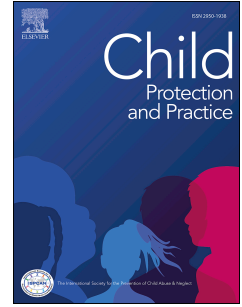


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Surveying Children and Young People on Sensitive Topics: Creating Engaging, Accessible, Trauma-Informed Digital Questionnaires

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AM, JR & FM conceptualized the paper with help from DF, RP and CM. AM wrote the manuscript.

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Data sharing statement

The research materials for this work are available under a creative commons license from

<https://datashare.ed.ac.uk/handle/10283/8786>.

Abstract

Background Research with children and young people requires bespoke measurement tools and methodologies, designed with the end-user in mind.

Objective This paper describes the design of digital questionnaires for children and young people which are engaging, accessible, and trauma-informed. It is presented in the context of a larger study, which designed violence prevalence survey questionnaires for participants aged 11-25 years in the United Kingdom.

Participants and Setting Data collection was conducted with child abuse and violence research professionals, adults and children with lived experience of violence in the UK, and children and young people in the target age-group in the UK.

Methods Feedback on the design of the questionnaires was gathered via online Delphi surveys, focus groups, participatory research sessions, qualitative interviews, and individual consultations. Thematic analysis was conducted to review feedback on digital format features, trauma-informed design, and accessibility. The project followed an iterative and multi-stage process.

Findings Digital formatting (including matrix questions, survey branching, and navigation buttons), trauma-informed design (including question introductions and opt-out response phrasing), and accessibility features (including audio recordings and readability) can be utilised to generate an engaging, accessible, and trauma-informed measurement tool.

Conclusions Using an inclusive and child-focused approach to design has the potential to positively impact children's ability and willingness to engage with surveys, ultimately improving the resulting data and our understanding of children's experiences.

Keywords: measurement; survey design; violence against children;

1. Introduction

There is a growing consensus that research about children's lives and experiences must include children as participants, to ensure their perspectives are fully represented in the policies, social services, and interventions which impact them (Roth, 2023). A number of approaches have explored how to best implement this philosophy, particularly in research on sensitive topics. Risks associated with engaging children in such research include concerns over re-traumatization or re-victimization (Appollis et al., 2015; Kyegombe et al., 2019), and that children might become frustrated by their own social position if participating in research increases their awareness (Parkes, 2008). Perhaps the greatest complication is the tension that exists between privacy and protection: researchers have an ethical obligation to physically protect children who are acting as research participants if they report being in danger, and yet must also maintain the appropriate privacy and confidentiality of their participants. This tension is even greater when the research may include a child reporting experiences of violent or illegal acts.

Despite these complexities, many researchers still aim to include children in studies which are relevant to them, rather than relying on reports from parents or teachers. This is likely a reaction to the established benefits of children's participation in research related to their own life experiences, the demonstrated increased reliability of resulting data, and the alignment with a children's-rights approach. However, safely engaging children in research on sensitive topics requires methods and measurement tools which are intentionally designed for the age group (**Blinded 5**). When the research environment is appropriately designed to be engaging and safe for children (with child-appropriate methods and carefully trained research facilitators), children willingly participate and report being eager to share about their life, even when discussing sensitive topics (Franchino-Olsen et al., 2024; Kerig & Fedorowicz, 1999; Voicu et al., 2016).

Nearly all participants who do experience distress during the research process maintain the importance of asking such questions to children and young people (Stewart-Tufescu et al, 2024). Guidelines and research frameworks have been developed to guide researchers in this process (e.g., Attrash-Najjar & Friedman-Hauser, 2025). Systematic reviews of child-report measurement tools (Booth et al., 2023; Meinck et al., 2023) have sought to draw connections between existing instruments and evaluate their psychometric properties. Still, there is little guidance which addresses how to practically apply literature on digital formatting, design, and features (which is often mixed; Mavletova et al., 2018; Vehovar et al., 2023) when creating usable versions of such bespoke measurement tools for use with children and young people.

This paper describes the design of a digital questionnaire for children and young adults that is engaging, accessible, and trauma-informed, with a focus on how design (regardless of content) can benefit research outcomes. The questionnaire development is presented in the context of a larger feasibility study to determine if and how the prevalence of violence against children might be measured via surveys with participants aged 11-25 in the UK, which included the design of three questionnaires. The questionnaires are designed for two settings: an in-school survey for children aged 11–15 to be completed on tablets, and an online survey (with two versions, by age) for children aged 16–17 and young adults aged 18–25 to be completed independently online. Further information about the larger study and its other outcomes, including the content and phrasing of individual questionnaire items and their established relevance, comprehensibility, comprehensiveness, and content validity, can be found elsewhere (**Blinded 3, Blinded 4**). Additional information about the participants and methods across the entire study is more extensively detailed elsewhere (**Blinded 1**).

In the UK, where the survey instruments were designed, the terms ‘child abuse and neglect’ and ‘child maltreatment’ are commonly used, while international organisations often use the term ‘violence against children.’ As such, these terms are used interchangeably to refer to the same behaviours and survey content throughout the paper.

2. Methods

The development of the questionnaires referenced in this paper was built on the extensive testing of the Juvenile Victimization Questionnaire R2 (JVQ-R2, Finkelhor et al., 2011) and the Australian Child Maltreatment Study Juvenile Victimization Questionnaire R2: Adapted Version (ACMS, Mathews et al., 2023). Their structure was mirrored in the newly developed instruments, beginning with behaviour-specific questions on types of violence. Each specific behaviour is asked about in an item, which acts as a screener question. Where children screen into an item by indicating they have experienced or witnessed a particular behaviour, they are asked follow-up questions about the characteristics of that experience (e.g., the number of times it has happened, or the location where it occurred). On this foundation, drafts of the new instruments were iterated, reviewed, and tested through a comprehensive process. Some data collection was focused exclusively on design aspects (e.g., participatory research group sessions) while others served a separate function but included a small number of questions related to design or format (e.g., qualitative interviews).

2.1 Participants

The study engaged a variety of participants using a range of methods as appropriate for the topic and given audience. Professionals for all data collection activities were recruited via relevant university departments and research hubs focused on violence against children, professional websites, the professional networks of the study’s investigators, relevant third sector

violence-related organisations, the network of the commissioning statistics organisation, LinkedIn, and word-of-mouth. Both adults and children with lived experiences of violence in childhood were recruited via support organisations who maintain research advisory groups or networks for their service-users. Additional children and young people with no known lived experiences of violence were recruited via a university research advisory group, a third sector research advisory network, the study's investigator's personal networks, and word-of-mouth. All participants were required to have relevant professional experience working in violence, lived experience of violence, or be in the target age group for the final prevalence survey.

2.2 Online Delphi Survey

Ninety-eight violence researchers, organisations which support survivors of violence in childhood, and government civil servants were emailed an anonymous survey link. The survey remained open and accepted anonymous submissions for four weeks. Forty-three complete responses were received, and two further participants' feedback was included who completed more than 50% of the online survey. The survey asked participants to comment on the phrasing and inclusion of individual questionnaire items as well as the format of these items, using multiple-choice questions and free-response prompts to elaborate on thinking behind multiple-choice responses.

2.3 Focus Groups with Professionals and Adults with Lived Experience

Thirty-one professionals attended one of four 1.5-hour online focus groups. The participants all had a professional focus in child abuse, neglect, or violence, as a researcher, third sector professional, or government official. A fifth 1.5-hour focus group for professionals specialising in special education and/or additional support needs was also facilitated, which six professionals attended. Two other focus groups were held with adults who had experienced violence during

childhood. Three participants recruited through a childhood violence support organisation and eight participants recruited through a sexual abuse support organisation were invited to take part in one of two 1.5-hour online focus groups. They received remuneration for their participation in alignment with the standard hourly rate for their organisation. All focus group participants were asked questions about item phrasing and layout. Adults with lived experience were also asked to provide insight into trauma-informed aspects of the digital design.

2.4 Participatory Research Activities with Children and Young People

Group research sessions were held with children and young people to gain feedback on the format and visual design of the survey. Six group sessions were held between April and October 2023 with participants aged 11-27. Participants were recruited via a sexual and domestic abuse support service in England (three sessions with seven, six, and six participants respectively); a domestic abuse support service in Northern Ireland (two sessions with twelve participants each); and a youth research advisory group in Wales (one session with nine participants). Activities were designed using participatory methods, to encourage high levels of engagement and participation. The activities included: a small-group drawing/writing activity on survey design, user experience, and response options; a full-group activity on the ordering of abuse categories in the survey; an individual activity on the use of check-all-that-apply questions versus matrix questions; and a full-group brainstorming activity on managing distress and disclosures during survey administration (for replicable activity descriptions, see **blinded 1** or the protocols available at [**link blinded**]). Remuneration type (e.g., voucher, payment) and value (between £20-£30) varied by organisation, in alignment with their established group's typical procedure.

2.5 Qualitative Interviews with Children and Young People

Three rounds of interviews were completed between June 2023 and January 2024, with participants ranging in age from 13 to 27. A total of 44 interviews were conducted. Participants in England and Northern Ireland were recruited through organisations which support children who have experienced violence, and participants in Wales were recruited via a youth research advisory group. Additional children and young people with no known lived experience of violence were recruited via the investigator's personal networks and word-of-mouth. Interviews included a cognitive testing component, to test content validity of the items, as well as questions about the design, functionality and format of the survey itself and their experience completing it. Participants received a voucher as remuneration (valued between £20-£30 depending on the given organisation's typical procedure).

2.6 Other Professional Consultations

In addition to the professionals consulted in data collection listed above, representatives from organisations specialising in abuse or violence support, prevention, and research gave feedback individually, as did professionals specialising in special education, additional support needs, and digital accessibility. These professionals were recruited via the same means as those described above, but were unavailable to engage in the other forms of data collection. Microsoft Teams was used for online consultations which typically lasted between 30 and 60 minutes.

Final consultations (held after all professional consultations, focus groups, surveys, and cognitive interviews concluded) were facilitated with violence research experts, as well as the methodology specialists and the leadership team at the commissioning statistics organisation. While the primary aim of these consultations was to ensure that any changes resulting from cognitive testing did not stray from the conceptual definitions of each abuse type, the design and

format of the questionnaire was also examined to ensure the resulting data was appropriate and complete for informing UK policy.

2.7 Data Analysis

After each stage of research described above, data was reviewed and analysed, following Braun and Clark's thematic analysis guidelines (2006). A deductive approach was used each time, to gather feedback specific to the design, format, and accessibility of the questionnaires resulting from the larger study. The creation of the final questionnaires was iterative and sequential, as each stage of research resulted in a new draft of the questionnaire. Qualitative and quantitative data from the Delphi survey was incorporated into the questionnaire prior to the focus groups; focus group transcripts and notes were analysed and their feedback was incorporated prior to the participatory research activity group sessions. The activity materials, notes, transcripts, and any written data resulting from group sessions was similarly addressed prior to the interviews, and interview transcripts were reviewed, analysed, and applied after each of the three interview rounds prior to a final consultation with the commissioning statistics organisation. Throughout this process, any individual professional consultations which occurred in the same time frame as another form of data collection was included in that round of analysis and the subsequent draft of the questionnaire. Further details on the methods used at each stage of research can be found elsewhere (**Blinded 1**).

2.8 Ethics

Ethical approval was granted for all stages of the research by the National Statistician's Data Ethics Advisory Committee (NSDEC) in November 2022 (ID 287361: NSDEC Minute, 2022). The study was reviewed favourably by the School of Social and Political Science Ethics Committee of the University of Edinburgh (Ref No: ID 287361). All data were stored on the

University of Edinburgh's online secure storage system, which is General Data Protection Regulation (GDPR) compliant. Project files were password protected, and only accessible to the University of Edinburgh and University of Greenwich researchers assigned to this project. Rigorous distress and referral procedures were established prior to the study's commencement to prepare for potential participant distress or disclosures of violence experiences. All research materials including referral protocols can be found at [[link to datashare blinded](#)].

3. Results

3.1 Digital Features

The questionnaires were created for digital use: an in-school survey on a tablet for children aged 11–15 and an independent online survey for children aged 16–17 and young adults aged 18–25. Themes in data collection related to digital formatting of the questionnaire included: the format and layout of violence prevalence screening questions; display-logic and survey branching; and visual presentation and aesthetics.

3.1.1 *Question Layout*

Early drafts of the questionnaires included between 45 and 51 individual screening items. However, professionals in the Delphi survey and focus groups as well as the adults with lived experience of violence agreed this was quite burdensome. For example, one focus group member reported:

'I thought that was a bit tricky and, and overall...I was quite fatigued by the way the, as I said, the sentence structure and the clauses within clauses...[you should] probably pull out some of these bits from the sentences and maybe list them individually, because I think it will get tiring very quickly to read so many questions structured in this way, and never mind for adults, definitely for children.'

Screening items were reformatted into multiple-item screeners (see Figure 1) and grouped by violence type. The structure of the questionnaire did not change; if a child screens into a multiple-item screener, they are asked follow-up questions (e.g., location, perpetrator).

Figure 1

Example of Screening Items in Item-by-Item Format and Multiple-Item Format

Physical Abuse screening items in item-by-item format	Physical Abuse screening items in multiple-item screener format
Did a parent, adult family member, teacher, or any other adult you know hit you with an object, punch, kick, push or physically hurt you in any way?	Did an adult you know ever do the following? hit you with something hard punch you kick you
Did a parent, adult family member, teacher, or any other adult you know ever try to strangle you, or intentionally cut or burn you?	try to strangle you intentionally cut you intentionally burn you

Multiple-item screeners were well-received by professionals in ongoing consultations and by children and young people in early cognitive interviews.

Further consultations were conducted to determine the layout of these multiple-item screeners: either as a list of items with tick boxes, or as a matrix with 'yes' and 'no' options for each item in the scale (see Figure 2). Methodology specialists from the commissioning statistics organisation initially indicated a preference for a list layout, as the functionality of the matrix layout has been questioned amid concerns such as straightlining, participant burden, and accessibility for participants who use screen readers. In light of this, additional testing was facilitated to compare the list layout and matrix layout of multiple-item screeners.

Figure 2

Example of Multiple-Item Screener in List Layout and Matrix Layout

Physical Abuse multiple-item screener in list layout
Has an adult who takes care of you ever: <input type="checkbox"/> hit you with something hard

<input type="checkbox"/> punched you				
<input type="checkbox"/> kicked you				
<input type="checkbox"/> tried to strangle you				
<input type="checkbox"/> intentionally cut you				
<input type="checkbox"/> intentionally burned you				
<input type="checkbox"/> don't know				
<input type="checkbox"/> don't want to say				
<input type="checkbox"/> none of the above				
Physical Abuse multiple-item screener in matrix layout				
Has an adult who takes care of you ever:				
	yes	no	not sure or don't remember	don't feel comfortable to say
hit you with something hard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
punched you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
kicked you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
tried to strangle you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
intentionally cut you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
intentionally burned you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

A participatory research session with children and young people was designed to gather feedback on these two modes of question presentation. All but one participant in a group of eight recommended the use of matrices over lists in the questionnaire. They reported it was easier to work through the questions line-by-line in a matrix, and felt the list layout required them to think of the full scale at once.

In addition to this testing, the final round of cognitive testing incorporated screening items as both lists and as matrices. Participants reported liking the number of response options in the matrix layout:

'I think it's more, like, options you can add to it, rather than a straight yes/no answer'

'I like this layout a bit better because you can give more of like a definite answer to each one instead of just like, you can only pick two when you answered for the other ones.'

Many participants found the matrix easier to comprehend and complete:

'The matrix ones were easier to fill out than the list ones'

'Something about the list makes it feel like, choose one of these options, so I felt like I was being pressured into choosing one.'

The majority of participants felt they could be more accurate on questions in the matrix layout:

'I feel like I was more accurate on the second one [matrix] because you could say, like, for some of them you didn't remember it happening, or you weren't comfortable to say...the first one [check-all-that-apply list] was more general, if you're not comfortable to say, you can't say which one that's for...you can give more depth, really, in the second one.'

Overall, the majority of participants across the study preferred multiple-item screeners in a matrix layout over an item-by-item format or a multiple-item list layout. Further, the accessibility features described below offer an alternative to screen readers, which eliminates the potential accessibility concerns of this layout. In view of this, the final questionnaires measure lifetime prevalence of each type of violence by using multiple-item screeners in a matrix layout. Any violence type with only a single item was converted into a multiple-choice question rather than a matrix with a single line (and the response options listed are the same as the four columns in the matrix layout). The items are designed to be presented one-per-page.

3.1.2 Display Logic and Branching

If a respondent endorses any item on a given composite scale, the digital formatting of the questionnaire automatically presents them with follow-up questions about the characteristics of those violence experiences, such as their frequency, the duration over their lifetime, and the perpetrator of violence. This branching was built into the digital questionnaire from its earliest drafts and maintained throughout the development process. Originally designed this way based on the expertise of the researchers in creating prevalence surveys, it was supported by

professionals and people with lived experience of violence during focus groups and cognitive testing.

The questionnaire development process led to separate items on child sexual abuse (CSA) for 11–15 and 16–17-year-old children (as described in **Blinded 3**); this difference was driven by the age of consent for sexual activity in the UK (16 years). During the first round of cognitive interviews, which were facilitated using paper copies of the questionnaire, participants expressed confusion about which CSA items to skip and where to continue their survey completion. Before the next round of cognitive testing, survey branching was employed at the start of the CSA section on the digital copy of the questionnaire (informed by the participant's answer to the 'age' demographics question at the start of the survey). This eliminated any concerns from children and young people in further rounds of cognitive testing, who were unaware of the items being 'skipped' in the background as they completed the survey and therefore did not have to manually manage navigation. An added benefit of utilising this functionality is it allows for a single digital survey with a single data export rather than the creation of two separate digital surveys, easing data analysis processes.

3.1.3 Carry-Forward Responses

Although the composite scales on violence vary greatly in their wording depending on violence type, the phrasing of the follow-up questions remains consistent throughout the questionnaire. As a result of this repetition, some cognitive interviewees expressed confusion about which section they were in as they moved through the questionnaire; by the third or fourth follow-up question in a given section, they reported having forgotten which options they had selected in the original composite scale for that type of violence. Professionals recommended pulling forward participants' responses and displaying them at the top of the page for all

associated follow-up questions. In practice, this might look like a heading at the top of the screen above a follow-up question:

‘You selected that another child or young person has:
- *told lies about you in a mean way*
- *shared secrets you told them in a mean way*
- *broken your things on purpose*

with the follow-up question presented immediately below the header:

When was the first time you remember any of these things happening?’

Unfortunately, this capability was not available in the software used for cognitive testing, so it could not be tested with children and young people. However, this option was described to interview participants, and researchers found that children and young people were supportive of this formatting for the final questionnaire.

3.1.4 Design and Aesthetics

Participatory research activities were conducted with children and young adult survivors of childhood abuse on the visual design of the questionnaire. Participants consistently recommended the use of colour, as greyscale was not engaging enough. Some responded positively to bright colours while others found it a bit patronizing and out of sync with the serious topics covered in the questionnaire, instead recommending softer or pastel palettes. Alternative learning needs and special educational needs professionals echoed feedback from children and young people, recommending the use of some colour in order to keep the questionnaire engaging, while avoiding the use of so many colours that the screen becomes challenging to look at.

3.1.5 Navigation and Accessing Support Resources

All participants recommended including both a previous and a next button. Opinions were not unanimous on the inclusion of a progress bar, however the majority of children and

young people included in participatory research activities preferred the inclusion of one, and some cognitive interview participants even recommended the addition of a percentage marker on the progress bar so the participants have more detailed information on exactly where they are in the survey.

Buttons were included in the digital design of the survey from the beginning, labelled 'help,' 'pause,' and 'exit.' Although well-liked in concept, participants found their labels confusing (i.e. assumed 'help' might refer to technical help for the software platform; 'pause' and 'exit' were too similar). After a variety of alternates were trialled and testing in interviews, the final buttons included in the survey were 'pause my survey,' 'exit,' and 'view support options.' The final button would take participants to a webpage outside the survey platform which listed a variety of support and safeguarding resources. More information about the safeguarding procedure developed in tandem to these questionnaires is detailed elsewhere (**Blinded 2**).

3.2 Trauma-Informed Design

Professionals throughout the development process emphasized the importance of trauma-informed practice, particularly as the questionnaires are about violence, and recommended ways in which the implementation of the questionnaires could reflect this philosophy. The researchers tested a variety of design aspects, described below, in order to produce final questionnaires which could be implemented in a trauma-informed manner.

3.2.1 Question Introductions

One way the Research Team aimed to prevent re-traumatisation of participants and minimise participant distress is by explicitly introducing each topic, with a short blurb on a page prior to the screening question itself. For example, prior to the screening question on peer and sibling violence, the following introduction appears:

Some children experience difficult situations with other children and young people. This can include people they know in person, or only know online, or who they don't know at all. The next questions are about these kinds of situations.

Such paragraphs served multiple functions: allowing the participant to prepare themselves for the incoming topic prior to reading the question; providing additional text boxes throughout the questionnaire where it was easy to add reminders about support resources available to participants, and reminders of the level of confidentiality offered in the survey (in this case, full anonymity). For example, some introductions include language such as:

Remember there are no right or wrong answers, just tell us what you think is true for you. Nobody will find out what you have answered.

and

If you want to, you can take a break by pressing the pause button, or ask for help at any point by pressing the support button and picking an option.

These introductions were included in all rounds of cognitive testing, and participants were asked to comment on them: their length, their tone, and their perceived utility.

Early drafts of the introductions were two to three sentences long and placed immediately prior to each screening item. They included frequent empowering statements such as ‘You are doing really well!’ and ‘Thank you so much for continuing.’ Children and adolescents in the first and second round of cognitive testing found the tone of these phrases to be condescending, rather than empowering.

‘The only things I didn't like was sort of how, every now and then, there'd be like a little message that says “You're doing great!” “Good job,” because it felt a little bit patronising. I don't know why. I know it's like a, a computer, but it still felt patronising and I think it was a little bit unnecessary.’

Professionals from survivor support organisations also expressed concern about statements like ‘These were some tough questions. Thank you for sticking with us and answering these questions.’ Rather than validating the experience of any participant who was distressed during

survey completion, professionals were concerned they may have the opposite effect, particularly for young children and young people with additional learning needs; that it might prompt a child who was not upset to become upset through suggestion.

Further rounds of cognitive testing included introductions which were meaningfully shortened to lessen participant burden; removed of any potentially patronizing language; and reworded to focus on gratitude rather than validation ('Thank you for telling us about your life') or reassurance ('There are no right or wrong answers'). The introductions were well-received by children and young people participating in the third round of cognitive testing. Some survivors expressed gratitude for the introductions, and reported it was helpful to be able to anticipate incoming questions which may prompt them to remember difficult times in their life, and the added reminders about the survey were helpful.

'I like the reminder that there are no right or wrong answers, because with a lot of like, surveys, like, they look like quizzes a lot of times and it's just like, some kids are just like "I really want to get this right" even though...it's just: "Did this happen to you, yes or no?" type thing. Like, you can't get that wrong...They might feel the need to say no because they feel that's the "right" answer that they "should" say, because like it's a secret.'

However, it is also worth noting that the youngest cognitive interview participants (aged 12 to 15) reported skimming over the introductions, without reading them closely. With this in mind, no essential information was exclusively included in the question introductions.

3.2.2 Opt-Out Response Options

Opt-out response options are generally one of two types, coded into typical questionnaires as 'Don't Know' and 'Refuse to Say.' In the first round of cognitive testing, 'I don't know' and 'I don't want to say' were listed as opt-out response options. Some children and young people struggled to select a response with this selection. They reported that 'I don't know' did not appropriately capture their uncertainty; they were not sure of their answer, but 'don't

know' seemed too strong of a choice. Similarly, there were children and young people who felt confident that there were abuse experiences they had blocked from memory, but again 'don't know' seemed to be an inaccurate way to describe their experiences.

In addition to this feedback on 'I don't know,' the participants had difficulty with 'I don't want to say.' Participants who had experienced abuse shared that if they were a younger child completing such a survey in their school, it would be less about a lack of desire to tell someone (survivors often reported a strong desire to tell someone) and more about a perceived lack of safety to disclose. Further, 'I don't want to say' was perceived by adult survivors as potentially victim-blaming, implying that a child might not disclose because they were being stubborn, rather than because there was no safe space to disclose made available to them.

For further rounds of cognitive testing, 'not sure or don't remember' and 'don't feel comfortable to say,' were included as opt-out response options in light of the initial feedback. In the second round of cognitive testing, participants responded positively to these new opt-out options. In the final round of cognitive testing, participants were asked after each item if there was another response option they wished had been available to them, and participants consistently reported the available options covered the full breadth of potential responses.

3.2.3 Ordering of Topics

Participatory research activities were conducted with children and young adults with lived experience of violence to determine the order of topics in the questionnaire. The first group to complete this activity recommended starting the questionnaire at the community level and slowly build towards the family and home setting, concluding with intimate experiences and relationships.

'I feel like the community violence one would be a quite a good place to start... I feel like a lot of children would feel more comfortable answering questions like that'

'It's like, we're kind of like, building up in kind of like the scale of things'

The next group to complete this activity recommended a slightly different approach, beginning and ending with the less confronting types of violence, with the more potentially distressing topics inserted in the middle.

Cognitive interviewees were also asked for their views on the ordering of the questionnaire. They were presented with the order that had first been recommended, beginning with least confronting and building to more intense. These interview participants were supportive of this order. A few research participants from the second group session also participated in cognitive interviews, and after seeing the specific questions, they changed their opinion; they stated a preference for beginning with least confronting and building to most potentially distressing rather than inserting the most distressing topics in the middle of the questionnaire.

Items on risk factors, protective factors, and outcomes were placed before, after, or among violence items. Early drafts of the questionnaire interspersed items, so questions with potentially similar settings were placed together (items on peer violence near school protective factors; items on child maltreatment and risk factors related to household dysfunction). Cognitive interviewees responded positively or neutrally to the distribution of non-violence items throughout the questionnaire. However, violence research and child abuse professionals strongly recommended more non-confronting items be placed at the beginning of the questionnaire, prior to the violence items, in order to ease participants into the survey with less challenging topics. An example of a less confronting item is: 'Does your school have open conversations, events, or assemblies about the following topics?' with response options such as 'friendships and anti-bullying,' 'mental health,' and 'online safety.'

The final questionnaire asks about participant demographics, protective factors related to their school resources, health risk behaviours, and household-related risk factors prior to any violence items. The items on community-based protective factors were placed in the centre of the questionnaire, to offer a mental break from the violence items halfway through. The mental health items were deemed most confronting (as they ask about self-harm and suicidality), and therefore placed at the end of the questionnaire immediately preceding the exit questions. At the recommendation of a child psychologist and psychotherapist who is familiar with quantitative research, a researcher-designed question was added to the end of the mental health section to shift attention away from harmful behaviours and towards healthier ones: ‘How do you help yourself feel better when you are having difficult thoughts or upsetting emotions?’. The response options for this question offer a range of common mental health coping behaviours, as well as ‘something else you enjoy’ at the end to ensure all participants have at least one option they can select. Another researcher-designed item was added to the very end of the questionnaire, to serve a dual purpose of ending the questionnaire on a lighter note while also gathering further data on the perspectives of children and young people today on funding and public policy. The question reads, ‘As you get older, which of these things will be important for you to have a good life?’ with response options such as ‘a good education’ and ‘a healthy environment and planet.’

3.3 Accessibility

A number of alternative learning needs and special educational needs professionals were consulted on survey accessibility. These experts emphasized that accessibility features should not be based on specific diagnoses or labelled disabilities, as some children and young people have not been formally diagnosed, or may not realize they have an additional need. Similarly, some people with a labelled disability do not have any additional support needs; children with the

same diagnosis or label may have remarkably different needs. A few aspects of accessibility were tested during cognitive testing, and additional features were added at the recommendation of professional accessibility experts, children and young people completing cognitive interviews, or both.

3.3.1 Technological Accessibility

In order to maximise accessibility for all participants, accessibility experts recommended that audio recordings be inserted into each page which allow for greater nuance and description of the item onscreen than a simple left-right-top-down reading of text (as might be offered by a simple text reader). This was also recommended in cognitive interviews with children and young people, regardless of accessibility needs of participants, to ease participant burden:

'Like the first two [survey pages], like, even if there was like an icon that you could just press, and somebody was to read that to you? Cause it's a lot of information back-to-back. But...to give that time to process that before you [begin the] survey [would help].'

Professionals specializing in additional support needs also emphasized that some people with a visual impairment simply require the use of a magnification tool, or the ability to make the text larger. Above all, the experts consulted on this recommended ensuring questionnaires are developed in alignment with the most up-to-date WC3 guidelines (W3C Accessibility Guidelines (WCAG) 3.0., 2023), while also recognizing that these specifications for web accessibility will be the minimum and will not meet the needs of all learners.

3.3.2 Practice Questions

In the focus groups and individual consultations held specifically with experts on alternative learning needs and special educational needs, professionals recommended the inclusion of practice questions prior to the start of the questionnaire. Their feedback stated that participants with additional needs would be able to practice on their personal device with their

unique accessibility features, and it would further support all participants as they gained an understanding of the question format prior to any data collection. These items were recommended to be on non-sensitive topics, but still about the individuals' life experiences; in a matrix format; and be followed by questions on frequency, duration, and/or location.

3.3.3 Readability and Inclusive Language

Another component of accessibility is readability score. At each phase of research, participants were asked for feedback on the perceived reading level and complexity of the language included in the questionnaires. This was in recognition of the tension between avoiding ambiguity while maintaining inclusive language. In many cases, including every possible term for something (for example, a list of every potential type of parent or caregiver which a child might have in a question about emotional abuse) would make the question complicated, wordy and difficult to read.

Professionals in focus groups and individual consultations flagged words which were either complex ('insist'), ambiguous ('child or young person'), non-inclusive ('parent'), or otherwise deemed by some to be unsuitable for young children ('penis'). Cognitive interview participants were asked to interpret or define a number of terms throughout the questionnaire; confusion persisted, with inconsistent comprehension even among participants who felt confident they understood the intended meaning. Attention was paid to when and how terms were interpreted differently across devolved nations, age groups, and background or ethnicity.

In the final round of cognitive interviews and final professional consultations, a glossary and hover digital function was added to the questionnaires. Any potentially ambiguous or exclusive term (i.e., 'home,' 'parent or carer,' or 'local area') is clearly defined in the question introduction prior to the question where it first appears. From that point forward, any time the

term appears again, the participant can hold their cursor over the term and a temporary window will display the definition again. Children and young people were appreciative of these definitions in cognitive interviews:

‘It helps...like, for the last paragraph, when it goes into more details about expanding on what they mean by “local area”’.

This functionality was also well-received in individual consultations with professionals.

4. Discussion

The findings reported here describe the development of a digital questionnaire format. The format was intentionally and strategically developed for use with any child aged 11 and older in mainstream schooling in the UK and diverse young adult participants up to age 25, including those with additional support needs or lived experience of trauma. While specifically designed for use with children and young people aged 11–25 in a UK national prevalence survey on violence against children, the formatting and design elements of the questionnaire development extend beyond this topic and context, and may be useful in screening and assessment tools (not just prevalence surveys). These aspects include digital formatting elements, trauma-informed design, and accessibility features.

4.1 Use of matrix layout for multiple-item screeners

As is discussed in the Results, the items in each multiple-item screener were originally presented as a list, with tick boxes and ‘none of these things’ as an option at the bottom. However, this layout poses the risk of incomplete data: if a participant does not say ‘yes’ to any item on the list, the researcher analysing the resulting data cannot be sure whether the participant intentionally did not select that option in the list, or if the participant skipped it or accidentally missed it when reading (Neuert, 2020). The endorsement of an item carries the same weight, but the lack of endorsement is an incomplete response.

When seeking an alternate item layout, professionals pointed to evidence in the literature on the effect of the matrix layout, which remains mixed (Couper et al., 2001; Mavletova et al., 2018; Vehovar et al., 2023). However, much of this comparison of question layouts and critique of matrices is examining the functionality of matrix questions with 5-point or 7-point scaled response options (e.g., ‘strongly disagree’ to ‘strongly agree’), rather than the functionality of a matrix layout for yes/no items (Couper et al., 2001; Mavletova et al., 2018; Thondike et al., 2009). Also, when scales with fewer than seven categories are compared, different survey formats produce similar results (Liu & Cernat, 2018; Vehovar et al., 2023) and there is no significant effect on test–retest correlations or on breakoff rates (Mavletova et al., 2018). It was therefore determined that the existing literature on matrices could not be applied to this questionnaire. Another concern raised by methodology specialists was the accessibility of a matrix layout. However, the recommendation to include audio recordings for each page of the survey minimizes this accessibility concern. In order to effectively eliminate this concern, audio recordings must be carefully generated in acknowledgement of the matrix layout, with separate recordings for each row of the matrix (rather than a full screen left-to-right top-to-bottom audio recording).

Forced-choice conditions on an item prompt more ‘yes’ endorsements than a check-all-that-apply conditions, implying items are more carefully read and considered when a participant must provide an answer to each item in the list (Neuert, 2020). This was supported by the participatory research activity in this study, which focused on question layout, as participants reported more easily working through the question line-by-line. Despite evidence that factual items in each layout do not require a varying degree of cognitive effort to answer (Neuert, 2017), participants in this study reported matrices as easier to complete than check-all-that-apply lists.

Another aspect of the argument for- and against matrix layouts is the increased likelihood of ‘straightlining,’ or selecting the same response for the entire grid in a straight line down a column, when compared to a single item-by-item format (Debell et al., 2021). However, this may be less of a concern for the multiple-item screeners designed in this study, which are each focused on a single violence type, as the other side of this same argument highlights the increased interitem correlations (Neuert et al., 2023).

Ultimately, the majority support found in this study for screening questions in a multiple-item matrix layout determined their use in the final questionnaires. The concerns raised over their use elsewhere in the literature has not been tested with comparable topics or screeners, and the benefits of their use to the resulting data sets are well established.

4.2 Trauma-Informed Design

The researchers leading this project aimed to generate final deliverables which can be utilised in a trauma-informed way, as defined by the UK government in their call for trauma-informed practice which works ‘as a means for reducing the negative impact of trauma experiences and supporting mental and physical health outcomes’ (Office for Health Improvement & Disparities, 2022) by recognising the impact of trauma and actively avoiding re-traumatisation. Their definition of trauma-informed practice includes six main principles: (1) safety, (2) trustworthiness, (3) choice, (4) collaboration, (5) empowerment, and (6) cultural consideration.

The use of question introductions helps to establish a safe and trustworthy research environment, as the participant is provided with gratitude, a reminder of available support resources, and continuous confirmation of confidentiality. Participants are provided with choice in every question, through the inclusion of opt-out response options which span the breadth of

potential opt-out reasoning. The ordering of topics was established with the collaboration of children and young people with lived experience of violence, in order to minimize the potential for re-traumatization when moving through the questionnaire. These aspects of digital questionnaire design were driven by the goal to produce trauma-informed deliverables.

In addition to the explicitly trauma-informed design components, other aspects of the digital formatting described above support survivors of trauma as well. Trauma survivors are more likely to have additional support needs in school (Fry et al., 2018), so the generation of a digital survey with accessibility features like a text magnifier or the ability to play an audio recording of the question rather than reading helps to reduce the negative impact of trauma by allowing all children and young people to participate. Participants' culture and the influence it may have on their interpretation of the questions being asked was taken into account through the implementation of a glossary of terms with definitions. Using display logic and branching to skip irrelevant questions lessens participant burden, thereby supporting participant's mental health and recognising participants with a history of trauma may become distressed when answering a series of questions about their life experiences (Franchino-Olsen et al., 2024), or be more likely to have mental health concerns (Scott et al., 2023). The same is true of multiple-item screeners, which limit question repetition by combining similar violence topics into single screening grids. The digital formatting described here is a clear example of how to incorporate trauma-informed practice principles throughout surveys, weaving this philosophy through the tool itself and thereby increasing the likelihood it will be implemented in a trauma-informed manner.

4.3 Key Findings for Future Research

The findings from this study can help researchers seeking to engage children in studies on sensitive topics using digital questionnaires. Regarding the content, researchers should consider

whether topics can be grouped into a multiple-item format, and if a matrix layout will provide the level of detail they require in their results, as both the format and the layout can help ease participant burden. Using software which allows for display logic and branching to skip irrelevant questions, alongside simple and clear navigation buttons, can lower the cognitive load of engagement, and carry-forward responses can be useful above follow-up questions (so a child does not have to remember prior responses). The aesthetics should reflect the seriousness of the topic and align with accessibility recommendations, which at minimum meet WC3 Guidelines. Researchers can avoid isolating participants through examination of reading comprehension level, inclusivity of language, and any need for a built-in glossary function or practice questions.

Another overarching finding from this study is how trauma-informed practice extends beyond the implementation of a questionnaire or its content, to include the design of the measurement tool itself. Researchers should view instrument design as an opportunity to reflect those principles and reinforce a relationship of safety and trust between the researcher and participant. Detailed guidance on applying this approach is provided above in section 4.2.

4.4 Strengths, Limitations, and Implications for Future Research

A key strength of this study is the centring of the voices of children and young people in the target age group, as well as the inclusion of both children and adults with lived experience of violence in childhood. Prioritising these perspectives results in questionnaires which are more relevant to the target audience and sensitive to the unique engagement that individuals who have personally experienced violence have with such prevalence surveys. Improving how participants engage with questionnaires has a positive impact on the resulting datasets (both in quantity of willing participants and quality of the data). A limitation of the methods used here is that although children and young people contributed to the design during the development phase of

these questionnaires, only one design was used in each round of cognitive testing and qualitative interviews, which limited the researchers' ability to compare how participants engaged with different designs (except the participatory research activity which compared question formats).

One limitation of the design of these surveys is the impact of multiple-item screeners on the resulting data sets. By combining all items related to a particular kind of violence into one grid and asking a single set of follow-up questions for all items included, the characteristics of violence reported in the follow-up questions (i.e., location, frequency) will be attached to the type of violence overall, rather than individual items in the grid. Future researchers may explore ways to gather more specific information on the characteristics of violence experiences without causing prohibitive participant burden. In addition, the 'accessibility' referenced throughout this paper is focused on the audience of children and young people in mainstream schooling in the UK, and therefore does not address larger accessibility barriers experienced by those outside this group, such as children with severe forms of cognitive disabilities. Finally, there may be children present in mainstream schools in the UK with a language barrier, and the accessibility referenced here does not take into account translation for such students. Future research with children and young people would benefit from the development of measurement tools specific to these two groups.

5. Conclusion

Engaging children in research is possible with the appropriate tools. By including children and young people in the development stage of these questionnaires, the researchers were able to gather feedback from the target age group on their engagement with the design and format of the items. Implementing children and young people's ideas alongside recommendations from professionals and adults with lived experience has resulted in

questionnaires which maximise digital features for participant engagement, align with trauma-informed principles, and remain accessible to a variety of participants. Bespoke measurement tools designed alongside the target audience has the potential to positively impact the resulting data sets by engaging a more diverse participant group, while minimising potential harm from their participation in research.

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Article Title:

Surveying Children and Young People on Sensitive Topics: Creating Engaging, Accessible, Trauma-Informed Digital Questionnaires

Highlights:

- Children and young people must be involved in the development of surveys for them
- Questionnaires designed to be accessible and trauma-informed are most effective
- Digital features should be maximized to create surveys which avoid retraumatisation
- Question layouts, readability, and opt-out responses can impact engagement

Declaration of interests

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

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