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Parenthood intentions of 16–18-year-olds in England: a survey of school students

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ABSTRACT

There is a need to understand teenagers' views towards having children to better tailor sexuality and reproductive health education. We conducted a survey of parenthood intentions for 16–18-year-old students. The survey was anonymous, contained open-ended and multiple-choice questions and was live from 10 May 2021 to 18 July 2022. The sample size was $n = 931$. Quantitative data were analysed descriptively and using chi-squared tests; qualitative data were analysed thematically. The majority of students (64%) indicated they wanted to have children in the future, with 49% desiring to have two children. Students who opted against having children cited the turbulent state of the world, concerns about parenthood, and, for many females, negative associations to pregnancy and childbirth. Many students felt concern about the possibility of having children in the future (45%), expressing concerns about their ability to have healthy children and worries about the lives their children might lead. Six themes were identified in their responses to the question 'What are your concerns about the possibility of having children in the future?': Fears; Self-doubt; Health and wellbeing; Big investment; Hinderance to personal aspirations; and Non-inclusive LGBTQ+ education. We conclude by making recommendations as to how school reproductive health and sex education might be improved.

ARTICLE HISTORY

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KEYWORDS

Reproductive and fertility health education; parenthood intentions; adoption; fears

Introduction

People are increasingly delaying childbearing to later ages (Ghosh & Mohammad, 2022; Harper & Botero-Meneses, 2022; Office for National Statistics, 2022), yet are often not fully aware of the age-related implications for their fertility and overestimate their conception chances. This lack of understanding results in large measure from shortcomings in reproductive health and sex education during school years (Harper et al., 2017; 2021; Nargund, 2015).

Comprehensive reproductive health and sex education is an important contributor to one's health and wellbeing. It can help to decrease misinformation, reinforce positive attitudes towards sex and reproductive health topics (Chandra-Mouli et al., 2015) and empower young people to make informed decisions throughout their reproductive lifetime (Goldfarb & Lieberman, 2021). However, for reproductive health and sex education to be comprehensive it must be adapted to the needs of each community and demographic.

In the UK, the biology curriculum does not cover some of the key topics in reproductive health, such as endometriosis, fertility, preconception health, pregnancy and miscarriage (Maslowski et al., 2023). In England, students often report that their sex education, delivered as part of the RSE (Relationships and Sex Education) curriculum, is inadequate, and they seek knowledge on such topics from external resources (Maslowski et al., 2022; 2024) and young people sometimes question the relevance of what they have been taught (Boivin et al., 2019). Since 2020, in England, it has been mandatory to teach 'the facts about reproductive health, including fertility, and the potential impact of lifestyle on fertility for men and women and menopause' (Department of Education, 2019). However, in most schools, sex education is not high status and a lack of investment means that many teachers are inadequately trained to deliver quality RSE, and teachers admit that, if needed, they may omit lessons on sex and reproductive health education to teach students 'important subjects' like literacy,

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numeracy or science (Daly & Heah, 2023). This puts many teenagers at a disadvantage as they transition into adulthood without essential knowledge about their reproductive system and health and wellbeing.

The need to teach tailored, comprehensive and up-to-date RSE in schools is, if anything, growing in importance. This heightened importance arises from the readily available misinformation on the internet and social media. However, before enhancing the existing RSE in the UK, it is important to gain insights into teenagers' views on sex and reproductive health education, their knowledge, and their views towards having children, so that the RSE curriculum can be better tailored to teenagers' needs.

To explore these issues, we conducted a survey with 16–18-year-olds in 20 schools in England. The data regarding students' views on sex and reproductive health education and their knowledge are reported elsewhere (Maslowski et al., 2024). This paper focusses on their views towards having children, as most research on parenthood intentions and attitudes has focused on older individuals (Brough & Sheppard, 2022; Grace et al., 2022; Harper & Botero-Meneses, 2022; Langdrige et al., 2005; Sylvest et al., 2018; Vassard et al., 2016).

In addition, most studies only collect quantitative data. For example, an Australian study from over twenty years ago found that 94% of 17–18-year-olds hoped for a family size of two or more, with close to two-thirds hoping to have their first child between 15 and 19 years of age (Smart, 2002). In our study we gathered both quantitative and qualitative data; together, these allow for a richer understanding of the attitudes and intentions of 16–18-year-olds towards having children.

Methods

This study was approved by the UCL Research Ethics Committee ID Number: 9831/006.

Survey development

A 47-item online survey was constructed using the online Qualtrics XM software (supplementary 1). The survey included a mixture of multiple choice and open-ended questions on demographics, sex and fertility education and knowledge, and views on the possibility of having children. The questions were created after examining the RSE curriculum in England (Department for Education, 2019; Maslowski et al., 2022; 2023) and from our previous survey design

(Harper & Botero-Meneses, 2022). Skip logic was used, such that some students were directed to specific questions depending on their previous answer.

Survey validation

To assess the dependability of the survey questions and options, the survey was validated using cognitive interviews and discussions with research experts within the field. One-to-one cognitive interview sessions were undertaken with the target demographic population. Cognitive interviews were undertaken via Zoom with five students (one female, four males) who fitted the inclusion criteria (age 16–18 years, must be in secondary education). Think aloud and concurrent probing techniques were used during the sessions and all participants ($n=5$) piloted the survey for the researcher to better understand the appropriateness of the survey questions, options and survey layout. After each interview, the survey questions and options were edited accordingly to the interview feedback. The survey questions were further developed by discussions with other researchers who have developed similar surveys within the reproductive health education field.

Recruitment

Using the Department of Education database of all the secondary schools in England, personal contacts, professional contacts, and a tutor forum (BIOTUTORS, <https://www.jiscmail.ac.uk/cgi-bin/webadmin?A0=BIOTUTOR-L>), schools were contacted and invited to join the study. The link to the survey and instructions were sent to the schools that agreed to participate. In total, 50 secondary schools were contacted, twenty of which agreed to and did participate in the survey (Table 1). Some schools gave the survey link to the students to do in their own time, and some gave the students time in class to complete the survey.

The survey was launched on 10 May 2021 and ran until 29 July 2022.

Data analysis

The data on the questions relating to sex and fertility education and knowledge have been reported elsewhere (Maslowski et al., 2024). In this paper, a total of 15 out of the 47 survey questions are analysed; these include some of the demographic questions and all the survey questions related to students' views on the possibility of having children (Table 2). The quantitative

data were analysed descriptively and by running chi-squared tests. The options for each question can be seen in the graphs. The qualitative data were analysed using inductive thematic analysis (Braun & Clarke, 2006; 2021). All qualitative responses were read several times to help with familiarisation with the data. Initial codes were identified. These initial codes were grouped into relevant themes and themes were reviewed carefully; each of the final themes was appropriately named. The first author led the qualitative analysis, with extensive discussions within the team about the allocation of themes. Some

students provided just one or two word answers but most provided longer responses. Cited quotations are provided to illustrate typical answers given.

Results

From the 1259 students who began the survey, after filtering out students who did not consent, did not press submit or who entered un-identifiable school names, a total of 931 student responses were analysed.

Demographics

The 20 schools that participated in the survey came from 13 different counties – four from London, no more than two from any other county. (In the UK, a county is a traditional division used to organise the country into geographic regions for administrative purposes.) The demographics of the schools are shown in Table 1. Demographic details of participating students are shown in Table 3. Due to the low number of students who identified as transfemale, transmale, non-binary or other, these students were grouped together to form a larger ‘other’ gender category.

Do students want to have children in the future?

Students were asked ‘Do you want children in the future?’ (Figure 1). The majority responded ‘Yes’ (64%, 593/931). There was no significant difference between the responses of males and females (Table 4).

The 338 students who did not want to have children were asked, ‘Why might you not want children in the

Table 1. Demographics of participating schools.

Demographic categories	Number of schools (n = 20)	%
Gender		
Mixed	17	85.0
Girls	3	15.0
Boys	0	0.0
Funding		
Private	6	30.0
State-funded	14	70.0
Religion		
None	17	85.0
Church of England	2	10.0
Other Christian	1	5.0
Location		
Bristol	1	5.0
Cambridgeshire	2	10.0
Essex	2	10.0
Hertfordshire	2	10.0
Kent	1	5.0
London	4	20.0
Newcastle	1	5.0
Norfolk	1	5.0
North Yorkshire	1	5.0
Oxfordshire	1	5.0
Southampton	1	5.0
Wiltshire	1	5.0
Worcestershire	2	10.0

Table 2. Survey questions related to students’ attitudes towards sex, fertility and reproductive health, their future parenthood intentions and their demographics.

	Questions	Qualitative/Quantitative
Demographic questions	Please state the name of your school as advised by your teacher.	Quantitative
	Which gender do you identify as?	Quantitative
	What is your sexual orientation?	Quantitative
	What is your religion or belief?	Quantitative
	How do you identify yourself in terms of your ethnicity?	Quantitative
Attitudes towards having children questions	What is your disability status?	Quantitative
	Do you want children in the future?	Quantitative
	Why might you not want children in the future?	Qualitative
	If you were to have children in the future, how do you want to have them?	Quantitative
	If you want children, at what age do you think you will want to have your children? This can be either naturally, adoption or through fertility treatments.	Quantitative
	If you want children, how many do you think you will want? This can be either naturally, adoption or through fertility treatments.	Quantitative
	In the future, if you were to have children, how do you think you might have them?	Quantitative
	Do you have any concerns about the possibility of having one or more children in the future?	Quantitative
	What are your concerns about the possibility of having children in the future?	Qualitative
	Before having children, are there certain things you want to achieve?	Quantitative

Table 3. Demographic details of participating students, according to gender.

Demographic Categories	Number of students	%	Number of Male	%	Number of Female	%	Number of Other	%
	931		250		636		31	
Gender								
Male	250	26.9%						
Female	636	68.3%						
Transmale	5	0.5%						
Transfemale	0	0.0%						
Non-binary	16	1.7%						
Other	10	1.1%						
Prefer not to say	14	1.5%						
Sexual orientation								
Heterosexual	659	70.8%	220	88.0%	434	68.2%	1	3.2%
Homosexual	37	4.0%	6	2.4%	20	3.1%	8	25.8%
Bisexual	124	13.3%	12	4.8%	106	16.7%	4	12.9%
Pansexual	22	2.4%	2	0.8%	13	2.0%	7	22.6%
Prefer not to say	50	5.4%	5	2.0%	41	6.4%	1	3.2%
Other	39	4.2%	5	2.0%	22	3.5%	10	32.3%
Religion or belief								
No religion or belief	435	46.7%	119	47.6%	296	46.5%	15	48.4%
Buddhist	14	1.5%	5	2.0%	7	1.1%	1	3.2%
Christian (including Church of England, Catholic, Protestant and all other Christian denominations)	234	25.1%	62	24.8%	165	25.9%	5	16.1%
Hindu	34	3.7%	18	7.2%	16	2.5%	0	0.0%
Jewish	9	1.0%	0	0.0%	7	1.1%	2	6.5%
Muslim	78	8.4%	25	10.0%	52	8.2%	1	3.2%
Sikh	5	0.5%	3	1.2%	2	0.3%	0	0.0%
Spiritual but no particular religion	76	8.2%	6	2.4%	63	9.9%	4	12.9%
Any other religion or belief	25	2.7%	6	2.4%	15	2.4%	3	9.7%
Prefer not to say	21	2.3%	6	2.4%	13	2.0%	0	0.0%
Ethnicity								
Arab	11	1.2%	4	1.6%	6	0.9%	1	3.2%
Asian/Asian British - Bangladeshi	13	1.4%	6	2.4%	7	1.1%	0	0.0%
Asian/Asian British - Chinese	32	3.4%	5	2.0%	24	3.8%	3	9.7%
Asian/Asian British - Indian	52	5.6%	21	8.4%	32	5.0%	0	0.0%
Asian/Asian British - Pakistani	17	1.8%	5	2.0%	12	1.9%	0	0.0%
Any other Asian background	38	4.1%	14	5.6%	21	3.3%	2	6.5%
Black/Black British - African	38	4.1%	7	2.8%	31	4.9%	1	3.2%
Black/Black British - Caribbean	15	1.6%	7	2.8%	5	0.8%	3	9.7%
Any other Black/African/Caribbean background	8	0.9%	3	1.2%	6	0.9%	0	0.0%
White English/Welsh/Scottish/Northern Irish/British	570	61.2%	146	58.4%	402	63.2%	18	58.1%
White Irish	13	1.4%	5	2.0%	7	1.1%	1	3.2%
White Gypsy or Irish Traveller	3	0.3%	2	0.8%	1	0.2%	0	0.0%
Any other white background	88	9.5%	19	7.6%	66	10.4%	2	6.5%
Mixed-ethnic background - please specify	55	5.9%	16	6.4%	33	5.2%	3	9.7%
Any other ethnicity	13	1.4%	2	0.8%	10	1.6%	0	0.0%
Prefer not to say	10	1.1%	3	1.2%	6	0.9%	0	0.0%
Year group at school								
Year 12	806	86.6%	228	91.2%	539	84.7%	26	83.9%
Year 13	125	13.4%	22	8.8%	97	15.3%	5	16.1%
A Level subjects								
Biology	259	27.8%	50	20.0%	197	31.0%	6	19.4%
Chemistry	229	24.6%	58	23.2%	165	25.9%	4	12.9%
Physics	133	14.3%	73	29.2%	56	8.8%	4	12.9%
Applied science	38	4.1%	8	3.2%	25	3.9%	4	12.9%
None of the above	512	55.0%	128	51.2%	358	56.3%	20	64.5%

future?'. Five themes were identified: Negative associations with pregnancy and childbirth; Parenthood apprehension; Unsettling world; Alternative routes to parenthood; Children are a nuisance and not necessary.

Negative associations with pregnancy and childbirth

Female students sometimes commented on their negative thoughts about pregnancy and the process of childbirth encouraging them to not want children. No male student raised this point. Some female

students had extreme concerns about the risks and complications during pregnancy/childbirth, fearing that the process of childbirth would leave 'permanent damage to their body', and the effects of post-pregnancy/childbirth on their mental health.

The process of childbirth is terrifying and there are numerous health complications attached to that. Female, Heterosexual, Black/Black British (African)

A number of female students expressed extreme fear towards pregnancy and childbirth, referring to it

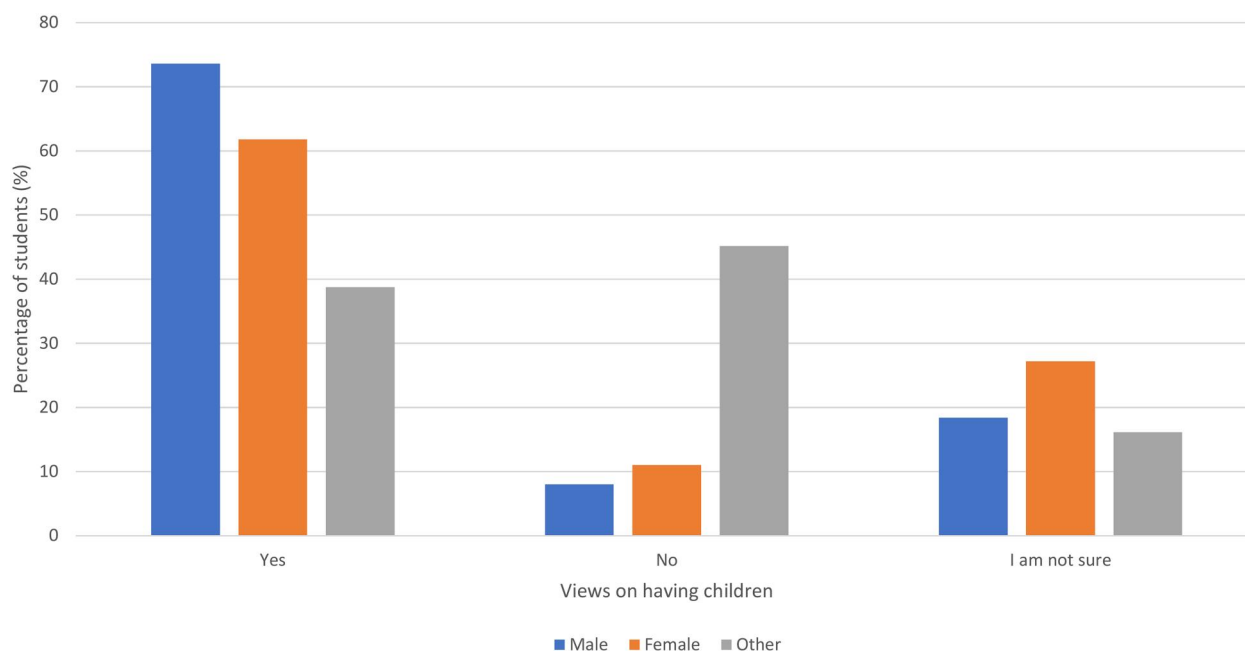


Figure 1. Students' views on whether they wanted to have children.

Table 4. Chi-squared and p-values for all quantitative questions.

Question	Chi-square	p-value
Do you want children in the future?	3.428	0.0641
If you were to have children in the future, how do you want to have them?	49.698	<0.0001
If you want children, at what age do you think you will want to have your children? This can be either naturally, adoption or through fertility treatments.	12.011	0.0073
If you want children, how many do you think you will want? This can be either naturally, adoption or through fertility treatments.	21.639	0.0002
In the future, if you were to have children, how do you think you might have them?	44.652	<0.0001
Do you have any concerns about the possibility of having one or more children in the future?	28.792	<0.0001
Before having children, are there certain things you want to achieve?	2.966	0.8130

as 'scary', 'horrible' and 'traumatic'. Female students shared that the current sex education is fear-driven and is the reason for them having these negative associations with pregnancy and childbirth.

Sex education also seems to focus on scaring people out of having children at a young age but just seems to scare people out of having children.

Female, Pansexual, White (English/Welsh/Scottish/Northern Irish/British)

Parenthood apprehension

Students revealed having doubts about their ability to be good parent(s) in the future. They conveyed having self-doubt and feared the label of being a bad parent. Students said that having the pressure of raising 'good' human beings is a big responsibility which they felt they

were not capable of meeting. Students who had divorced or absent parents emphasised not wanting children due to their own unstable childhood experiences which they did not want to pass onto their children.

I do not want the responsibility as I do not want to mess up their life by being a bad parent.
Female, Bisexual, White (English/Welsh/Scottish/Northern Irish/British)

Students understood that having children comes with many emotional and financial responsibilities which they felt they were not ready for. They felt apprehensive about parenthood as they did not want to sacrifice their own personal, social professional and life goals for children. Students felt that one needed to become selfless as a parent and put the child's needs before one's own, which they felt they were not ready for. Students with inherited medical conditions felt apprehensive about parenthood as they did not want to pass these conditions onto their future child.

I have always wanted children, but I have watched my parents sacrifice everything for me and it makes me really sad that from their mid-20s onwards they really did not get to enjoy life ... it's made me rethink how much of my life I'd be giving away by having a child and if I'm too selfish to do that.
Female, Sexual orientation not disclosed, Asian/Asian British (Indian)

Unsettling world

Students felt nervous about the present world situation as a result of capitalist societies, global warming,

overpopulation, the cost-of-living crisis, the political climate, and the lack of women's rights, promoting them to not want to have children. They questioned the ethical implications of bringing children into an 'unsafe', 'deteriorating', 'cruel' and 'dangerous' world, which is not improving. Overall, students articulated that their desire not to have children stems from their wish to avoid feeling concerned about the well-being of their future children, given the unfavourable state of global affairs and its impact on people's welfare.

The state of the world is in shambles. Governments are corrupt. The environment is deteriorating ... it would be cruel to put a child through any of our problems, especially since they are not getting better.
Female, Bisexual, White (English/Welsh/Scottish/Northern Irish/British)

Alternative routes to parenthood

A number of students favoured adoption as a route to parenthood, rather than having their own children, for various reasons. Some students who expressed fearing pregnancy and childbirth wanted to adopt to avoid the physical and mental stresses of pregnancy. Students in the LGBTQ+ community stated that adoption would be a realistic way of having children rather than the expensive assisted reproductive technologies route. Students with inherited medical conditions wrote they would likely adopt so that they would be reassured that their child would not inherit the condition. Some students felt adoption was more ethical than having a biological child.

I do not want to be pregnant. I may want kids, but I definitely do not want to be pregnant.

Non-binary, Queer, White (English/Welsh/Scottish/Northern Irish/British)

Children are a nuisance and not necessary

Students conveyed that having children is not a necessity. They expressed that they could have a fulfilling life while childless, as they would be able to achieve their life and financial goals without having to comprise. Students also expressed never feeling the need to have children and stated that children can be 'very annoying', 'inconvenient' and 'loud'. Some students said that they would rather have a pet instead of having children. Some wanted to babysit other people's children, like nieces, nephews or friends' children, rather than have their own so they can live a more independent life.

It does not feel like a necessity for my life. I may feel fulfilled without needing children.

Female, Heterosexual, White (English/Welsh/Scottish/Northern Irish/British)

Having children in the future

Students were asked: 'If you were to have children in the future, how do you want to have them?' (Figure 2). They were able to select more than one option. The most popular choice was 'I want to have my own biological children' (89%, 728/819), followed by 'I would consider adoption' (46%, 374/819). There was a significant difference between the responses of males and females, with females being over twice as likely as males to state that they would consider adoption (Table 4).

Students were asked, 'If you want children, at what age do you think you will want to have your children? This can be either naturally, adoption or through fertility treatments' (Figure 3). Most students wanted children (in the future) at age 26 to 30 (males: 43%, 98/230; females: 49%, 279/566), followed by age 31 to 35 (males: 41%, 94/230; females: 33%, 186/566). There was a significant difference between the responses of males and females, with females preferring a slightly younger age than males (Table 4). The most popular family size students wanted were two (49%, 405/819) or three children (29%, 234/819) (Figure 4). There was a significant difference between the responses of males and females, with females preferring fewer children than males (Table 4). Students were asked about the sex of the partner with whom they might want to have children (Figure 5). The majority wanted to have children with a partner of the opposite sex (87%, 710/819). There was a significant difference between the responses of males and females, with females being more open to the possibility of having children with a partner not of the opposite sex (Table 4).

Concerns about having children in the future

Students were asked if they had any concerns about the possibility of having children in the future. Just over half of the students identified that they did not have any such concerns (55%, 516/931), but 45% (415/931) did. There was a significant difference between the responses of males and females, with females substantially more likely than males to state that they had such concerns (Table 4).

The 415 students who were concerned about the possibility of having children were presented with an open-ended question: 'What are your concerns about the possibility of having children in the future?'. Six themes were identified: Fears; Self-doubt; Health and wellbeing; Big investment; Hinderance to personal aspirations; and Non-inclusive LGBTQ+ education. While this is a qualitative analysis, the theme 'Fears'

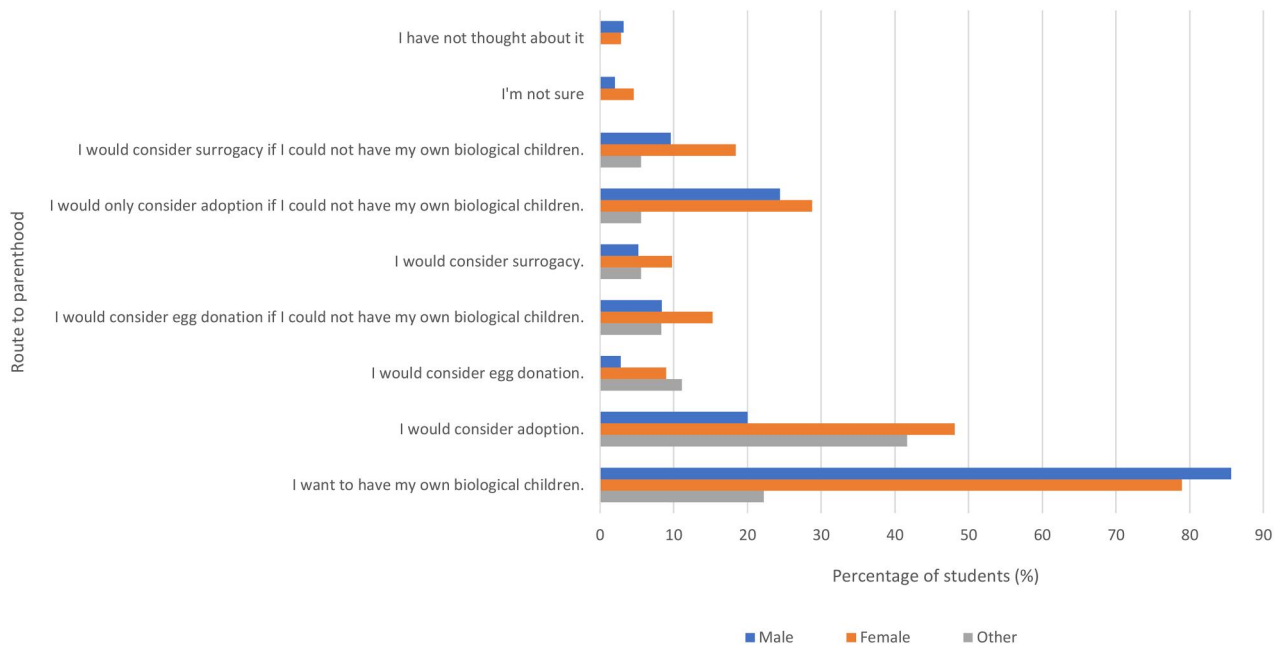


Figure 2. Students' choices on the routes to parenthood.

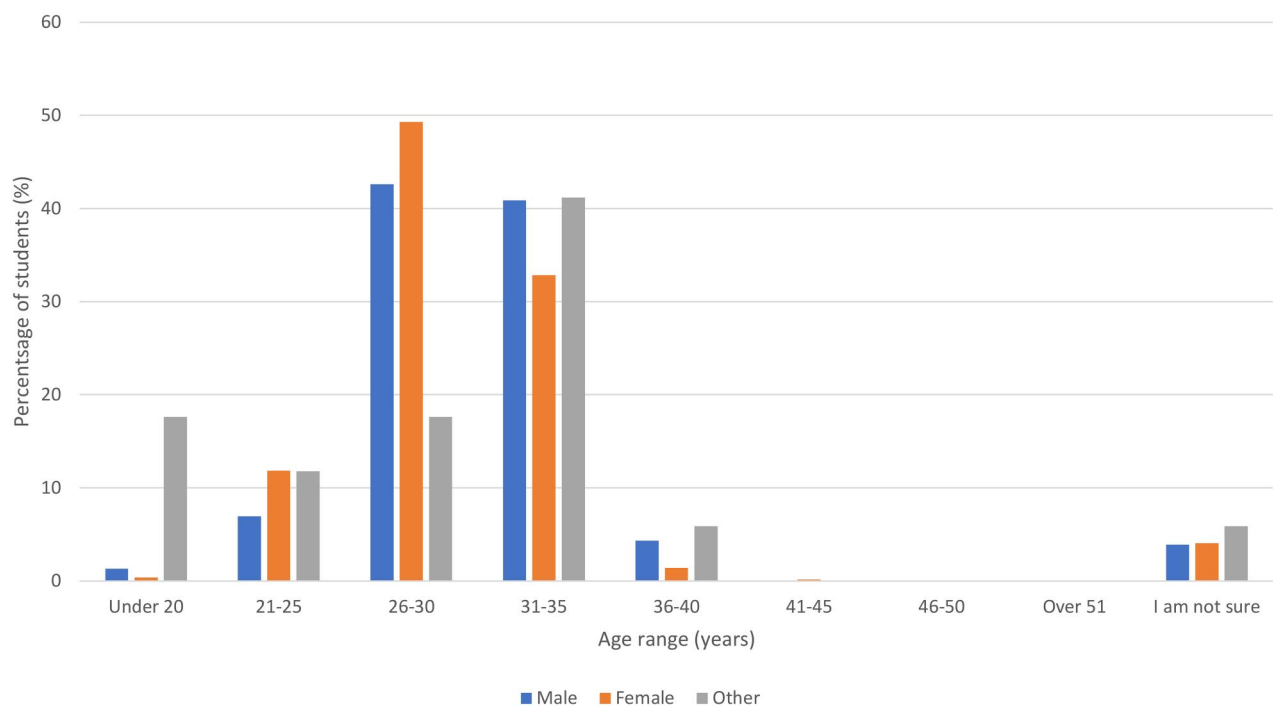


Figure 3. Age at which students wanted to have children.

was particularly prevalent and included a wide range of responses.

Fears

The theme of fears presented in a diverse range of ways. The most frequent reasons that students gave were that they were 'scared' to have children, and had fears or worries about pregnancy, childbirth and their

fertility. Students feared having children by accident, stating that they lacked knowledge on what can affect their conception chances and the process of abortion (if/when needed). They also wrote about the fear of their partner leaving or of their having to file for divorce after having children. Some feared the possibility of their child having a disability, genetic conditions, not being healthy or if their child 'might be gay'.

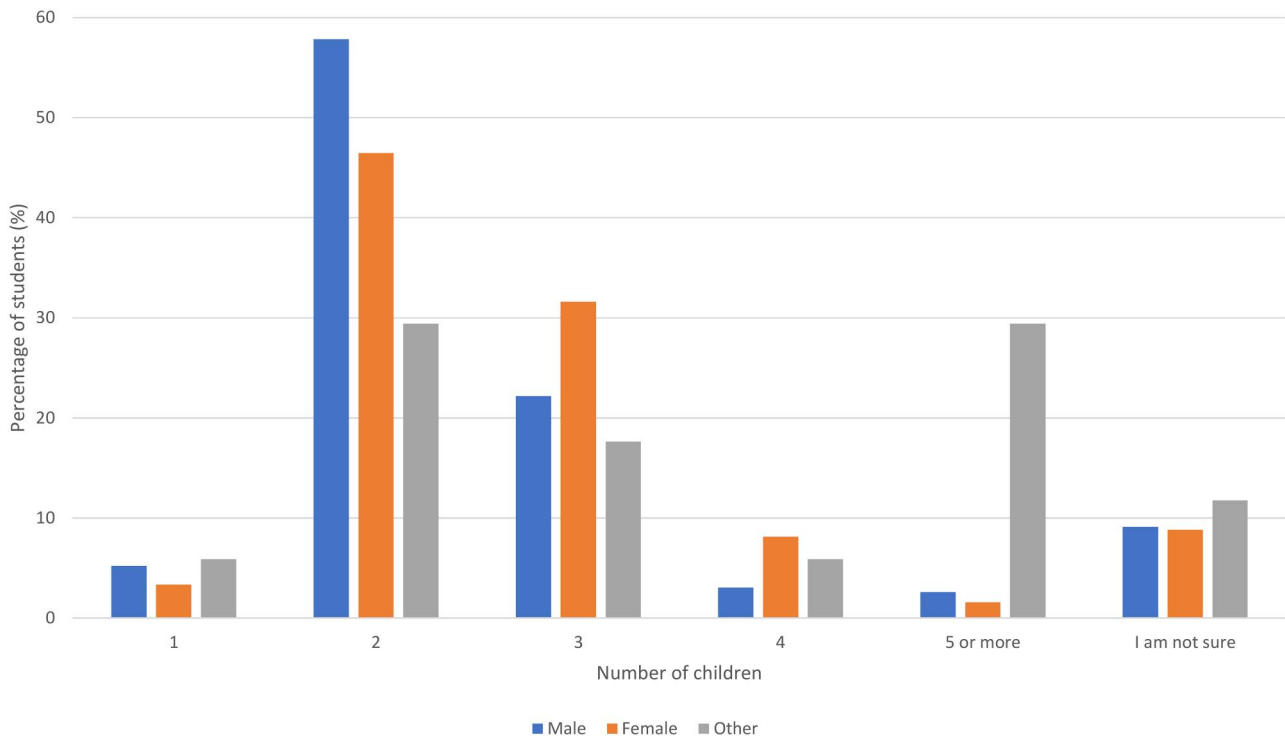


Figure 4. Students’ desired number of children.

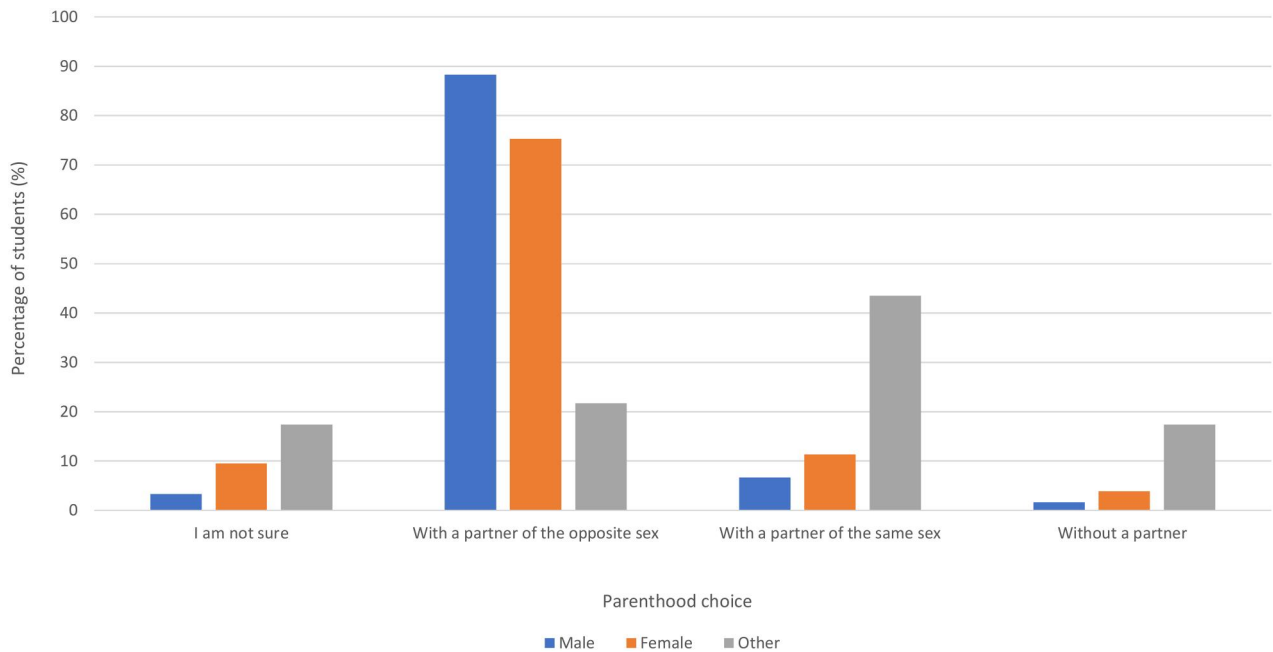


Figure 5. Sex of partner with whom students want to have children.

I’m afraid of infertility, risks that are associated with pregnancy etc. as I do not feel like I am at all aware of or educated on them.

Female, Queer, White (English/Welsh/Scottish/Northern Irish/British)

Participants were worried about their fertility, either ‘not being fertile’ or questioning how they would know if they were fertile/infertile. They feared

not being able to have children, being infertile and/or having miscarriages. Some of these students felt this way as they had other underlying (reproductive) health conditions. Others felt concerned about their own fertility as they were aware that their mothers had faced difficulties conceiving and felt that they might also experience difficulties. A few raised worries about their fertility due to a lack of fertility

education, and their understanding of the impacts of the contraceptive pill.

I have a large amount of irrational fear surrounding fertility that I am currently in therapy for.
Female, Bisexual, White (English/Welsh/Scottish/Northern Irish/British)

Several students wrote that they massively feared the process of childbirth, stating that they felt terrified about the pain (for themselves or their partner) of being in labour. They also stated their fear of experiencing complications and being in danger during the pregnancy and/or at childbirth, with these complications including vaginal tearing, stillbirths and death. Students also expressed worries about the effects of pregnancy, its medical side effects and its effect on their mental health during and after pregnancy. Some explicitly wrote that their fear stemmed from the lack of education on pregnancy, its side-effects and the process of labour. Others were worried that the pregnancy and childbirth would 'permanently' change their bodies and impact their health and lifestyle.

Impact on my health/body, pain and dangers of pregnancy and mental burden of having children.
Female, Sexual orientation not disclosed, Black/Black British (African)

Students felt concerned that having children would be a big change and they would need to accommodate accordingly. They also expressed fear of not meeting the right partner to have children with and the pressure of their 'fertility clock' running out.

Where I am going to have problems with infertility or whether I am going to find a romantic partner that I want to have children with, in time for me to actually be able to still have children.
Female, Heterosexual, Black/Black British (Caribbean)

The state of the current world was a big concern. They stated that they felt very concerned to bring a child or children into a world with overpopulation, global warming, climate change issues, and an unstable political and economic environment.

With climate change and overpopulation and I do not know if having kids will be fair on them, especially if nothing changes.
Female, Bisexual, White (English/Welsh/Scottish/Northern Irish/British)

Self-doubt

Students doubted their ability to be a good parent and provide a comfortable life for their child(ren); many felt a heavy responsibility for shaping another human being. Some of their self-doubt stemmed from

not knowing how to raise a child, and from a common understanding that 'parenting is hard'.

... I might traumatise my children for life with bad parenting skills. I might not be able to provide the best of the best for them at all times.
Female, Bisexual, Asian/Asian British (Chinese)

Health and wellbeing

Students wrote about how their mental health and wellbeing must be at their best before they choose to have children. They voiced that parenthood can be mentally, physically and emotionally strenuous. Female students expressed that they wanted to be physically and mentally healthy before deciding to have children. Male students reiterated the importance of having optimal health, both for themselves and for their partner before conception.

I would need to be sure that my health was 100% so that I could carry children without any worries towards putting both our lives at risk.
Female, Heterosexual, White (English/Welsh/Scottish/Northern Irish/British)

If my health is good. If my partner is healthy and willing to give birth.
Male, Heterosexual, Asian/Asian British (Bangladeshi)

Big investment

Students showed concern that having children is a substantial financial and emotional commitment. They questioned and worried whether they would be able to afford to have children and felt that children were expensive to look after. They also said that they wanted to be financially stable before having children and wrote that they felt stressed about the financial burdens. Some students identifying as belonging to the LGBTQ+ community wrote that they would have to use fertility treatments to become a parent, which would be expensive.

Being able to afford them, having a well-paid job so that I can raise them well and have time off to look after them and bring them up with their father.
Female, Heterosexual, White (English/Welsh/Scottish/Northern Irish/British)

Hinderance to personal aspirations

Students raised concerns that having children would hinder their personal aspirations of freedom, their career and their social life. Female students wrote that having children would affect their career as they felt they would have to choose between working or looking after their child. Students also felt that having children would hinder their relationship with their partner

and were worried about how to balance it all. Some also mentioned finding children to be ‘annoying’ and ‘too much hassle’.

It may detract from my relationship with my partner. I am too focused on securing a career that I’m passionate about to have sufficient attention to give to my hypothetical child.

Male, Pansexual, Asian/Asian British (Pakistani)

... difficult to raise children, worry about not being able to work (as a woman) I would be expected to quit my job to raise the children.

Female, Heterosexual, White (English/Welsh/Scottish/Northern Irish/British)

Non-inclusive LGBTQ+ education

Students identifying as belonging to the LGBTQ+ community expressed not having adequate information about the different routes to parenthood. Students wanted LGBTQ+ inclusive sex education delivered to them as they felt that the current heteronormative RSE curriculum was not relevant or applicable to them.

I am transgender and do not know how it would work. The details of being trans and parenthood is not taught and I’m really uneducated on this topic.

Transmale, Asexual, Asian/Asian British (Chinese)

Personal achievements before having children

Students were asked ‘Before having children, are there certain things you want to achieve?’ (Figure 6). They could tick as many options as they wished. The most popular things students wanted to achieve before having children were stable finances (91%, 849/931), a stable relationship (90%, 837/931), and a career (87%, 814/931). There was no significant difference between the responses of males and females (Table 4).

Discussion

This study explored 16–18-year-old English school students’ future parenthood intentions. We hope that the findings from this study will contribute to the improvement of sex and reproductive health education for students in England. Most students in our study wanted to have children in the future, similar to the findings of studies undertaken in California (Peterson et al., 2012), Canada (Daniluk et al., 2012), Denmark (Sørensen et al., 2016; Vassard et al., 2016), Finland (Virtala et al., 2011), Italy (Nouri et al., 2014), North Korea (Shin et al., 2020), Sweden and the United Kingdom (Vassard et al., 2016).

Students who did not want children cited their fear of being an inadequate parent as a primary reason. Sadly, a considerable number of female students expressed a lack of interest in future parenthood due to their fears about pregnancy and childbirth. They felt that the way that RSE is taught can instil fear as a means of attempting to discourage early sexual activities, which might result in teenage pregnancies or sexually transmitted infections. This fear tactic used in schools during sex education has been reported in various countries, e.g. the USA (Astle et al., 2021), Canada (Laverty et al., 2021), Burundi (Westeneng, 2020) and Sweden (Unis & Sällström, 2020), and has been rejected by students. Recommendations about using ‘sex-positive’ approaches have been made by students (Pound et al., 2016) and we support these, yet teaching pregnancy and childbirth in a positive light is still unusual, perhaps because policy makers fear it would drive pregnancy rates up.

Students also expressed considerable negative attitudes towards their own fertility and questioned their ability to procreate. This view is influenced by shortcomings in the fertility education students receive at school, leaving them ill-informed, with students suggesting the need to improve fertility education, a view with which we strongly concur. Many studies show that fertility knowledge is poor across different demographics, adolescents (Boivin et al., 2018), young adults (Okine et al., 2023) and adults (Smith et al., 2023), due to the lack of importance given to fertility education. Maslowski et al. (2024) found that in schools in England, only 30% of students had learnt about fertility with almost 50% of looking for information on this outside of school; similarly, only 16% had learnt in their school education about infertility with over 40% looking for such information outside of school. Our findings suggest that a more strengths-based approach to reproductive health education might be empowering.

Students typically wanted to have two children, in line with family size preference in most other European countries. But the fertility rate in the UK is currently only 1.56. Even though people develop family size preferences at a young age (Yeatman et al., 2013), their childbearing intentions can change over time due to personal, professional, social, cultural and economic reasons (Iacovou & Tavares, 2011). Most students wanted to have children at age 26–35 years, fitting the common trend of many people delaying parenthood into their 30s. The age of first birth globally increases every year (OECD, 2023). ONS data show that the average age at first birth in the UK is

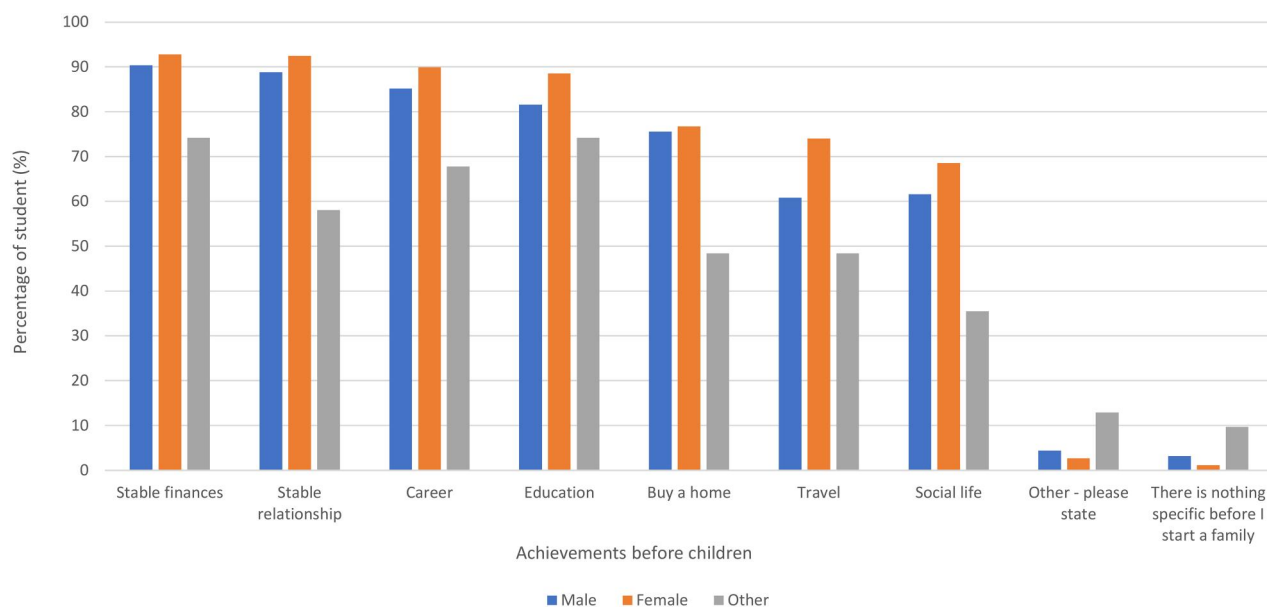


Figure 6. Students' desired achievements before having children.

now 30.9 (Office for National Statistics, 2022). But studies have found that both men and women believe that having children at a younger age is preferable, ideally around 25–29 years of age (Daniluk & Koert, 2012; Tough et al., 2007).

In reality, people typically have children later than their ideal age, for a number of reasons, including wishing to live a modern lifestyle and wanting to achieve certain personal goals before pursuing parenthood (Harper & Botero-Meneses, 2022; Testa, 2007). In our study, students wanted to have stable finances, a stable relationship, a career and their education completed before having children. They also wanted to be mentally healthy, 'content' and 'happy' before having children. These findings are like those found in studies in Nigeria (Abiodun et al., 2018), Argentina (Jurkowski et al., 2021) and Sweden (Lampic et al., 2006). Those studies also found that people placed a high level of importance on having children before they are 'too old', having a partner with whom they can share the responsibility, feeling mature and having good enough accommodation (Mogilevkina et al., 2016).

Overall, most students, especially males, wanted to have their own biological children, with some students favouring adoption, and some stating that they would want to adopt only if they could not have their own biological children. Students who did not want to have their own biological children highlighted their desire to adopt or not have children at all because of social/political/ethical/climate concerns. Global climate change poses a significant danger to both the well-being of humanity and the state of our natural environment. Studies indicate that climate change

influence people's reproductive decision making and attitudes towards procreation, encouraging many to forego childbearing or reduce the number of children they have (Dillarstone et al., 2023). People with stronger climate change concerns are less likely to choose to want to have children (Bielawska-Batorowicz et al., 2022; Schneider-Mayerson & Leong, 2020), with climate change triggering ambivalence around family planning (Thomas et al., 2022). This was the case in our study; some students' desire to have children was influenced by climate change, with some being unsure and others wanting to explore alternative routes to parenthood. These findings suggest a role for interdisciplinary teaching in schools that might, for instance, look at the intersections between climate and bio (repro) science to showcase how fertility rates and resources are intimately related.

Students identifying within the LGBTQ+ community felt that the RSE they receive lacks LGBTQ+ inclusivity and is very heteronormative. They commented on feeling unsure and uneducated on how they can meet their parenthood desires. Delivering only heteronormative education, especially to adolescents during sex education, can contribute to students in the LGBTQ+ community feeling excluded, sexually unprepared and invisible (Hobaica & Kwon, 2017), leading to poorer mental health outcomes (Rabbitte, 2020). As a result of insufficient LGBTQ+ inclusive reproductive health and sex education, students tend to seek information from their friends, and the internet, engaging in sexual trial and error and being more likely to watch pornography (Hobaica & Kwon, 2017; Laverty et al., 2021), all methods that can be wrong or misleading. Lessons

taught to straight students and students from the LGBTQ+ community must be inclusive to form an alliance and reduce stigma (Glazzard & Stones, 2021; Roberts et al., 2020). Such lessons can have a crucial impact on cultivating favourable attitudes, promoting a positive school environment, decreasing bullying related to prejudice, and enhancing community support.

This survey has been repeated in other countries, including Belgium, Greece, and Japan. The data from these surveys have enabled the International Reproductive Health Education Collaboration (IRHEC) (Harper et al., 2021; Mertes et al., 2023) to produce a teachers education resource that will soon be freely available on the IRHEC web site (www.eshre.eu/IRHEC). The next step is to work with schools around the world to see how teachers might use such a resource to deliver effective reproductive health education.

This study has a number of strengths, including a relatively large sample size for school surveys of this kind and the use of a validated research instrument that gathered both quantitative and qualitative data. Nevertheless, our data come from only 20 schools and are not likely to be representative of the general population of 16–18-year-olds in England. Even though schools were contacted across England, personal contacts and a teacher forum were used for recruitment. School teachers who used and were active on this forum and who had connections with the research team were more likely to get their students to participate in the survey. Schools in deprived areas and boys-only schools did not participate in the survey. It is likely that such factors as students' socioeconomic backgrounds, cultural backgrounds and parental support affect their attitudes and intentions, and this would be worthy of future study.

Conclusion

It is important to understand teenagers' future parenthood intentions, to tailor and improve the reproductive health and sex education curriculum that they are taught. In line with the results of studies on teenagers in other countries, the findings reported here show that important topics, some within the curriculum and others absent from it, need to be adequately taught to students. Students have clear parenthood desires, so the current RSE curriculum must be updated to educate and help meet teenagers' future parenthood aspirations. It is evident that RSE is important and can influence students' parenthood intentions, as students expressed fears and uncertainty around parenthood.

Reproductive health and sex education must be tailored to each demographic and made inclusive for maximum reach.

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Data availability statement

The data underlying this article will be shared on reasonable request to the corresponding author, but we are restricted by UCL research ethics committee regulations.

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