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STUDY PROTOCOL

REVISED Born in Bradford Age of Wonder cohort: A protocol for qualitative longitudinal research [version 2; peer review: 2 approved]

Sufyan Abid Dogra [1], Kate Lightfoot [1], Rosslyn Kerr [1], Jennifer Hall [1], Olivia Joseph [1], Nasiba Siddig[2], Hannah Nutting [1], Katy A. Shire [1], Helen Roberts[3], Neil Small [4], Rosemary R.C. McEachan [1], John Wright [1]

[1]Bradford Institute for Health Research, Bradford Teaching Hospitals NHS Foundation Trust, Bradford Royal Infirmary, Duckworth Lane, Bradford, BD9 6RJ, UK
[2]Faith in Communities, Bradford, BD3 8EJ, UK
[3]Institute of Child Health, UCL Great Ormond Street, London, WC1N 1EH, UK
[4]University of Bradford, Bradford, BD7 1DP, UK

Abstract

Born in Bradford (BiB) has followed the lives of 13,776 children born in the district between 2007 and 2011. Children in the birth cohort are now entering adolescence, and the next phase of the research - Age of Wonder (AoW) - will be a whole city cohort capturing the experiences of 30,000 adolescents progressing into young adulthood. This protocol focuses on one component of the AoW programme: qualitative longitudinal research (QLR). The study will gather in depth and detailed accounts from a sub-sample of 100 young people across four major research priorities: personal life; social and community life; growing up with difference, and growing up in Bradford. As well as using traditional qualitative methods such as interviews, focus group discussions, and ethnography, we are adopting innovative creative methods including expressions through art, activism, online and digital content, portraits, and critical events. The process of engaging in and co-producing QLR potentially provides a route to empowering young people to shape the narrative of their own lives as well as informing intervention development.

Keywords

Qualitative Longitudinal Research, Born in Bradford, Age of Wonder, Health and Wellbeing, Coproduction, Cohort Study, Adolescence, Innovative Qualitative Research Methods, Growing Up

This article is included in the Born in Bradford gateway.

Corresponding author: Sufyan Abid Dogra (Sufyan.Dogra@bthft.nhs.uk)

Author roles: Dogra SA: Conceptualization, Funding Acquisition, Investigation, Methodology, Project Administration, Supervision, Writing – Original Draft Preparation, Writing – Review & Editing; **Lightfoot K**: Conceptualization, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; **Kerr R**: Conceptualization, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; **Hall J**: Conceptualization, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; **Joseph O**: Conceptualization, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; **Siddig N**: Investigation, Methodology; **Nutting H**: Investigation, Methodology; **Shire KA**: Methodology, Writing – Original Draft Preparation; **Roberts H**: Conceptualization, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; **Small N**: Conceptualization, Methodology, Writing – Original Draft Preparation, Writing – Review & Editing; **McEachan RRC**: Conceptualization, Funding Acquisition, Investigation, Methodology, Supervision, Writing – Original Draft Preparation, Writing – Review & Editing; **Wright J**: Conceptualization, Funding Acquisition, Investigation, Methodology, Supervision, Writing – Original Draft Preparation, Writing – Review & Editing

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Introduction

Background of Born in Bradford birth cohort

The Born in Bradford (BiB) study was established in 2007 to examine how genetic, nutritional, environmental, behavioural and social factors affect health and development during childhood. Between 2007–2011 the study recruited 12,453 pregnant women who experienced 13,776 pregnancies and included 3,448 partners. Forty-five percent of mothers in the cohort are of Pakistani origin and over half live within the fifth most deprived areas of England and Wales. The BiB cohort was established with broad aims to: describe health and ill health within a multi-ethnic (largely bi-ethnic), economically deprived population; develop, design and evaluate interventions to promote health; provide a model to support evidence-based practice within the National Health Service (NHS) and other health-related systems; and build and strengthen local research capacity in Bradford. Protocols for the original study, follow up studies, and cohort descriptions have been published (Bird *et al*., 2019; Wright *et al*., 2013).

The BiB team advocates Bradford as a 'City of Research', supporting the campaign with Bradford Institute for Health Research to develop 'citizen science' and encourage all who live in the Bradford District to contribute to health research. Over 300 papers using BiB data have been published on a range of topic areas including environmental influences on health such as air quality (Pedersen *et al*., 2013) and green space (McEachan *et al*., 2018); genetic factors, e.g. gene knock-outs (Narasimhan *et al*., 2016); congenital anomalies (Sheridan *et al*., 2013); fine-scale population structure (Arciero *et al*., 2021); mental health (Prady *et al*., 2016); obesity (Wright *et al*., 2016); physical activity and sedentary behaviour (Collings *et al*., 2020a; Collings *et al*., 2020b; Hall *et al*., 2021); using religious/cultural settings for childhood obesity prevention (Dogra *et al*., 2021; Rai *et al*., 2019); education (Pettinger *et al*., 2020); and COVID-19 (Bingham *et al*., 2021; McEachan *et al*., 2020; Pybus *et al*., 2022). A summary of key findings can be found at https://borninbradford.nhs.uk/our-findings/.

Age of Wonder: BiB research plans for the next seven years

Age of Wonder (AoW) is the next stage in the development of BiB's cohort research focussing on adolescence and young adulthood. Between 2022 and 2029, we will work with around 30,000 young people in Bradford using a range of approaches, including questionnaires, health measures, motor and cognitive measures, and qualitative longitudinal research (QLR); the original BiB study did not include dedicated QLR. The QLR component of Age of Wonder will follow 100 young people through their journeys to young adulthood, from 12/13 to 19/20, providing insights into young people's experiences of growing up in Bradford. As well as the qualitative standalone value, we expect to synthesise this work with AoW quantitative data to provide a rich understanding of this transformative phase of life (see Figure 1).

Qualitative longitudinal research background

QLR holds the potential to investigate and describe complex relationships around continuity and change (Lloyd *et al*., 2017), grasp subjective meanings (Heinz & Kruger, 2001), measure change and associated processes (Farrall, 2006; Hanna & Lau-Clayton, 2012), and complement evaluation of programmes that use different methods (Barnes *et al*., 2005; Corden & Miller, 2007; Irwin, 2011). Moreover, Denzin, Lincoln & Giardina (2006, p.776) note the value for scientists in maintaining 'collaborative, reciprocal, trusting, mutually accountable relationships with those we study', in creating robust qualitative research to understand constructions of 'truth', worldviews, and interpretations of events shaped within particular social environments, at particular points in time.

Previous studies undertaking QLR with adolescents have highlighted the importance of a wide repertoire of approaches to gather data (Henderson *et al*., 2006; Neale & Bagnoli, 2007; Neale, 2020). Thomson & Holland (2003), for example, acknowledged that it is not 'normal' for young people to be invited by researchers to take part in standardised interviewing
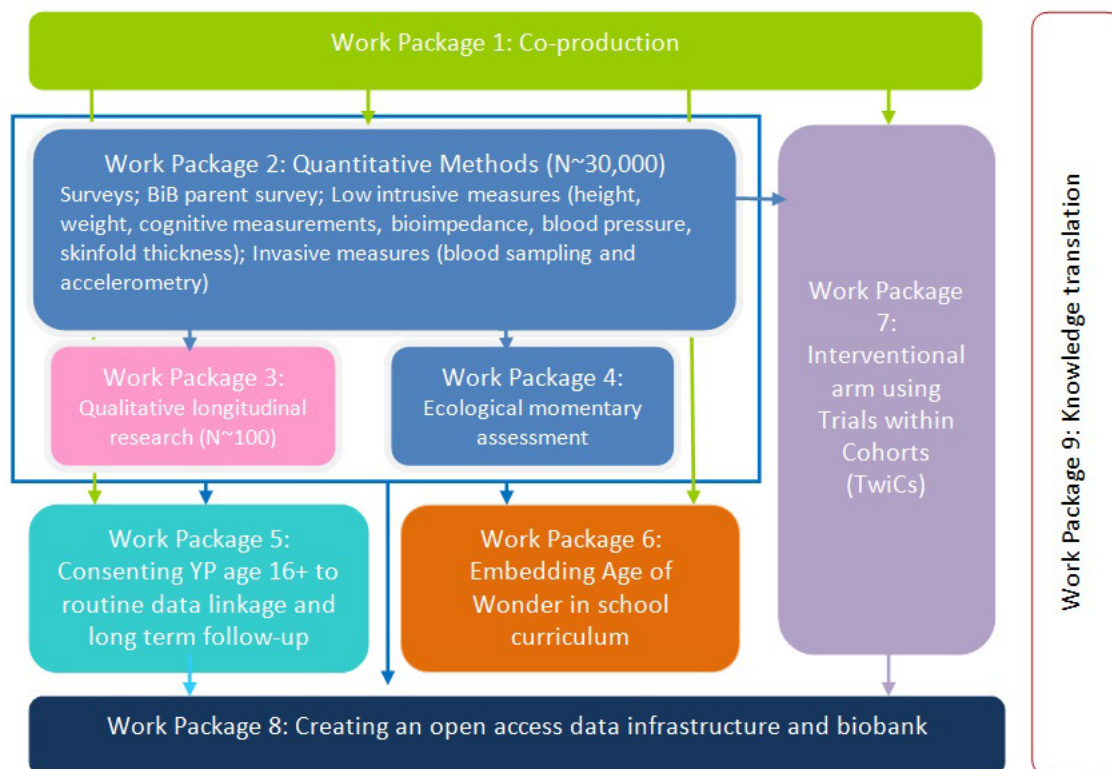
Figure 1. AoW work packages for all components of full research programme.

repeatedly. To avoid this limitation, our QLR with young people employs various data collection techniques such as focus groups (Bagnoli & Clark, 2010) and arts-based approaches (Bagnoli, 2009; Daykin, 2020).

AoW's QLR will collect an in-depth record of young people's changing contexts, attitudes and experiences through adolescence. This exploration of their lives over time will not only give insights into the ways in which their identities and relationships are negotiated, but also related factors that may impinge – positively or negatively - on their health and wellbeing (Morrow & Crivello, 2015). Such insights can be examined alongside the ways in which young people engage with external influences (family, peers, neighbourhood, school, clubs, leisure, wider society), allowing consideration of the implications of these for social policy (Treanor *et al.*, 2021). Combining social contexts (e.g. political, social, and economic) and personal insights creates 'thick data' (Geertz, 2008; Wang, 2013), which can contribute to interventions designed to improve education, health and wellbeing, and inform social policy that impacts on young people (Corden & Miller, 2007).

Aims of qualitative longitudinal research
Our overall aim is to establish a sustainable qualitative longitudinal study that complements other work packages in a cyclical way. This will be achieved through detailed longitudinal inquiries and co-production with young people on how best

to capture details of their lives. We will use a range of data collection methods to provide a voice for young people, contributing both to the richness of AoW data and to QLR methodological development. Our QLR workstream within AoW provides a route for, and offers support to, young people to input into programme design, operation, intervention development and dissemination of data. Further aims are to:

1. Develop a methodologically innovative, robust, QLR workstream of AoW with a focus on seeking insights into the internal, social and community lives of young people.

2. Make qualitative data available in a way that can connect with quantitative AoW data, and data from other national projects to help explore the impact of societal changes, for example shifts in economic and social policy.

3. Triangulate, interrogate and draw on the AoW quantitative dataset to enrich all parts of the study.

4. Undertake focused qualitative studies to investigate specific research questions.

5. Provide support for intervention development and evaluation for other AoW workstreams and facilitate them in expanding qualitative components of their work.

6. Harness young people's insights to adapt and prioritise social, epidemiological and biomedical research in the broader AoW research programme.

7. Support young citizen scientists in developing ways of investigating, recording, and sharing insights into their own lives, facilitated by qualitative research methods.

Methods

Sampling

Our sample will comprise 100 young people aged 12–13 years at recruitment. They will be recruited from schools (including alternative provision), community and faith settings, sports and arts venues, and through BiB's existing network of parents and families, using purposive sampling.

They will be recruited in three tranches, 34 in year one, 33 in year two and 33 in year three.[1] Of these, around two thirds will be invited to participate on the basis of demographic characteristics (gender; ethnicity; socio-economic context; geographical location; family circumstances), which broadly reflects the overall distribution in the wider BiB cohort, which is reflective of the population of Bradford. The remainder will be invited as members of groups often under-represented in genuinely participative co-production, including for instance disabled children, children in learning disability education, looked after children, refugee children, and children of refugees (Roberts et al., 2018). Recruitment in tranches will allow us to consider differences in young people's experiences of the same age in different years (Morrow & Crivello, 2015) and is likely to include issues such as the impact of the COVID-19 pandemic on education, mental health and cost of living. More practically, recruitment in tranches will facilitate the administration of cohort recruitment in a study where all recruits will be supported to stay in the cohort throughout the seven years from recruitment. We will encourage participants to remain a part of our QLR even if they move away from Bradford, in which case we will facilitate data collection regardless of their location via online methods including Zoom and Microsoft Teams. In addition to the possibility of leaving the city for personal, or family, reasons (e.g. employment, migration) during the study, given that we endeavour to follow our sample until age 19 or 20, it is possible that some of them will move away to university. Maintaining contact with participants who have moved away from Bradford will allow us insights into how their time living in Bradford is shaping their identity and everyday life; has influenced decisions about their future, and the comparisons they may be able to draw between Bradford and their new location.

Minimising attrition involves building quality research relationships with participants through repeat engagement, continuing

conversations and sound record keeping compliant with both GDPR and best practice safeguarding (Denzin et al., 2006; Teague et al., 2018; Treanor et al., 2021). Young people will be remunerated in recognition of their time and contributions to the project, in line with Born in Bradford's policy for payment of participants. Not only will this contribute to reducing attrition, but it is also in line with the ethos of fostering young citizen scientists.

Consent

Our QLR study will seek opt-in consent. Consent in studies of this kind is a process and not an event (Guillemin & Gillam, 2004; Moore et al., 2018; Rooney, 2015; Warin, 2011). Consent will be viewed and applied as a fluid, situational, repeated, and ongoing process.

At initial recruitment, we will seek parental written informed consent and assent from young people (who will be aged 12/13 years). In ensuring consent which is well-informed, ethics documents will be designed for the needs of participants (and parents). This will include translations for parents or newly arrived young people who do not speak English, dyslexia-friendly fonts, short video versions of information sheets with voice-over and closed captions, Makaton and alt-text on images.[2] Parents and young people will be provided with information sheets detailing initial data collection activities including re-consents as the study progresses since practices for obtaining informed consent will be informed both by 'Gillick competence' and co-production (NSPCC Learning, 2020). Researcher assessment of a young person's Gillick competency will be an ongoing process. All researcher-participant interactions will provide an opportunity to check that the young person understands the pros and cons of participation. If a researcher has concerns about the Gillick competence of a young person they will work with the young person, teachers and parents to determine whether a model of parental consent and young person assent is more appropriate. Health Research Authority guidance (NHS Health Research Authority, 2021) helpfully reminds researchers that:

"A child / young person's right to give consent is dependent upon their capacity to understand the specific circumstances and details of the research being proposed, which in turn will relate to the complexity of the research itself. Children and young people's competence may well be reflected in their ability or otherwise to understand and assess risk. Competence to understand will be heavily influenced by how the information is presented to the child or young person, and the language used. You must ensure that you maximise a child / young person's chances of understanding what is involved in your study."

We will be working on mechanisms and processes to minimise attrition, while enabling and empowering young people to withdraw should they wish to do so - particularly being

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[1] On the completion of seven years, 66 out of the 100 young people selected in years 2 and 3 will continue as part of QLR for a further 12 or 24 months in order for 7 years of follow up for all. Funding sources for this period are currently being appraised for early funding submissions, which will include early findings from young people recruited in year 1.

[2] Alt-text helps screen-reading tools describe images to visually impaired readers.

mindful of power dynamics which can be involved with parental consent and young people's assent (Liabo *et al.*, 2017; McEvoy *et al.*, 2017). These power dynamics can manifest in a multitude of ways, whereby young people are either pressured into or prevented from participating. To mitigate these risks, we will run a variety of in-person and online workshops so that participants and parents can fully understand what being in a research project means, their right to withdraw at any stage, and the ways in which they can signal if they would like to withdraw from any parts of a discussion. If a participant withdraws, they can indicate that they do not wish their data to be used in further analyses and publications. Participants and their parents/carers will not have to re-consent each time their data is used. Throughout their participation in QLR, young people will be reminded of their right to withdraw - both their participation, and their data. Once data are collected, participants will not have the opportunity to rewrite them at a later stage. However, throughout the study, participants will have the opportunity to reflect on their previous contributions. This decision is based on preserving authenticity and reducing social desirability bias.

Coproduction, involvement and engagement of young people

QLR research priority areas were co-produced with a small, diverse group of young people from Bradford but not from the QLR sub-sample, during AoW and QLR research programme design prior to the submission of the funding application to Wellcome. These young people were recruited from BiB's existing links with groups of young people in schools, community organisations, mental health and youth services in Bradford. Between February 2021 to September 2021, participants attended a series of group discussions and workshops in which they were invited to reflect on their lived experiences and define research priorities that they would like the Age of Wonder research project to explore further.

The themes in Table 1 represent the outcomes of initial co-production with young people. A defining feature of our QLR is ongoing co-production and co-design of qualitative methods of social inquiry, meaning that these research priority areas, and the methods discussed below, may evolve as we continue co-production with young people over the next seven years. To this extent, a QLR/co-production protocol is very different (and somewhat less detailed) than a protocol for, for instance, a randomised controlled trial.

The topics in Table 1 above, identified from early co-production, will not be used to limit the focus of research. Within an approach that is sufficiently structured to provide a framework, we will be guided by regular, open conversations with young people in which they will be encouraged to talk about the experiences that shape their journey through adolescence. As well as our core study participants, the wider work of AoW with community groups, schools, religious settings, sports organisations, mental and sexual health services, educational institutions

Table 1. Research priority areas for Age of Wonder qualitative longitudinal research.

Research priority area	Related topics as identified by young people in initial co-production
Personal life	Identity – 'who you are', how you 'fit' with your peer group Expectations of future and fears of the unknown Puberty, sexuality (all ages) and sexual encounters (from age 16) Social media – 'gone viral' and the part it plays Body image – comparing self and others Hopes, aspirations and ambiguities (individual and community) Health and wellbeing - staying healthy Positive and negative influences on life Art and culture
Social and community life	Family relations and home environment School and the community around you Role models and power of positive influence Culture shaping growing up
Growing up with difference	Positive and adverse experiences; discrimination, poverty and surroundings, life in council estates and deprived neighbourhoods
Growing up in Bradford	Multi-ethnic encounters and growing up in diverse Bradford; racism Criminality, drugs, anti-social behaviour Living with faith or no faith; ideals of purity, spirituality and devotion in Bradford Economic practices/choices in Bradford: transitioning into workforce Environment, ecology and sustainability

and the families will enable wider insights as we develop our QLR.[3] By collaborating with local place-based groups and community organisations, QLR will explore and expand the presence of young people in research, data collection, and programme implementation.

The open nature of conversations as part of the co-production of QLR will, we hope, ensure that young people feel part of the longitudinal process and the AoW community as young citizen scientists. We will be testing and observing whether the sense of enjoyment and fun we hope to engender will ensure strong retention and minimal attrition over the seven-year duration of the project.

Qualitative longitudinal research

In recent years, QLR has seen a period of methodological innovation (Denzin & Giardina, 2006; Neale, 2021; Onwuegbuzie et al., 2010) building on social media analysis, artistic expression, youthful activism, and critical events in young lives. We propose to build on these methods in ways that resonate with young lives in the 2020s (Denzin et al., 2006). Alongside traditional methods of QLR, such as interviews and focus groups, over the next seven years our QLR will employ a range of techniques that equip young people to study and report on their own lives, develop the critical skills that foster citizen scientists, and allow young people to identify pathways which they may not previously have considered.

Table 2 with qualitative data collection practices in the left-hand column is what we aspire to achieve, however the granularity of methods will be shaped by co-production with young people and discussions with ethics committees. The numbers in the right-hand column indicate the number of participants (from the sample of 100) that will be followed longitudinally over seven years. Every young person in the sample of 100 will be followed longitudinally for the duration of the study, but young participants will have differing levels of involvement in the data collection methods and practices. For example, all young people will be invited to submit a short expression of their hopes and fears for the future on an annual basis, whereas 40 will participate in in-depth interviews, and 25 will take

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[3] Please see https://www.bradfordhospitals.nhs.uk/born-in-bradford-age-of-wonder-project/ and https://borninbradford.nhs.uk/what-we-do/schools/age-of-wonder/ for an overview of the Age of Wonder project.

Table 2. Qualitative longitudinal research methods. Planned data collection over study duration (7 years per participant).

Qualitative data collection methods and practices (repeated annually)	Sample size
Short expression: Insights on how young people change their future aspirations, plans and ambitions over time. This will include an annual short expression – written, spoken, filmed or pictorial from young people.	N = 100 (Y1 = 34; Y2 = 67; Y3 = 100)
	Total over study duration: 700
Group discussions (in groups of 8): To acquire information from diverse group of young people on a specific theme	N = 80 (Y1 = 27; Y2 = 54; Y3 = 80)
	Total over study duration: 560
Online/ digital content: To gather information through content analysis on everyday life and priorities of young people through online/digital sources like social media like TikTok, Instagram, BeReal, YouTube, Facebook, WhatsApp etc.	N = 50 (Y1 = 17; Y2 = 33; Y3 = 50)
	Total over study duration: 350
In-depth interviews: To explore in detail thoughts and feelings related to priority topics	N = 40 (Y1 = 14; Y2 = 27; Y3 = 40)
	Total over study duration: 280
Expressions through art, culture and youthful activism: To gain insights and familiarise with the imaginative worldviews of young people by collecting and analysing the artistic expressions produced, created and lived by them like drawing/sketches, poems, performances, music, environmental and political activism etc.	N = 25 (Y1 = 9; Y2 = 17; Y3 = 25)
	Total over study duration: 175
Portraits: To document young people's hopes and fears for the future through an annual interview and portrait session with a professional photographer.	N = 25 (Y1 = 9; Y2 = 17; Y3 = 25)
	Total over study duration: 175
Critical events: To gather in-depth understanding of everlasting impressions left on young people's lives through critical events like entering into new school, changing family circumstances, pleasant or unpleasant peer experience, enhanced interest in particular sports, changes in food habits, puberty and sexuality, trauma, fight, drugs, poverty/unemployment or other life defining events like grief or happiness	N = 5 (Y1 = 1; Y2 = 3; Y3 = 5)
	Total over study duration: 35
Life history: To collect a cumulative record of changing perceptions and attitudes amongst young people on health and wellbeing and lived experiences with the outside world throughout adolescence, by drawing on all QLR methods of data collection, and secondary data.	N = 10 (Y1 = 2; Y2 = 6; Y3 = 10)
	Total over study duration: 10
Ethnography: To gather insights of social life of young people through participant and nonparticipant observation by taking part in various social gatherings of young people, and triangulation of data collected from various sources about their everyday lives.	N = 10 (Y1 = 2; Y2 = 6; Y3 = 10)
	Total over study duration: 10

part in portrait sessions with our artist in residence. Young people's interest, availability, and diversity of the sample will inform the short-listing process for the various data collection methods.

As 34 young people will be recruited in year 1, an additional 33 in year 2, and the final 33 in year 3 to make up the sample of 100, the numbers in brackets indicate the proportional sample size for data collection from each method. Each recruit will complete a cycle of longitudinal study, meaning that 66 out of the 100 young people selected in years 2 and 3 will continue as part of QLR for a further 12 or 24 months in order to complete the overall study duration of seven years.

The rationale behind the inclusion of the methods in Table 2 is to generate a comprehensive understanding of the multiplicity of factors influencing how young people in Bradford live their lives, and how this may change over time. There are limitations to relying solely on traditional qualitative methods, as no data, however collected, can reflect every aspect of all individual experiences. The inclusion of innovative methods will allow us to better connect with the diversity of young people's lived experiences, as each method highlights a different aspect of young lives in Bradford, 'reaching the parts that other methods cannot reach' (Pope & Mays, 1995, p.42). Moreover, following all young people in the sample for the duration of the study across a range of data collection methods will generate insights into the factors that shape their experiences of growing up.

Data analysis

Given the breadth of data our QLR seeks to collect, a range of analytical and theoretical approaches will be used. Much of the data will be analysed thematically using a framework analysis (Gale *et al.*, 2013) combined with integrative analysis of longitudinal qualitative data. While thematic analysis (Braun & Clarke, 2006) is likely to be the most useful tool for the data collected through in-depth interviews and group discussions, content analysis (Hsieh & Shannon, 2005) is likely to be more useful for short expressions and online digital content. Discourse analysis (Cheek, 2004) will explore how young people describe critical events and how their perception changes as they grow up. By virtue of the range of dissemination techniques outlined in the dissemination section, it will be possible to involve young people in certain aspects of data analysis and identifying key information for dissemination. Throughout the project, there will be opportunities for young people to contribute, in a collaborative and co-produced way, to discussions to identify major themes for analysis.

Reflexivity

Mitchell *et al.* (2018, p.673) posit the importance of reflexive practice in qualitative research. Researchers in this study will be expected to reflect on, and describe, the 'contextual intersecting relationships (e.g., race, socio-economic status, age, cultural background) between the participants and themselves' (Berger, 2015; Dodgson, 2019, p. 220) and whether they have shared experiences with study participants (Dodgson, 2019).

The researchers in our QLR are 'outsiders' (all being adults), so reflecting on power differentials will be important (Grove, 2017; Mathijssen *et al.*, 2021). Reflexivity will be an inbuilt feature of key operational meetings prior to, during and after data collection, analysis and dissemination (Onwuegbuzie *et al.*, 2008). Such reflexive moments will allow consideration of ethically important moments, particularly during data collection (Guillemin & Gillam, 2004).

Power relations and peer relations can never be fully mitigated in these situations. However, by ensuring that our initial results presentations go to the young people involved prior to wider publication and dissemination, and differences in interpretation are fully discussed and reported alongside those in our own discussions, we expect to present a rounded picture.

Dissemination and engagement

As a community-focused project, AoW will complement traditional academic dissemination with a variety of community-focused dissemination and engagement strategies flexibly informed by young people. Some of this will be dictated by capacity and resources, including wider media dissemination. The list below details the planned research dissemination and engagement activities for the duration of the study. Because co-production is a priority for our QLR, the list below is not exhaustive, as there is scope to develop dissemination and engagement techniques identified by participants (Research Retold, 2019).

- **Yearly exhibition:** Showcase of annual short expressions on changing perceptions of young people about their hopes, aspirations and fears to be displayed in the city.

- **Newsletter:** Bi-monthly newsletter to young people and families detailing young people's participation.

- **Stakeholder presentations:** Presentations of young people's participation and project milestones to stakeholders such as schools and community organisations.

- **Performing arts:** Working with young people and local drama groups to develop various forms of performance art based on young people's experiences.

- **Board game or app:** During early adolescence, participants will contribute to the creation of a 'Snakes and Ladders' style board game to highlight key challenges and facilitators of a positive experience of growing up in Bradford. During late adolescence/early adulthood, participants will contribute to the design of a smartphone app related to growing up in Bradford.

- **Portraits:** Alongside excerpts of discussion with photographer on hopes and dreams, portraits of young people showcased on various platforms

- **Art:** Working with stakeholders to produce art such as illustrations, comics, and short animations, which highlight the project's key findings.

- **Sports/fun days:** Organising sports/fun days to promote physical activity and access to greenspaces for young people

- **Knowledge cafés:** Bringing participants from key groups (e.g. girls, boys, LGBT youth, young people with learning disabilities) together in communities to share their experiences in a safe space. Participants can rotate amongst groups and hear from role models from the local community

- **Social media:** Sharing project progress and findings through social media posts (e.g. Instagram; YouTube; Twitter; Facebook; TikTok).

- **Mainstream media:** Dissemination of findings via mainstream media (e.g. television, radio, newspapers, magazines, podcasts).

- **Academic dissemination:** Sharing findings via traditional academic channels, such as publications and conference presentations. These research outputs will be accompanied by short sound bites, providing a summary of relevant information.

Transparency and use of data

Transparency around the use of QLR data is a key ethical consideration in dissemination and engagement. Consent to use young people's data in dissemination and engagement will be collected at the same time as consent to participate in data collection. All data will be anonymised before dissemination - unless young people choose to be identified - apart from portraits, where participants' identities will be clear. Should young people wish to be identified, they will be encouraged to share their experiences of participation in longitudinal research across a range of media (e.g. QLR newsletter; social media; radio etc.).

Ethical approval

Ethical approval for QLR is part of the overall AoW project and has been granted by NHS Leeds Bradford Research Ethics committee (Approval number ref: 21/YH/0261, date 22.12.21). Regulatory approval for AoW has been granted by the Health Research Authority. Initial ethical approval was granted for QLR to recruit young people to take part in QLR with yearly submission of young people's 'short expressions of hope' with consent from parents to request this every year for the next seven years from their child. Initial ethical approval has also included approval for all of the broad data collection methods. As the specific research focus changes and develops to cover the different areas identified by young people through co-production, ethics amendments will be submitted to gain approval for any new research materials (e.g., interview schedules or focus group topic guides) or additional research required to fully explore the topic.

Whilst we expect there to be no risks greater than the mundane risks of everyday life to participants of taking part in the Age

of Wonder study, no activity is entirely risk free. It is possible that the planned data collection techniques, particularly interviews, may uncover potentially sensitive or upsetting topics for participants. The group research setting also presents ethical challenges, such as the possibility of feelings of exclusion and inclusion and group members upsetting one another. It is also possible that research activities will reveal safeguarding concerns for the participant or their family. It is made clear in participant information sheets and consent forms that a researcher may break confidentiality in situations of immediate harm to the young person or someone else.[4] In such cases, the researcher will follow the safeguarding policy of Bradford Teaching Hospitals NHS Foundation Trust and report the safeguarding disclosure. It is likely that during data collection, lone working within community locations (e.g. community centres, public spaces, and participants' homes) will be required by QLR research staff, in which case researchers will follow the Bradford Teaching Hospitals NHS Foundation Trust policy for working alone to protect as far as is reasonably possible the safety of researchers as well as participants. This policy includes provisions such as a nominated person for contact and further action if communication from the researcher to confirm their safety within set timescales is not reached.

One of the challenges of a longitudinal qualitative study is the management of long-term relationships with participants. The QLR research team is diverse in its age-range, career-stage, ethnic-background, languages spoken, gender, embeddedness of researchers in local communities, faith/no faith backgrounds. This diversity maximises the possibility of engaging, and sharing common ground, with research participants. All team members have undertaken relevant safeguarding training and are mindful of maintaining professional interactions with research participants whilst still building rapport. Upholding safeguarding principles and professional relationships means that two team members will always be present at any interaction with a young person.

Study status

Participant recruitment is due to begin in September 2022 (the start of the 2022/23 academic year), and data collection will follow shortly thereafter.

Discussion

This protocol has outlined the potential of QLR to understand the multiplicity of young people's lived experiences of growing up in Bradford. The defining features of our approach are: innovative data collection methods; the synthesis of thick data and big data (findings from a large quantitative dataset, N = ~30,000); making participation fun, and the exploration of mapping data on political, social, and economic change onto QLR data.

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[4] These ethics documents will also include signposting to services able to give support for mental health, domestic violence, child abuse and education needs.

A central feature of our QLR is the multiple data collection methods repeated with the sample. These extend beyond the 'traditional' qualitative interview, focus group, and ethnographic observation used in much qualitative research to build a detailed and holistic understanding of the lives of young people. Using a range of methods will reveal the ways in which young people construct and understand their life worlds and the role they have in the social system of which they are a part (Denzin *et al.*, 2006). The novel methods will be used to collect data and make qualitative observations through artistic expressions, critical events in life, youth activism, social media and portraits. Our QLR will empower young 'citizen scientists' to actively inform us on data collection methods by decolonising, democratising, and decentralising the ways in which qualitative data is traditionally collected (in-depth interviews and focus group discussions). The migration histories of some families in Bradford carry the memory of colonisation, which is continued through the experiences of racism that shape the growing up experience of young people in modern Britain. Our research has meaningful involvement of young people in the identification of themes for detailed investigation that describe their experiences of deprivation and marginalisation. We believe young peoples' power in shaping the narrative of their lives helps in decolonising how qualitative longitudinal methods are applied in health research, the findings of which ultimately shape policy.

Moving away from the reliance on stand-alone qualitative data, our QLR will juxtapose qualitative and quantitative findings, whilst also exploring additional methods of synthesis (Popay *et al.*, 2006). AoW's large quantitative data set will not only inform qualitative inquiries, but, by benefiting from thick data, will be reciprocal and cyclical to inform the design of large questionnaires that AoW will use to gather big data. Synthesising data in this way seeks to avoid the 'add-on' status of qualitative research sometimes found in mixed methods health research (O'Cathain *et al.*, 2014, p.121), and is essential in understanding complex phenomena including young people's lived experiences of growing up in Bradford.

We acknowledge the limitations of qualitative data collection through institutions. Hence, our QLR will step away from total reliance on institutions for data collection with young people. We believe chat groups, social media, sports teams, street/community-based networks of young people, active participation in religious gatherings, youthful activism, and civic participation in art, culture, poetry, music and other community voluntary events can be the sites where we will observe young people and collect data (Dogra *et al.,* 2021; Eriksen & Seland, 2021). These new sites function as entertaining venues of data collection for young people highlighting young voices and lives

(Hunt *et al.*, 2011). We advocate that data collection from young people can be fun as well as what young people may describe as entertainment can be the sites of data collection, by intelligently balancing online and offline ways in which young people relate to one another (Long *et al.*, 2022).

Another key feature of BiB's research is co-production and involvement of local communities (Albert *et al.,* 2023; Islam *et al.*, 2022). The co-production of our QLR, and overall AoW, with young people will, we hope, demonstrate a range of practical as well as methodological and intellectual benefits and outcomes – but this is not a given. Longer term follow-up shows negatives as well as positives can be observed (Roberts *et al.*, 1994; Roberts *et al.*, 2011). We remain aspirational and optimistic that co-production can foreground the insights of young people in seeking to understand their changing lives in the AoW programme. Triangulation of research findings across diverse and novel qualitative methods, including QLR, will allow us to work on the co-production of interventions to improve health, educational outcomes and wellbeing. For young people, we believe that their involvement in this work will enhance their awareness of what the current evidence base is for interventions and tell us how these might be improved or transformed. Are we addressing their priorities as well as ours? Furthermore, co-production of QLR with young people will mean that they can become citizen scientists by participating in community and place based research initiatives where they can be equipped to work on and evaluate measures that may impact on their lives and communities. Providing a route to engage young people in describing and shaping a narrative of their own lives can be emancipatory.

Given that political, religious and economic structures and events directly shape young lives, we will map data on political, social and economic change onto our QLR data to see whether our own data map the impact of recession, the cost of living crisis, welfare reform and what comes next in the pandemic world on young people's lives. At the same time, we will be recording views of young people on changing political and social landscapes, family relations, local elections and inter-cultural, inter-ethnic and cross-neighbourhood patterns of interaction. Our QLR is an attempt to describe and understand how young lives are lived in modern Britain and how these young people describe their experience of growing up as different to that of their parents and siblings.

Data availability
Underlying data
No data is associated with this article.

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Open Peer Review

Current Peer Review Status: ✓ ✓

Version 2

Reviewer Report 21 July 2023

https://doi.org/10.21956/wellcomeopenres.21240.r62310

✓ **JD Carpentieri** [ID]

University College London, London, England, UK

General comments

○ I'm thrilled to see the development of the Age of Wonder cohort, and even more thrilled to see that you are integrating qualitative longitudinal research into this cohort from the start. While the UK is a global leader in cohort study research, the country has not done nearly as well at integrating qualitative research into its major cohorts. I'm very glad to see BiB bucking that trend through this ambitious and important project.

○ It was interesting to read reviewer 1's thoughtful comments and the authors' equally thoughtful responses.

Abstract

○ It would be helpful for the abstract to provide a bit of information about Bradford. At a minimum I'd suggest mentioning that it is in the UK: this isn't something that international readers would necessarily know. But ideally you'd also say a little bit more to indicate why Bradford is a particularly interesting site of study. I suspect that including this information in the abstract will help you capture more readers' interest.

Introduction

○ Good introduction. The sentence "Forty-five percent of mothers in the cohort are of Pakistani origin and over half live within the fifth most deprived areas of England and Wales" is potentially confusing though. By "fifth" do you mean "one-fifth" i.e. the bottom quintile or do you literally mean the number 5 most deprived area in a ranked list of all UK areas? Logic dictates that it's the former, but the wording is slightly unclear.

○ When discussing previous studies undertaking QLR with adolescents, you cite some valuable UK research but may also want to consider international QLR research on adolescence, in particular the mixed methods Young Lives project. There is much that can be learned (empirically and methodologically) from the Young Lives team's work in countries such as Ethiopia.

○ In your "Aims" subsection, I was interested to see that you plan to "undertake focused

qualitative studies to investigate specific research questions". Are you able to say how these focused studies fit in with the plans outlined in Table 2? E.g. do you plan on using some of the different approaches outlined in Table 2 to undertake these focused studies?

Methods

○ I like your "recruitment in tranches" approach. In addition to the benefits you cite, this recruitment strategy will also enable you as a research team to be a bit more reflective and strategic about recruitment then you might have been if you are recruiting 100 participants in one go. It would also reduce the likelihood of being overwhelmed in Year 1 of data collection.

○ I'm glad that you will continue to follow individuals who move out of Bradford, and agree with your list of benefits to this approach. There may for example be interesting findings when comparing young people who choose to live at home while attending university versus those who move away for university.

○ On the notion of consent, universities' ethics processes often err on the side of bombarding potential participants with information, so that universities are protected but participants are no wiser. I'm thinking for example of overly wordy information sheets that cause participants to think "this is too long to read so I'll just sign it". I'm glad to see that you are going to be taking a richer and more holistic approach to informed consent. This is particularly important with regard to issues such as reading level (as mentioned by Reviewer 1).

○ In Table 1, "Art and culture" appears under "Personal life". I'm not saying this is the wrong place, but art and culture definitely stands out as somewhat different from more obviously personal issues such as body image. For the category "Social media" you have provided a bit of extra text to suggest how this category might fit into one's personal life. It might be useful to do the same for "Art and culture".

○ I applaud the "citizen scientists" aspect of your project. However you don't really explain what you mean by this term until the penultimate paragraph of the paper. It would be helpful to bring this explanation forward.

○ Can you say what you mean by "allow young people to identify pathways which they may not previously have considered"? If this means that you expect your research to potentially shape rather than merely capture your participants' lives, it would be useful to reflect on this. Such reflections would be very interesting, particularly given the fact that the vast majority of cohort study research posits itself as being as neutral as possible, with regard to influencing study members' lives (with obvious exceptions such as the discovery of threatening health conditions).

○ In Table 2, I think your "different Ns for different methods" approach is sensible. If you chose to use all types of approaches on all 100 participants, your project would likely become almost exclusively a data collection and management exercise, rather than an analytic study. (There are some excellent Timescapes-related articles on this phenomenon.) My only real question here is with regard to the "Critical events" category: 5 seems like a small number. Would it be possible to push this number up to 8-10 in order to capture a wider set of experiences of critical events? I'd also be tempted to push the life history

number up to 12-15 if possible. But you have to make decisions based on your resources –
and in my experience it's important to be brutally realistic about what can be accomplished
in a large qualitative longitudinal study.

○ You suggest a broad range of data analysis strategies. I wonder if narrative analysis might
also be useful – this is a particularly valuable approach for exploring identity development
over time. It might also be useful for exploring some of the important issues discussed in
paragraph 2 of your Discussion.

○ In the "Transparency and use of data" section I would expect to see information about what
the research team will eventually do with the collected data. For example, ESRC guidelines
require UK birth cohort data to be deposited with the UK Data Service so that other
researchers can use the data, unless it is impossible up for such data to be sufficiently de-
identified. Will your data eventually be made available to the broader research community?
If not, it would be helpful to discuss the reasons for keeping it proprietary.

○ Under "Study status" you refer to September 22 in the future tense. Given the evolving
nature of this article, you may want to tweak that.

Discussion
○ You sensibly suggest that your study will "juxtapose qualitative and quantitative findings,
whilst also exploring additional methods of synthesis". Given the richness of the qualitative
and quantitative data that will be available to you, you may want to explore the production
of mixed methods pen portraits such as those outlined in Carpentieri, Carter & Jeppesen
(2023)[1]. Laura Sheard has of course done interesting work on qualitative pen portraits.

○ I'm pleased to see that you want to make the process fun/enjoyable for participants. Your
coproduction strategies will be absolutely essential to achieving that ambition.

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Is the rationale for, and objectives of, the study clearly described?
Yes

Is the study design appropriate for the research question?
Yes

Are sufficient details of the methods provided to allow replication by others?
Yes

Are the datasets clearly presented in a useable and accessible format?
Not applicable

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: Qualitative longitudinal research; Cohort studies

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

- -

Version 1

Reviewer Report 19 December 2022

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✔

Kirstin Mitchell (iD)
[1] MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, Glasgow, UK
[2] MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, Glasgow, UK
Raquel Bosó Perez (iD)
[1] MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, Glasgow, UK
[2] MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, Glasgow, UK

Overall comments
A very interesting proposal from a team who has the skills and expertise to manage the complexity of longitudinal qualitative fieldwork. I really appreciated the participatory and creative approaches the team has proposed.

The main comments regarding this protocol are:
- To consider the ethical challenges of group research with young people
- To reconsider the approach to sexuality (the only topic section to be limited to 16+) – for more information see comments on Table 1.
- To be more explicit and offer more detail about the participatory nature of the project (participant payment, co-analysis, more detail on what being a citizen scientist entails etc.).
- Consider adding a section on the management of long-term relationships with participants (ethically, practically etc.)
  - Small aside, also worth mentioning given the length of this project - how will you promote continuity/stability in the research team?

Page 3
Introduction
Paragraph 1 - Was there a longitudinal qualitative component to the BiB study? if so, I think it's worth flagging in the introduction

Page 4

Qualitative longitudinal research background
Paragraph 1 – clear strong rationale for the use of multimodal and creative qualitative methods

Methods - sampling
Paragraph 2 – you mention that the sample will reflect the "overall distribution in the wider BiB cohort." Does the BiB cohort reflect the distribution of Bradford?

Paragraph 6 – you use the term "children in special education", the term is considered offensive by some, might be best to say "children in learning disability education". Would you exclude children with physical disabilities? if not you might want to use the broader term of disabled children (person first language is advocated by disability advocates)

Paragraph 6 – regarding other underrepresented groups you will include – will you include refugee children (not just children of refugees) and have you considered whether you will include LGBT or questioning adolescents?

Page 5
Methods - sampling
Paragraph 1 – you mention "participants to remain a part of our QLR even if they move away from Bradford" this is interesting - would be great to provide a rationale for this approach to make clear to the reader the conceptual value of this.

Paragraph 2 – you talk about how to minimise attrition. Will young people be remunerated for their time and contributions? This would help with attrition rates and the in line with the ethos of equipping them to be citizen scientists

Consent
Overall section comments: I would move the paragraph in "transparency and use of data" (2nd within the section) on the lack of need for reconsent and process for data withdrawal to this section. I found myself writing a lot of questions around reconsent, parental involvement and withdrawal when reading this section that got answered later on when I got to the end of the paper.

Paragraph 4 – regarding the accessibility of study materials - could also help to check the readability/reading age of all materials produced to ensure they match the average reading age for participants and their parents (check Flesch–Kincaid readability metrics). I have also seen projects focused on including young people under the age of 16 (e.g. Queer Futures 2) use a video with voice over and close captions to increase the accessibility of their study materials - might be worth considering for this project.

Paragraph 4 – How will you assess Gillick competency? Might be worth developing a series of questions as part of a decisional competency assessment. Asking young people to explain their project in their own words, to explain what they understand the pros and cons to be etc.

Paragraph 6 – regarding power dynamics involved in parental consent, adolescent assent - if there is space mention explicitly in a couple of lines what these power dynamics are/how they manifest.

Page 6

Table 1
Row 1, Personal life – Regarding the subject of *puberty*, the average age for puberty in the UK is 11 for girls and 12 for boys - the topic won't be relevant to young people if they can only discuss it after the age 16. It feels inconsistent that participants can talk about body image but not how their puberty is shaping this. I would strongly reconsider discussing this topic with younger age groups. Has the limit of 16+ been discussed as part of the co-production with young people? It feels on to place a limit on this and no other topic given that sexuality if a normal and health part of adolescent development

Row 1, Personal life – Regarding the subject of *sexual encounters*, by *encounters* do you mean partnered sex? or will the subject be broader (crushes, sexual fantasies, masturbation, pornography)? A lot of these subject will be relevant to young people earlier and it is important have an avenue for young people to bring them up earlier. This is a subject that research shows is relevant to young people before the age of 16 and that participants will likely already be discussing in sex education classes, youth groups, community sexual health drop ins etc.

Qualitative longitudinal research
Question for the section - will the research be carried out in a range of languages or only in English? If the former, please talk about how this will impact analysis (e.g., will things be analysed in Urdu or Polish or will transcripts be translated into English and then analysed?)

Paragraph 1 – I really like the approach of fostering citizen scientist

Paragraph 2 – Line 4 – "young people and discussions of ethics." - with ethics boards or about ethics?

Paragraph 2 – how will people be shortlisted for the in-depth interviews and portrait session?

Paragraph 3 – Line 5 – "that66" – space missing between words

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Table 2
Rows 7 and 8 – Critical events and life history - will you give young people the option to generate it themselves or will it be created by a researcher (and maybe checked with participants?). Will you give young people the option to generate it themselves or will it be created by a researcher (and maybe checked with participants?)

Row 10 – WhatsApp Group - legally WhatsApp in the European Region (which includes the UK) cannot be used by under 16 year olds https://faq.whatsapp.com/695318248185629. Furthermore, I have wider concerns about a WhatsApp group for young people with no adult oversight. Do you have plans on how you will deal with inappropriate behaviour within the WhatsApp group? How will you manage potential feelings of exclusion/creation of an in-out group if some participants don't opt in? This is particularly important to consider as you will have participants who have a learning disability, participants who might not be proficient in English, young people who are vulnerable (and likely to have experiences trauma) as they are from a refugee family or have experience of the care system.

Reflexivity

Question for the section - In practice how will you enact reflexivity? will you keep individual or group diaries, will there be meetings dedicated to reflecting?

Paragraph 3 – regarding power relations and peer relations, will you use member validation of analysis to aid in equalising this power dynamic?

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Dissemination and engagement
Bullet point 2 – Newsletter - might be worth increasing its frequency - this would help young people feel looped in and might also help minimise attrition rates.

Bullet point 9 - Girls' knowledge café - will you run these with any other key groups? e.g., boys cafe, LGBT cafe, a cafe for young people from specific ethnic groups, a cafe for young people with disabilities?

Transparency and use of data
Paragraph 2 - I would mention this ("By virtue of the range of dissemination techniques outlined above, it will be possible to involve young people in certain aspects of data analysis and identifying key information for dissemination.") in the analysis section - and mention a bit more about how this collaborative analysis will be approached

Paragraph 3 – move to the consent section

Ethical approval
Paragraph 5 - I think it would be important to mention the specific ethical challenges that can come up in group research (workshops, focus groups, WhatsApp group etc).

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Ethical approval
Paragraph 1 – breach of confidentiality if concerned about safety - how will you define and implement this? This is quite a broad term might be worth using more exact language e.g., in situations of immediate harm to the young person or someone else.

Discussion
Paragraph 4 - this is the first mention of decolonisation - I think it would be useful to spell out how and this this project is decolonising methods.

Paragraph 6 - Connect to wider literature on group/community/participatory approaches to data generation.

Is the rationale for, and objectives of, the study clearly described?
Yes

Is the study design appropriate for the research question?
Yes

Are sufficient details of the methods provided to allow replication by others?

Partly

Are the datasets clearly presented in a useable and accessible format?
Yes

Competing Interests: No competing interests were disclosed.

Reviewer Expertise: qualitative methods, young people's sexual health and wellbeing

We confirm that we have read this submission and believe that we have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.