of mock interviewees under varying conditions. Policy decisions made on a literature which omits some of these participants or conditions will be based on incomplete understanding and may limit the beneficial effects that the technique could have, or even result in less well-conducted interviews for those unstudied participants/conditions.

SSA reveals gaps in the literature by creating a merged visual representation of all of the relevant studies, their independent, dependent and cross-study variables (methodological factors which vary between studies but not within the study, such as whether the event was live or video), and their relationships (Malpass *et al.*, 2008). Matrices are created with the frequencies of each individual variable plotted against the other variables. Areas of the matrices with low or null frequency counts demonstrate a lack of research.

This methodology has been used for a number of topics within investigative psychology. Malpass *et al.* (2008) included exemplary SSAs for eyewitness identification line-ups and for alcohol and eyewitness memory. Memon *et al.* (2010) conducted a SSA on the Cognitive Interview and more recently, Brubacher *et al.* (2015) completed another for ground rules in child interviews. These SSAs revealed strengths and weaknesses within the research. For example, Memon *et al.*'s (2010) SSA highlighted the under-representation of non-student populations in cognitive interviewing research, as well as reliance on filmed TBR events. Thus, the SSA methodology has previously been used to good effect in this field.

The present study will apply this methodology to multiple interviewing of child victims/witnesses. The SSA will include studies that have examined multiple interviewing in the laboratory setting within broad parameters (see the Method section for inclusion criteria). However, it will then evaluate these studies on their application to child abuse investigations specifically. In particular, this SSA will determine if the literature sufficiently examines motivational reasons for multiple interviewing, namely, *why* multiple interviews should be conducted in child abuse investigations. It will also examine the representativeness of the samples in the existing studies (i.e. age, developmental differences) and the ecological validity of the methodologies used (e.g. event variables such as length, repetition, participation). Thus, this SSA will aid policymakers to determine whether the expansion of the use of multiple interviews to circumstances not currently described in interviewing guidelines is warranted.

Method

Studies

The studies included were obtained via online searches of the PsycINFO and PsycARTICLES databases. Searches using the terms 'child', 'interview',

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'memory', 'multiple', 'repeat', 'twice', 'three' and 'four' were conducted, along with searches in which 'child' was replaced with 'adolescent' and 'teenage'. Additionally, relevant publications from the reference lists of key multiple interviewing publications (including La Rooy *et al.*, 2009) were obtained. Published studies from peer-reviewed journals were included if:

1. They involved more than one interview of a participant recalling information about the same event.
2. They included a child sample (i.e. some participants were under 18 years of age).
3. They compared children's responses in multiple interviews; either through direct statistical comparisons, or by comparing the information provided in different interviews (e.g. coding children's recall as repeated or novel).
4. They had a minimum sample size of 40 participants.
5. They included ecologically valid interviews in terms of:
 - a. Some free recall of the TBR event.
 - b. Face-to-face recall (e.g. not completed via telephone or written).
 - c. Attempting to replicate multiple investigative interviews rather than cross-examinations.
 - d. Not aiming to create false memories. Studies that included some misleading questions without this specific aim were, however, included.
6. They did not analyse field interviews. Studies that examined real forensic interviews of children were excluded because children's accuracy often cannot be determined. Additionally, the interviews are not standardised. Thus, various confounding interview variables may have affected the results, including differing interview quality.
7. They were published in English.

These criteria were chosen in order to include only studies of relatively high ecological validity, with a reasonable sample size and high levels of control over confounding variables. No time frame was specified for the search and so all relevant papers published before August 2018 were included.

The initial literature search revealed 149 articles. After screening for relevance via abstracts available electronically (including examination of the full text where necessary), 105 were removed from the analysis for not meeting the criteria. This left 44 published research articles. All articles were available electronically. One article included two appropriate experiments, another included three, and four experiments were extensions of other experiments included in the analysis (i.e. studies that re-interviewed the same sample, or re-coded and analysed the data from another experiment). Thus, 43 independent samples were included in the analysis.

Procedure

For the studies, their independent, dependent and cross-study variables were identified. Separate matrices were created for each of these types of variable, and all the appropriate variables for the relevant studies were listed in each matrix (e.g. all 43 samples' independent variables in one, their dependent variables in the next and their cross-study variables in the third). The independent variables were listed along the top of each matrix, and frequency counts were entered for each independent variable against its corresponding independent, dependent and cross-study variables (i.e. independent variable x independent variable, dependent variable x independent variable, cross-study variable x independent variable).

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For studies that were extensions of previous experiments, only new aspects of the experiment were included. For example, Pipe *et al.* (1999; Experiment 1) was an extension of Pipe and Wilson's (1994) work. Pipe and Wilson's (1994) study was entered into the matrices using the standard procedure, with age of child, participant involvement in the event and type of interview as three independent variables. The dependent variables included the number of correct details and errors provided in free recall for the first and second interviews. Children's responses to specific questions and their overall accuracy during free recall were also measured as dependent variables. The cross-study variables related to the type of TBR event used (e.g. whether it was staged, a life experience or a video), the type of interviews (e.g. question types and the experience of the interviewer) and the timing of the interviews. The new aspects of Pipe *et al.*'s (1999) first experiment were then added. The main extension of the study involved a further interview of the sample. However, this was only conducted with the younger age group, and participation in the event was no longer considered as an independent variable. Thus, the new dependent variables were only added for the 'type of interview' independent variable and not age or event participation. Pipe *et al.* (1999) also re-analysed the prior interviews, and so the frequencies for the proportion of new accurate and new repeated details for the second and third interviews were increased by one. Therefore, Pipe *et al.*'s (1999) study was not treated as a separate study but as a continuation, and so the factors previously examined were not repeated within the SSA, only the new variables were added.

Results

Independent Variables

The SSA identified a wide array of independent variables. The majority of the 35 categories included independent variables that were only examined in one or two studies (e.g. the use of social support in multiple interviews, or whether the TBR event was conducted by an acquaintance or a stranger (Goodman *et al.*, 1991; Lepore and SESCO, 1994, respectively)). However, some of the independent variables were included more frequently. In particular, age (e.g. Gobbo *et al.*, 2002; all of Peterson and colleagues' studies (Peterson, 1996, 1999, 2010; Peterson *et al.*, 2001, 2005; Peterson and Bell, 1996; Peterson and Whalen, 2001)), the initial retention interval (i.e. time between the TBR event and the first interview) (Gross and Hayne, 1999; Pipe *et al.*, 2004; Powell and Thomson, 1997; Salmon and Pipe, 2000), the number of interviews that the child experienced, particularly whether experiencing an intervening interview between two interviews affected memory in the last interview (e.g. Baker-Ward *et al.*, 1990; Ornstein *et al.*, 2006; Peterson, 1999), the delay between the first two interviews (e.g. Baker-Ward *et al.*, 1993; Ornstein *et al.*, 1992; Powell and Thomson, 1997) and whether the child participated directly in the TBR event or merely observed it (Baker-Ward *et al.*, 1990; Gobbo *et al.*, 2002; Pipe and Wilson, 1994). Most studies included more than one independent variable and often manipulated the types of interviews experienced, such as including human body diagrams, or suggestive questions (e.g. Brown *et al.*, 2012; Bjorklund *et al.*, 2000, respectively). Multiple interviews with child interviewees have, therefore, been studied under a variety of interviewing

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conditions. However, in the majority, no more than three studies of each condition have been conducted.

Sample Representativeness

The following tables show the number of studies that have included certain design features and the age group of the participants involved in that study. Some studies included an age group that spanned more than one age range, and in some cases different ages constituted the independent variable. Thus, the age groups include as many of the contrasting age groups as possible so the following tables present every age group in all of the experiments and every variable that they experienced.

No studies of the effects of multiple interviews included a sample of children aged 14–18 years (see Table 1). Only five independent samples included participants aged 11–13 years. The most studied age group included children between five and eight years old, closely followed by children aged three to five. Furthermore, the vast majority of children studied in the research included here were typically developing children (just two studies included children with intellectual disabilities; Brown *et al.*, 2015; Henry and Gudjonsson, 2003).

‘The most studied age group included children between five and eight years old’

Table 1. An extract of the study space analysis showing the number of studies with children in age groups (percentage) against descriptors of the to-be-remembered event (cross-study variable)

Cross-study variable	Child age group (years)						
	2–3	3–5	5–8	8–11	11–13	14–18	Adult
	Event medium						
Life experience	7 (8.2)	14 (16.5)	9 (10.6)	3 (3.5)	3 (3.5)	0 (0)	0 (0)
Staged/live	4 (4.7)	12 (14.1)	21 (24.7)	5 (5.9)	2 (2.4)	0 (0)	1 (1.2)
Video	0 (0)	0 (0)	2 (2.4)	2 (2.4)	0 (0)	0 (0)	0 (0)
	Length of time of event						
Less than 2 minutes	0 (0)	1 (1.2)	3 (3.5)	2 (2.4)	0 (0)	0 (0)	0 (0)
3–5 minutes	0 (0)	1 (1.2)	3 (3.5)	0 (0)	1 (1.2)	0 (0)	0 (0)
6–10 minutes	0 (0)	0 (0)	3 (3.5)	1 (1.2)	0 (0)	0 (0)	0 (0)
11–30 minutes	0 (0)	2 (2.4)	4 (4.7)	1 (1.2)	0 (0)	0 (0)	0 (0)
31 minutes–1 hour	1 (1.2)	4 (4.7)	3 (3.5)	1 (1.2)	1 (1.2)	0 (0)	0 (0)
Over an hour	0 (0)	0 (0)	1 (1.2)	0 (0)	0 (0)	0 (0)	0 (0)
Varied	7 (8.2)	9 (10.6)	6 (7.1)	3 (3.5)	3 (3.5)	0 (0)	0 (0)
Unknown	3 (3.5)	9 (10.6)	9 (10.6)	2 (2.4)	0 (0)	0 (0)	1 (1.2)
	Repetition of event						
Single	11 (12.2)	25 (27.8)	31 (34.4)	8 (8.9)	5 (5.6)	0 (0)	1 (1.1)
Repeated	1 (1.1)	4 (4.4)	3 (3.3)	0 (0)	0 (0)	0 (0)	1 (1.1)
	Type of event						
Crime	0 (0)	1 (1.2)	2 (2.4)	1 (1.2)	0 (0)	0 (0)	0 (0)
Injury/negative	7 (8.2)	13 (15.3)	9 (10.6)	4 (4.7)	3 (3.5)	0 (0)	0 (0)
Neutral	0 (0)	1 (1.2)	1 (1.2)	1 (1.2)	1 (1.2)	0 (0)	0 (0)
Positive	4 (4.7)	11 (12.9)	20 (23.5)	4 (4.7)	1 (1.2)	0 (0)	1 (1.2)
	Participation						
Participated	10 (10.4)	24 (25.0)	26 (27.1)	8 (8.3)	4 (4.2)	0 (0)	1 (1.0)
Little participation	1 (1.0)	1 (1.0)	1 (1.0)	0 (0)	0 (0)	0 (0)	0 (0)
Observed	1 (1.0)	2 (2.1)	9 (9.4)	5 (5.2)	1 (1.0)	0 (0)	0 (0)
Narrative	1 (1.0)	1 (1.0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
	Abuse-related aspects						
Touch	6 (6.7)	14 (15.7)	12 (13.5)	3 (3.4)	3 (3.4)	0 (0)	0 (0)
Photograph	2 (2.2)	3 (3.4)	2 (2.2)	0 (0)	0 (0)	0 (0)	0 (0)
Asked to keep secret	0 (0)	0 (0)	1 (1.1)	0 (0)	0 (0)	0 (0)	0 (0)
Removal of toy's clothes	0 (0)	1 (1.1)	1 (1.1)	1 (1.1)	0 (0)	0 (0)	0 (0)
None	4 (4.5)	10 (11.2)	18 (20.2)	5 (5.6)	2 (2.2)	0 (0)	1 (1.1)

Note. Cells in bold represent areas in which the number of experiments is lower than that expected if all studies were evenly distributed across variables and ages.

Ecological Validity

It could be argued that multiple interviewing is of greatest value to child abuse investigations. These cases often do not progress to court (NSPCC, 2012), have serious psychological and social consequences for children (Norman *et al.*, 2012; Tyler, 2002) and rely heavily on children's testimony as the only source of information (other than the perpetrator; Malloy *et al.*, 2011). Thus, there are strong arguments for the allocation of monetary and time resources for such cases, especially for techniques that elicit further evidential leads. Hence, the most appropriate TBR events for experimental studies would be those replicating aspects of child abuse cases, within ethical boundaries. When making this comparison, this SSA reveals areas where the ecological validity of studies could be improved.

As can be seen from Table 1, the majority of studies used a live interaction as the TBR event. These were staged for the experiment itself (e.g. visits from pirates or magic shows; Jack *et al.*, 2012, La Rooy *et al.*, 2005), thus replicating a situation where the child is the sole source of information about a private child-adult event. Alternatively, they were naturally occurring events (e.g. Peterson and colleagues' studies (Peterson, 1996, 2010; Peterson *et al.*, 2005; Peterson and Bell, 1996)). Both these types of event had the benefit of the child actually participating, rather than watching or hearing about the event, however, the latter studies were of higher ecological validity. For example, a significant subsample used children's real visits to the doctor or medical emergencies as their TBR event. These incidents could be argued to have numerous similarities with child abuse; they may involve negative emotions (including pain and/or stress), the child is often touched by an adult, sometimes in intimate areas, the child is directly involved in the event and it can last a significant amount of time. The disadvantage of using this type of TBR event is the lack of control over it; children's experiences differ which may cause differences in their recall due to the event itself and not the interviewing techniques. Also, assessing the accuracy of recall is problematic. Furthermore, these real-life events were not standardised in length of time, and so some may have been long (such as experiences of a hurricane) and some quite short (such as one-off dentist visits), which may in turn affect memory strength. Experiments with younger age group samples (two to five years), in particular, very rarely involved interviews about events of a known standardised length. Further, when studies did use standardised length events, these were mainly very short, which may be unlikely to replicate abuse (e.g. 18.2% of the known standardised length TBR events lasted less than 2 minutes). On the other hand, 33.3 percent of known length events were 31–60 minutes.

Only five experiments involved repeated events (Jack *et al.*, 2012; Powell and Thomson, 1997; Price *et al.*, 2016; Experiments 1 to 3). Repeated abuse occurs frequently, in around a quarter to a third of cases in some studies (Bottoms *et al.*, 2007; Goodman *et al.*, 1992). Thus, understanding the impact of multiple interviewing in these situations could be especially beneficial.

Very few of the studies included in this SSA used a crime as the TBR event. When crimes were used, they were presented in video format and thus children did not participate in the event. However, this is likely to be owing to the ethical issues related to a child witnessing a live crime event.

'The majority of studies used a live interaction as the to-be-remembered event'

'Very few of the studies included in this study space analysis used a crime as the to-be-remembered event'

Examining the last section of Table 1, many authors who used a more standardised event also made attempts to include forensically appropriate aspects in their events. These included unaccompanied interaction with an adult, touch (including, in some doctor visits, touch of the genital area) or a photograph being taken of the child, and some involved removing clothes from a toy. However, a large number of studies did not include any abuse-related aspects, and only one study with one age group involved a TBR event that the child was asked to keep secret.

Why Re-Interview?

An excerpt of the dependent variable \times cross-study variable matrix is presented in Table 2. Most studies included more than one dependent variable in their design. For Table 2, the dependent variables were defined broadly; the variables include general measures of each variable, as well as measures that were specified by the type of question asked or the topic of the detail. For example, the dependent variable 'Number of details' includes measures of the total number of details provided, but also measures of the number of details provided in response to open questions only. Each study, however, was only coded once for each cell even if it measured more than one form of this variable (e.g. total number of details and the number of details about people).

Table 2 shows that many of the studies in the SSA examined accuracy of the child's recall in some form. This included calculating the number of correct and incorrect details, as well as the percentage accuracy. Accuracy of children's

'Many of the studies in the SSA examined accuracy of the child's recall in some form'

Table 2. An excerpt of the dependent variable \times cross-study variable matrix showing the number of studies with children in age groups (percentage) against key dependent variables for the first, second and third interviews

Dependent variables	Child age group (years)						
	2–3	3–5	5–8	8–11	11–13	14–18	Adult
	First interview						
Number of details	3 (14.3)	6 (28.6)	7 (33.3)	3 (14.3)	2 (9.5)	0 (0)	0 (0)
Accuracy	7 (10.0)	22 (31.4)	27 (38.6)	7 (10.0)	5 (7.1)	0 (0)	2 (2.9)
	Second interview						
Number of details	3 (14.3)	6 (28.6)	7 (33.3)	3 (14.3)	2 (9.5)	0 (0)	0 (0)
Accuracy	8 (11.3)	22 (31.0)	27 (38.0)	7 (9.9)	5 (7.0)	0 (0)	2 (2.8)
Misled details	1 (20.0)	2 (40.0)	1 (20.0)	0 (0)	1 (20.0)	0 (0)	0 (0)
Unique recall	1 (11.1)	3 (33.3)	3 (33.3)	1 (11.1)	1 (11.1)	0 (0)	0 (0)
Repeated recall	2 (16.7)	4 (33.3)	4 (33.3)	1 (8.3)	1 (8.3)	0 (0)	0 (0)
Accuracy and consistency	3 (9.4)	9 (28.1)	15 (46.9)	3 (9.4)	2 (6.3)	0 (0)	0 (0)
Omissions	0 (0)	3 (60.0)	2 (40.0)	0 (0)	0 (0)	0 (0)	0 (0)
Change in answers	1 (50.0)	1 (50.0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Cumulative recall	0 (0)	0 (0)	2 (100.0)	0 (0)	0 (0)	0 (0)	0 (0)
	Third interview						
Number of details	1 (14.3)	1 (14.3)	2 (28.6)	2 (28.6)	1 (14.3)	0 (0)	0 (0)
Accuracy	3 (13.0)	7 (30.4)	8 (34.8)	2 (8.7)	3 (13.0)	0 (0)	0 (0)
Misled details	0 (0)	1 (50.0)	0 (0)	0 (0)	1 (50.0)	0 (0)	0 (0)
Unique recall	0 (0)	1 (25.0)	2 (50.0)	0 (0)	0 (0)	0 (0)	1 (25.0)
Repeated recall	1 (25.0)	1 (25.0)	2 (50.0)	0 (0)	0 (0)	0 (0)	0 (0)
Accuracy and consistency	2 (20.0)	2 (20.0)	4 (40.0)	1 (10.0)	1 (10.0)	0 (0)	0 (0)

Note. Cells in bold represent areas in which the number of experiments is lower than that expected if all studies were evenly distributed across ages.

recall was often assessed for first, second and third interviews (when conducted) in a study.

Additionally, the accuracy and consistency of children's recall across interviews were often examined. This involved separate measures of the accuracy of new and repeated details.

Some studies coded children's recall according to the centrality of the details (e.g. central vs. non-central; Bjorklund *et al.*, 1998). This can be helpful for determining the extent to which new, accurate information is useful for an investigation. Other studies classified the details that children gave chronologically or according to topic types. For example, in Fivush *et al.* (2004), children's recall of Hurricane Andrew was divided into preparation for the storm, the storm itself and its aftermath. Thus, some studies have examined the type of information being recalled across multiple interviews, which may be relevant for determining how useful this information could be to an investigation.

Additional Results

Further results regarding how well the research addresses who should re-interview, what delay there should be between interviews and how multiple interviews should be conducted are available in the additional online resources (see Appendix S1 in the online Supporting Information). The question of who should conduct multiple interviews was not well answered by the literature and identified some particular gaps. Only one study compared multiple interviews using the same interviewer with those using different interviewers; only three of the 43 independent samples used professional interviewers; and only one of these compared police interviewers with clinicians. The length of time between the incident and the first interview and between the first and subsequent interviews varied widely, and only four studies examined the effect of this variable. The majority of studies included only one repeat interview, limiting any interpretation of the optimal number of follow-up interviews. Furthermore, the vast majority of second interviews involved children answering questions on the same events again. This does not replicate some current practice where different phases of the interview process are conducted in separate interviews or where children are interviewed a second time about a new topic within the same event. These findings (full details of which are given in Appendix S1 in the online Supporting Information) suggest the need for research with longer delays between the event and the initial interview, more than two interviews of a child, phased multiple interviews and interviews conducted by professional interviewers.

Discussion

This research has used a SSA to identify the topics addressed by research on multiple interviews with children and where additional research is required. In particular, it has found that a variety of interviewing conditions have been examined, but very rarely do more than one or two studies examine the same independent variables, meaning that there is little replication in the field.

‘The question of who should conduct multiple interviews was not well answered by the literature and identified some particular gaps’

‘There are some key populations missing from the literature; ... adolescent samples ... and children with learning difficulties or additional needs’

‘Most studies had incorporated elements into their methodologies that replicate child abuse-related experiences’

‘It is difficult to ascertain the relative amount of additional correct information that is obtained via a second interview’

Additionally, there are some key populations missing from the literature, namely, adolescent samples (11–18-year-olds) and children with learning difficulties or additional needs (such as autism spectrum disorder). This SSA has also found attempts to produce ecologically valid research methodologies. However, there are benefits and limitations to the options available within ethical parameters, and research examining repeated events is lacking. Finally, the SSA determined that the majority of research examining multiple interviews with children included dependent variables which relate to the possible benefits of conducting multiple interviews (i.e. an increased total recall of the event).

Research shows that adolescents and children with multiple needs are over-represented in the criminal justice system. For example, there is evidence that most multiple interviews are conducted with adolescents (i.e. 12–17-year-olds according to Waterhouse's (2016) findings). Although studies have been conducted with adults and young children, we should not assume that if multiple interviewing is effective for obtaining evidence from these age ranges, it will be for adolescents too. Furthermore, research has suggested that abused children often experience cognitive deficits (Mills *et al.*, 2011), and that children with learning difficulties and other conditions may be more likely to be victimised and thus be involved in legal cases (Sullivan and Knutson, 2000). The under-representation of these types of children presents a significant flaw in the representativeness of the multiple interviewing research so far.

In terms of the ecological validity of the research covered in the SSA, most studies had incorporated elements into their methodologies that replicate child abuse-related experiences. These include the event being a private interaction with an adult, touching and negative emotions. However, for ethical reasons, the ecological validity of studies with experimenter-created TBR events is limited. On the other hand, the lack of control over naturally occurring TBR events introduces the possibility of confounding variables. Thus, the combination of the two types of study may be necessary for a developed understanding of the likely impact of multiple interviews on child victim/witness recall. There are also some key characteristics of child abuse which are nearly entirely missing from the multiple interviewing literature. In particular, the lack of research on repeated TBR events and events which a child has been asked to keep secret is a concern for the validity and applicability of the research findings so far.

Conversely, the dependent variables that have been employed in the research included in this SSA adequately address the question of why multiple interviews should be conducted. The main potential benefit of multiple interviews is obtaining further accurate information about an alleged crime. Therefore, examining the total number of details provided in subsequent interviews in relation to their accuracy, as many of the studies did, provides a fairly comprehensive overview of the potential benefits associated with multiple interviews. However, the amount and proportion of unique and repeated recall were less frequently explored. Therefore, it is difficult to ascertain the relative amount of additional correct information that is obtained via a second interview; a key factor in determining the costs and benefits of a second interview. Additionally, one downside of multiple interviews that has been discussed in the literature is the risk of providing contradictory memories (Krix *et al.*, 2015). Although providing any new information in a second interview could be perceived by some as contradictory (rather than inconsistent), no studies examined direct contradictions in children's recall.

An important dependent variable that has not been examined, but may be crucial for determining why *not* to conduct multiple interviews, is child wellbeing. An argument against conducting multiple interviews is that they cause additional distress to the child (Plotnikoff and Woolfson, 2001). Although it would be challenging ethically to interview children more than once in an experiment about events that are as traumatic as those discussed in forensic interviews, studies using existing traumatic events (such as medical emergencies) could examine whether multiple interviews cause more distress to interviewees than single ones.

Although the present study identifies topics on which there is no literature at all, there are some key limitations of the methodology which mean that there may still be further gaps due to missing research, poor-quality research or inconsistent findings. The current SSA did not include grey literature and only included two databases in the literature search. This may have resulted in some relevant research being missed from the final sample (McGinn *et al.*, 2016). Additionally, relying on online searches may mean that earlier research which was not available online was overlooked. Furthermore, in general, the SSA methodology does not examine the quality or the findings of the research included, and thus it is possible that those studies that have been included do not provide consistent, reliable or valid results. However, La Rooy *et al.* (2010) conclude from their reviews of the literature that if best practice interview guidelines are followed, repeated interviews often result in additional correct details. Furthermore, the key aim of this study was not to examine results but to determine whether the spread of research was sufficient for the policy change suggested in other studies (e.g. Block *et al.*, 2013; La Rooy *et al.*, 2010), and the current findings suggest that this is not the case for all types of child victim/witness.

Conclusions

A comprehensive literature on the multiple interviewing of children is gradually developing. The present SSA found that a large number of studies focused on five- to eight-year-old children, with the majority using somewhat ecologically valid events. However, crucial gaps in the research have been identified, suggesting that researchers should be cautious in advocating policy change at this stage. Research with the following characteristics is urgently required to inform policy decisions regarding multiple interviewing:

- 11–18-year-old participants
- participants with multiple needs
- repeated TBR events

Further recommendations for research can be found in Appendix S1 in the online Supporting Information. It can be concluded that multiple interviews may have great potential to improve children's informativeness. However, further research is required prior to changing policy and practice to ensure that the research findings apply to more ecologically valid conditions, a broader population of interviewees and more possible abuse types.

‘Crucial gaps in the research have been identified, suggesting that researchers should be cautious in advocating policy change at this stage’

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article.