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Understanding parental hesitancy toward children's COVID-19 vaccinations: The influence of government, media and interpersonal communication

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In March 2022, the UK Health Security Agency and the National Health Service issued guidance for parents of children aged 5–11 concerning vaccinations. The guidance stated that parents of all children in this age bracket should be offered the chance to have their child vaccinated and that the procedure was particularly important for children who have health conditions that put them at high risk. However, expressions of child vaccine hesitancy rose steeply in the UK at the start of 2022 with 35.4% of primary school parents saying they were unlikely to vaccinate their children. Vaccination programmes are part of the global strategy for mitigating the effects of coronavirus disease, but their effectiveness is reliant upon high levels of uptake and administration. Vaccine hesitancy, for children in particular is an important concern, given that children can play a major role in coronavirus transmission within both families and schools. Listening to parental perspectives regarding the decision-making processes for vaccinating this age group, becomes fundamental in understanding childhood vaccine intentions. Through the analysis of semi-structured interviews, this paper is able to reveal detailed qualitative insights into the thoughts of UK parents and their attitudes toward children's vaccinations that quantitative statistics are otherwise unable to show. In the following article, we have identified a triangular relationship between government, media and interpersonal communication in shaping parental perspectives, leading to a mixture of both "pro-vax" and "anti-vax" attitudes [often simultaneously] in regards to the vaccination or non-vaccination of children. Our data provides original findings that will inform both policymakers and practitioners, building upon and extending the existing vaccination literature, furthering current debate and guiding future research.

KEYWORDS

children, vaccinations, hesitancy, parents, COVID-19, coronavirus, media, government

Introduction

COVID-19 vaccination programmes are part of a worldwide strategy for mitigating the long-term effects of coronavirus disease (Szilagyi et al., 2020), and the success of such vaccinations are reliant upon high levels of uptake and administration. Consequently, COVID-19 vaccine hesitancy on a national and international scale hinders global endeavors to combat the pandemic (Evans et al., 2021). Vaccine hesitancy for children in particular, is a significant concern, given that children can play a major role in coronavirus transmission in both home and school settings (Pan et al., 2021). As such, understanding parental perspectives regarding their children becomes extremely valuable in understanding vaccine intentions for families. Existing research suggests that parents who are generally supportive of vaccination programmes (Montalti et al., 2021; Pan et al., 2021), and “believe” in vaccinations (Carcelen et al., 2021), are more likely to vaccinate their children against COVID-19. However, this is not demonstrated clearly in official statistics, given that over 90% of adults have received a COVID-19 vaccination yet a significant third of parents are hesitant to vaccinate their primary aged children. It is therefore important to understand why attitudes toward children may be different and it is the aim of this paper to address this important gap in the literature.

On the surface, the UK appears to be largely pro-vaccination, with 93% of UK adults and children over 12 years old having received a COVID-19 vaccination (UK GOV, 2022). However, in December 2021, the number of UK primary school pupils’ parents who were unlikely to agree to their child having a COVID-19 vaccination was disproportionately high at 23.7% (Office for National Statistics/ONS, 2022). Alarming, this number then rose significantly to 35.4% by March 2022. In response to this largely unexplained phenomenon of vaccine hesitancy toward younger children, our research conducted in the spring of 2022 investigated why. Our findings provide detailed qualitative insights that quantitative statistics are otherwise unable to reveal, and it is through these insights, that we have been able to gain new understandings of the complexities that surround decision-making. We offer an emergent perspective that challenges the pervading view that child COVID-19 vaccination attitudes may reflect the parent’s attitudes to themselves and that families are simply polarized between those who are “pro-vax” and those who are “anti-vax” (Montalti et al., 2021; Pan et al., 2021; Williams, 2022). Instead, we establish that parents can simultaneously hold pro-vax sentiments for themselves whilst also holding anti-vax sentiments toward their children. A phenomenon that we suggest can in part, be explained by the multiple sources of information (often conflicting), that parents find themselves exposed to.

Given the UK’s regular and periodic rises in COVID-19 infection rates and hospital admissions, our insights are relevant and timely, offering policymakers, professionals and other stakeholders the opportunity to reflect upon potential strategies intended to increase vaccine uptake amongst children. Whilst this paper specifically discusses phenomena within the UK, parallels can also be drawn between the experiences of other countries and as such, the findings of this paper form part of the international response to the global pandemic. In this paper, we discuss the broader picture surrounding vaccine hesitancy and survey the landscape of UK Government policy and official communication in relation to our findings. We will explain the emerging triangular relationship between government, media and interpersonal communication in shaping parental perspectives toward children’s vaccinations and in conclusion, we will identify how a small amount of hesitancy may to some extent, be inevitable. Challenges to the polarized narrative related to COVID-19 vaccine hesitancy are largely absent from existing literature and no texts directly discuss the combined influence of media, interpersonal communications, and government upon parents. Finally, this paper is significant amongst international research regarding parental COVID-19 vaccine hesitancy, in that its sole focus is within the UK.

Context

The winter of 2020 marked the start of a mass UK vaccination rollout that initially focused on the most vulnerable groups and critical workers, followed by older adult age groups (British Broadcasting Corporation/BBC, News, 2022). The Pfizer/BioNTech vaccine was the first to be approved for public use and the UK was the first in the world to administer it, albeit amongst some concerns from within the scientific community that the new use of the nanoparticle compound polyethylene glycol (PEG) may be insufficiently tested (Vrieze, 2020a,b). From this point, the Government’s main efforts were centered on encouraging the public to get at least their first dose of the vaccine. The Prime Minister at the time, Boris Johnson, consistently urged the public to take up their offer for vaccination and booster doses in order to “avoid restrictions on our daily lives” (Carrick, 2021).

As further vaccines were approved (eight to date; World Health Organization/WHO, 2022), worries about the safety and side effects of vaccines continued to emerge, with no vaccine being considered free from potential complications (Omeish et al., 2022). Mild side effects were frequently reported and included [and continue to include] local pain, redness and swelling around the injection, and systemic effects like chills, headaches, nausea, tiredness, and myalgia (National Health Service/NHS, 2022). Severe reactions related

to COVID-19 vaccinations were rare, but also included localized lymphadenopathy and anaphylaxis from the Pfizer vaccine, (Riad et al., 2021; Voysey et al., 2021) and blood clotting from the AstraZeneca vaccine; all caused by reasons unknown (National Health Service/NHS, 2022). Such side effects are still not fully understood and are considered to vary in their types and strength based on different factors related to the particular vaccine, gender, COVID-19 infection history, number of doses, and age (Menni et al., 2021; Xia et al., 2021; Omeish et al., 2022).

After several European nations such as Germany suspended the use of the AstraZeneca vaccine due to concerns that it was causing blood clots, former Health Secretary Matt Hancock stated that “we keep the effects of these vaccines under review all the time and we know that the Oxford-AstraZeneca vaccine is saving lives in the UK right now” (McGuinness, 2022). Boris Johnson [as Prime Minister] also urged the public to get vaccinated as it was a public responsibility and “that we should love our neighbors as we love ourselves” (British Broadcasting Corporation/BBC News, 2021). In order to assuage vaccine hesitancy, the former Prime Minister also suggested that getting “the jab” for Christmas was an “invaluable present” (British Broadcasting Corporation/BBC News, 2021) that we can gift to our family and loved ones. Overall, although the British government was not clear in its advice with regards to lockdowns and whether the public should be at home or not at different stages of the pandemic (Clayton C. et al., 2022) it was clear and succinct in its messaging and advice with regards to the mass immunization and vaccination programme that was rolled out. The former Prime Minister appeared to have found a particular saliency in the call to get vaccinated, being underlined by warnings that restrictions would return if vaccine uptake was not at the level expected.

In September 2021, the NHS rolled out the COVID-19 vaccine to the 12–15 year-old age group and by March 2022, 82.2% of secondary school pupils said that they have been vaccinated (Department of Health Social Care/DHSC, 2021; Office for National Statistics/ONS, 2022). In March 2022, the UK Health Security Agency/UKHSA and the NHS issued guidance for parents of primary school children aged 5–11 concerning COVID-19 vaccinations. The guidance stated that parents of all children in this age bracket should be offered the chance to have their child vaccinated and that the procedure was particularly important for children who have health conditions that put them at high risk (UKHSA, 2022). It was explained to parents that COVID-19 is a mild illness for most children; however, future variants may carry more risk. The guidance further advised that two doses of the vaccine provide long lasting protection against complications of infection from current and future waves caused by new variants. Despite the suggested benefit of vaccinating children, according to ONS data (2022), 20% [approx.] of secondary school pupils say that they are unlikely to get a vaccine if it is offered to them and 35.4% of parents of unvaccinated primary school children say they are unlikely to

agree to their child receiving the vaccine. This low uptake rate of child vaccinations has been criticized as being too low and needs to be addressed with a level of urgency (Chadwick et al., 2021). It is in this context that we have undertaken our research.

Literature

Various phenomena have been observed, discussed, and speculated upon in relation to parental behavior in regard to vaccinating children against coronavirus. Studies suggest that parents who are positive about COVID-19 child vaccinations often have older children, and are more likely to have friends and family members who have positive vaccination statuses or outlooks (Williams, 2022). Furthermore, it is said that parents who have consented to other childhood vaccinations; parents who trust the child's doctor; and parents who trust the COVID-19 vaccine approval process, are more open to the idea of COVID-19 vaccinations for their children (Al-Mohaithef et al., 2021; Evans et al., 2021; Pan et al., 2021). In contrast, those with lower trust in doctors and the vaccine approval process can demonstrate apprehension (Evans et al., 2021). Such mistrust tends to be higher amongst historically marginalized groups, such as minority ethnic communities (Burgess et al., 2021) and indicates why these groups may be less likely to become vaccinated (Office for National Statistics/ONS, 2022). Whilst the benefits of vaccination are said to vastly outweigh the small risk of adverse reactions (National Health Service/NHS, 2022) and the COVID-19 vaccinations are broadly accepted by the scientific community to have undergone stringent review processes (WHO, 2022), vaccine hesitant parents have consistently expressed concerns [often sourced from the media/social media] about the reliability of vaccine testing and potential risks to safety from short-term side effects and the uncertainty of long-term outcomes (Evans et al., 2021).

Trust is a vital element in parental decision-making, and parents who are more willing to vaccinate their children often express trust in government and scientific data (Pan et al., 2021). Wouters et al. (2021) found that people's confidence in how governments respond to COVID-19 significantly influences their willingness to accept the vaccine. Furthermore, according to Sabahelzain et al. (2021), trustworthy political leaders, as well as the processes around the vaccines, such as transparency and fair decision-making, can build or break the public's vaccine confidence, and a lack of trust in leaders and governance is associated with a greater number of COVID-19 infections and lower vaccination uptake (Brandstetter et al., 2021; Thornton, 2022). The Organization for Economic Co-operation and Development/OECD found that on average, only 51% of people say that they trust their national government.

Despite the presence of anti-vax sentiments and concerns amongst the UK public and in the media, uptake has been largely successful with 93% of the population over the age of

12 currently having received at least one dose of the vaccine (UK GOV, 2022). However, during February 2022, there was a particularly large drop in the uptake of the booster campaign for adults, indicating a broader change in public attitudes. Some public health leaders have argued that this was fuelled by widespread distrust in the former Prime Minister [Boris Johnson] who did not abide by the restrictive measures he introduced in 2020 (Tapper, 2022). On the 16th of December 2021, as lockdown restrictions and the tiered system had left the public weary, The Guardian and The Independent newspapers broke the story that the former Prime Minister had attended several, non-socially distanced parties with Downing Street colleagues. “Partygate” as these events are now referred to, was suggested to have had an effect on the Government’s ability to be trusted and as a result, influenced a change in public attitudes toward vaccinations and booster jabs.

Trust in Government is important, and Larson (2018) emphasizes that vaccination is usually resisted by people who feel that they are not “free” and that vaccination is wrongly imposed on them. Larson adds that individuals and groups who distrust their Government for non-vaccine related issues sometimes extend that distrust to include vaccines and the people and systems who deliver them. Existing research demonstrates the influence of political affiliation toward pro-vax or anti-vax sentiments (Sabahelzain et al., 2021; Gugushvili and Mckee, 2022). More specifically, Kennedy (2019) indicates that there is a positive correlation between vaccine hesitancy and political populism, and argues that vaccine hesitancy is associated with the rise of populist political parties in Western Europe. The percentage of people who voted for populist parties in a particular country is associated with the percentage of those who do not believe in vaccine importance and efficacy in that country (Kennedy, 2019).

Around the world, governments and politicians significantly influence public willingness to accept vaccines both through their actions and through the release of information (McKee, 2021; Wouters et al., 2021; McBrayer et al., 2022; Peng, 2022). Parents who express pro-vax views, tend to see vaccinations in the way that governments present them, as being beneficial in terms of protecting the self, the family, and others in society, especially the most vulnerable (Pan et al., 2021). Whenever there is distrust in the validity and rigor of government regarding vaccinations, subversive agendas from anti-government and opposition groups may propagate and it has been seen that COVID-19 vaccination fears have been encouraged by extremist groups through the spreading of conspiracy theories in several countries (Bieber, 2022).

Opposition to vaccination is not unusual and negative parental views on other non-COVID-19 vaccination roll-outs, such as the Hepatitis B vaccination, the MMR (Measles, Mumps, and Rubella) vaccine, and HPV (Human Papillomavirus Virus), have highlighted similar parental fears and concerns (Evans et al., 2021; Szilagyi et al., 2021). However, uniquely, conspiracy

theories concerning both the origins of the coronavirus disease and the contents of the vaccines have been widely reported (Pertwee et al., 2022) and complicate the situation for those governments who face public vaccine hesitancy or refusal (Dinleyici et al., 2021). Anti-vaccine groups have been found to be active on social media in the UK, whilst promoting false information regarding the adverse effects of COVID-19 vaccines (Gudi et al., 2022). Fears about COVID-19 vaccines being a biological weapon or containing microchips have significantly been circulated (Akarsu et al., 2021).

Available international data has shown that certain groupings of parents are more likely to demonstrate vaccine hesitance; this includes parents with younger children, those with children who have chronic diseases (Goldman et al., 2020), parents with lower education levels, those with limited health knowledge, and mothers (Evans et al., 2021; Yilmaz and Sahin, 2021). A scoping review by Pan et al. (2021) found that unemployed and low income parents are also more likely to refuse the vaccination, which may relate in part to Akarsu et al. (2021) finding that vaccination uptake rates tend to increase if they are freely provided. Although COVID-19 vaccinations are free in the UK and for most groups in different countries, this may not be communicated effectively by the relevant authorities. For example, census data taken from America (United States Census Bureau, 2021) has shown that 6.9 million people surveyed were mistakenly concerned about the cost of the COVID-19 vaccination, despite it being free of charge in the US.

Mainstream media and social media have had a role in encouraging the spread of rumors and misinformation through the pursuit of “attention grabbing headlines” (Bianchi and Tafuri, 2022). Media consumption levels differ across generations, gender, and income (GWI/Global Web Index, 2020), however, since the outbreak of COVID-19, social media use specifically has grown significantly alongside broader increases in digital screen use (Wold, 2020; Clayton R. et al., 2022), and parents have been found to regularly rely upon social networks for guidance and information (Evans et al., 2021). Platforms such as Facebook, Twitter and YouTube, are particularly noted for misinforming the public about vaccines (Demuyakor et al., 2021), and 25% of the most viewed coronavirus YouTube videos contained misleading information (Heath, 2021). Repeated exposure to misinformation can increase fake news beliefs and conspiracy theories (Pennycook et al., 2018; Germani and Biller-Andorno, 2021), and decrease public vaccine confidence (Geldsetzer, 2020; Lockyer et al., 2021) which the WHO acknowledge can lead to a significant risk to public health (WHO, 2021). The COVID-19 pandemic has been described as an info-demic (Naughton, 2020) and Kouzy et al. (2020) concluded that COVID-19 related misinformation and unverifiable content spreads at alarming rates. Governments face obstacles in sharing accurate information online, particularly when competing against popular content from social media (Steffens et al., 2020).

When the public are able to access reliable information about the COVID-19 vaccine, this has been found to significantly decrease vaccine-related stress levels and hesitancy (Zheng et al., 2021) and Nguyen and Le (2021) found that COVID-19 vaccinations can actually improve public mental health, with vaccine recipients being less likely to experience feeling anxious, worried, displeased and depressed about the disease. Although it should also be acknowledged that in some cases, COVID-19 related psychological stress might still prevail, even after getting vaccinated and can remain for a long time, especially if people hold a deep mistrust of the vaccine or if they experience a negative reaction or side effect (Zheng et al., 2021). Fears of adverse side effects of the vaccine remain a concern for many, including amongst those who agree to undergo the procedure (Marco-Franco et al., 2021; Zheng et al., 2021).

Since accurate information has been shown to have a positive effect on an individual's acceptance of the vaccination programme (Wang et al., 2021), more and better information regarding the benefits of the vaccination on social media may help to encourage uptake. To improve levels of trust, Sajid Javid (Health Secretary, June 2021–July 2022) and the JCVI/Joint Committee on Vaccination and Immunization [a body designed to advise the Government on vaccinations] stressed the importance of parents and carers being able to access the right information, so that they could make an informed decision on whether to consent to vaccinating their children. Information such as daily updates, prevention/intervention strategies and health advice are suggested to be both reassuring and positive by individuals, leading to a reduction of disease transmission rates (Collinson et al., 2015), however, combatting misinformation shared on social media platforms is an ongoing concern. As Cascini et al. (2022) suggest, the role of social media in vaccination uptake is complex and little understood, particularly whilst both accurate and inaccurate information share the same social platforms.

Parents may consider multiple factors when deciding upon the COVID-19 vaccine for themselves and their family, and perhaps due to these complexities, there is a lack of any effective strategy in the UK to combat low uptake rates (compared to European nations) amongst younger adults and in particular, children (Evans et al., 2021; Suran, 2022). The uptake of child COVID-19 vaccinations has officially been characterized as “non-urgent” (GOV.UK, 2022a,b) which has perhaps contributed to feelings of apathy or aversion from parents (The Conversation, 2022). The proportion of 5–11-year-olds who have received at least one dose ranges from roughly 3% in Northern Ireland to 9% in England, 13% in Wales and 20% in Scotland. A deeper understanding of parental perspectives toward COVID-19 vaccinations is needed within government (e.g., Ke et al., 2020; Evans et al., 2021) if less parental hesitancy is desired.

Methods

At the start of the first national lockdown, we began a qualitative study with sixty UK parents to explore their lockdown experiences using semi-structured online and telephone interviews. Since then, we have conducted multiple rounds of data collection with smaller numbers of participants at key historical points during the pandemic. In our most recent round of interviews (at the start of 2022), we revisited 20 parents from our original sample to ask them about their thoughts, feelings and experiences regarding the Government rollout of COVID-19 vaccinations for both themselves and their children. All parents who had discussed vaccination views in previous data rounds were invited to take part in the new round of interviews, of which twenty parents replied positively. In this way, the sampling was purposeful. Knowing that parents had discussed vaccination opinions in the past was advantageous as it meant that interviewers could explore how views have formed and developed over the course of the pandemic and subsequent lockdowns. No other sampling criteria was applied other than voluntary participation. In this way, it allowed a diversity of voices to be reflected in the interviews.

Methodologically, the use of qualitative semi-structured online interviews *via* Voice over Internet Protocol/VoIP mediated technologies (such as Microsoft Teams) or telephone interviews are considered to be advantageous for their flexible and participant-friendly approaches, that can help interviewees tell their own stories, in their own words and in their own time (Eder and Fingerson, 2003). Such a viewpoint aligns with the interpretivist stance of the study. VoIP mediated technologies allow for real-time interactions between the research team and the participants (Lo Iacono et al., 2016). Telephone interviews, like face-to-face interviews, have the ability to collect meaningful data and are advantageous in terms of their efficiency, cost-effectiveness, and flexibility (Block and Erskine, 2012).

The process of revisiting participants and holding multiple interviews with the same individual can benefit the research study in several ways. One-off interviews have been argued to provide a snapshot and are not always sufficient (Ritchie and Lewis, 2003). Whereas multiple interviews can provide extra depth, breadth and validity of the data collected, particularly for complicated or unfamiliar topics, and with a focus on variations over time (Vincent, 2012). Returning to participants also allows researchers to: (1) Revisit previous interviews to explore useful new lines of enquiry, (2) discuss previously raised points in more depth or clarity (thus avoiding researcher bias; Read, 2018), and (3) develop a deeper and more trusting relationship between the researcher and the participant that can aid meaningful data collection (Farrall, 2006).

At the start of the study, parents were initially recruited by contacting professional networks, community organizations and community groups by sending out direct and indirect invitations

TABLE 1 Number of mothers and fathers in the latest round of interviews.

	Mothers	Fathers
Participants	8	12

TABLE 2 Martial status.

Married 14	Separated 1	Widowed 1	Single 4
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TABLE 3 Parental age groups.

Early 30s	4
Mid 30s	1
Late 30s	2
Early 40s	1
Mid 40s	5
Late 40s	6
Mid 50s	1

TABLE 4 Minority ethnic background.

Minority ethnic background 9	Non-minority ethnic background 11
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TABLE 5 Employment status.

Employed 18	Unemployed 2
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to take part in the study. We also utilized snowballing techniques to recruit a sub-sample of minority ethnic parents and those with older children (secondary school age). All parents consented to re-contact for future interviews at the time, which allowed the research team to send out direct messages to parents *via* emails, text messages and WhatsApp messages for each new round of data collection. For our latest round of interviews on the COVID-19 vaccination roll out, participants were required to provide new consent for any follow up interviews (Further details for this sample can be seen in [Tables 1–7](#)). All parents took part in these interviews using Microsoft Teams with most participants using their video cameras switched on (with exception of two parents), which replicated physical face-to-face interviews in many ways. For parents who did not use their video cameras, the researchers were still able to ensure the development of good rapport and communication through active listening skills.

In consultation with the existing literature, alongside the parental interviews a analyzed from previous data rounds, we developed a topic guide for the latest interviews. Topics included: (1) Parental decision making in relation to COVID-19 vaccinations for themselves, (2) parental choices and views on COVID-19 vaccinations for children, (3) potential impacts

TABLE 6 Number of children in each family.

1 child	3
2 children	11
3 children	6

TABLE 7 Age groups of children across the parental sample.

Pre-school age	4
Early primary school age	4
Middle primary school age	6
Late primary school age	9
Early secondary school age	1
Middle secondary school age	4
Late secondary school age	7
16 years +	2
18 years+	6

of vaccination or non-vaccination status on family members, and (4) views on the UK Government's vaccination strategy. We employed reflexive, thematic analysis in accordance with [Braun and Clarke \(2013\)](#) framework. A professional transcription company transcribed interviews verbatim, and transcripts were fully anonymised with pseudonyms assigned to each participant.

During analysis, firstly, transcripts were read for accuracy by the researcher who undertook the interview. Transcripts were then coded by the lead researcher using a pre-established coding frame that was developed and agreed upon by the research team and was based on the research questions asked and existing research. The job of indexing, or slicing the data set, was completed manually on Microsoft Office. By reading and re-reading the transcripts alongside the manual procedure of indexing, this allowed a more thorough examination of what the interviewees had said and permitted repeated examinations of the interviewees' accounts. Relationships between data categories and established research were subsequently made to generate the final analysis. Analytical findings were regularly discussed across the research team to check for accuracy and consistency. The researchers also drew upon and compared their research and interview notes and initial descriptive analysis as part of the process. The repetitive interplay between theory, data collection and the analysis of data was completed in an iterative manner, also known as an abductive process ([Blaikie, 2000](#)).

In terms of quality assurance, the reporting of this study was consistent with the consolidated criteria for reporting qualitative research: (1) Credibility (e.g., member and peer checking); (2) dependability and confirmability (by providing an audit trail such as research notes, research diaries, reflective comments, information kept on the research process throughout); (3)

transferability (thick descriptions of contextual information); and (4) reflexivity (reflexive notes accompanied data collection and analytical data) (Stenfors et al., 2020).

Research findings

Our findings highlight the complexity of the pro-vax/anti-vax debate, particularly when it comes to the decisions that parents make concerning their children. Instead of locating parents in just one particular perspective, our research has found that caregivers to some degree expressed both pro-vax and anti-vax sentiments simultaneously. Whilst the majority of parents were pro-vax, there was still a potential for these parents to express some hesitancy, particularly when discussing children's vaccinations or repeat booster jabs. A significant proportion of parents were happy to be vaccinated themselves but did not want their children to be vaccinated due to various reasons, including potential risks, side effects, severe adverse reactions or long-term impacts.

“I'm not sure that I'm 100% comfortable with young children being vaccinated with the coronavirus vaccine. But other childhood vaccinations, I'm comfortable with them because they've been around for a long time and we know the potential side effects. But with the coronavirus vaccine, I just feel there has not been enough studies done. So we don't know if there's any long term effects for children”. (Giselle, late-forties, vaccinated)

In this section we will discuss our findings to identify more precisely the source of parental choices and decisions. We have found that official clinical and government guidance, the mass media, and interpersonal networks and exchanges all play a part in shaping parental responses toward COVID-19 vaccinations in both positive and negative ways, with social media often forming a junction point for these communication channels throughout the pandemic. In the following paragraphs we will reveal, in-depth, parental pro-vax and anti-vax thinking and reveal how much official sources were/are trusted. We will identify how participants often possessed a cognitive dissonance between being positive and negative toward COVID-19 vaccinations and share how their thoughts have developed. Finally, we will outline the trusted sources that parents turned to, which subsequently helped to empower their choices and decision-making.

Pro-vax attitudes

Interviewees generally saw COVID-19 vaccination as the “right thing to do”. They wanted to play their part in “getting the country back on its feet” and felt that the vaccines and abiding by Government regulations were the best ways to do this. Most parents held this pro-vax position and spoke

with the same or similar language used by the Government throughout the pandemic in regard to the vaccinations, with the social and moral obligations to take up the vaccine in order to protect yourself and others being frequently highlighted. When exploring their reasoning further, parents could trace this to the initial impact of the public health messages and the role of the mass media from the outset of the pandemic.

“I have promoted the vaccination to family and friends because I felt as if we need to conform to help the bigger society”. (Nola, late-forties, vaccinated)

Given the prominence of the media and government campaigns around collective efforts to reduce infection rates, to protect others and to protect the NHS, some parents expressed that there was an element of stigma attached if you did not vaccinate for the “greater good”. Non-vaccination status could be seen as selfish behavior and was seen as a challenge to social good by peers and family members who were vaccinated or at risk.

“Through osmosis, it became part of people's identities, you know, national pride, vaccine, do what they say, vaccine, NHS, bang your pot. You know, I don't need to supplement who I am with anything. There's nothing, there's no generic idea to align with because this country has never represented me in that way, but for them, it was kind of like a war mentality, in order to be a good person, you do what they say”. (Collette, early-thirties, unvaccinated)

Boris Johnson has consistently urged the public to take up the offer for vaccination and the booster doses in order to “avoid restrictions on our daily lives” (Carrick, 2021). For one vaccinated parent, they felt that the Prime Minister's messages about the threat of lockdown and ongoing restrictions played an important factor in people's decision-making and an acceptance of the vaccination programme.

“I think his [Boris Johnson's] little announcement with the booster jab thing... Maybe we were panicking that something else was going to happen and we were going into lockdown, but he just said to us to get boosted now and that's fine. So yeah, it's fine and we've had ours”. (Libby, early-thirties, vaccinated)

Similarly, an unvaccinated father suggested that although the vaccination was down to personal choice, the negative repercussions of being unvaccinated in terms of possible and actual government restrictions, could then lead to individuals feeling “forced” into a decision.

“There's no-one physically forcing you. But at the same time they are because they're like, “well if you don't have this, you know, you're not getting this, you're not getting

that. You're not allowed in here, you can't do this'... But at the same time I don't want to feel like I'm forced into doing something". (Damon, early-thirties, unvaccinated)

However, there was a general feeling that some people should be forced to take vaccinations and a number of participants were in favor of implementing the controversial compulsory vaccinations for NHS staff and other caring professions. For most vaccinated parents, they felt that the COVID-19 jab was not a big concern, and was not dissimilar from other vaccinations offered, such as the Flu vaccine, childhood immunisations or travel vaccines. Several parents had normalized the COVID-19 vaccine and compared booster jabs specifically to annual Flu jabs. Vaccinated parents were happy to receive the booster and felt that the government was a credible source of information, particularly given the role of SAGE/Strategic Advisory Group of Experts as an independent body who provides scientific and technical advice to officials.

"I don't feel as though the Government would give you something that's gonna make you seriously ill... I just feel as though we have to trust the Government on it and do the vaccination. I felt as though it was gonna do more good than bad...Also, when the MPs came out and did these daily meetings and we're being told by scientists, I think you have to go along with that". (Nola, late-forties, vaccinated)

Parents who were accepting of the vaccine regularly cited becoming vaccinated as a way to enable a sense of normality in everyday life. The participants stated that they felt exasperated by the restrictions and other social impacts they had experienced since the outbreak of COVID-19. Related to this, a minority of parents had vaccinated themselves or their children in order to travel abroad for family holidays, which many households had missed out on since the first and subsequent lockdowns. One unvaccinated parent specifically said that they would consider vaccinating for holiday purposes. A small number of parents who were not key workers, had also become vaccinated for work reasons, as a way to prevent disruptions at work and their work schedules (e.g., in terms of taking time off and self-isolating through choice).

Vaccinated parents and those with vaccinated children felt that the COVID-19 vaccine was generally safe. Parents felt less worried about their own health and their children's health if they were vaccinated. In particular, parents were less worried or anxious about their children going to school or socializing with peers if they were vaccinated. Concerns over children's health and the well-being of other family members, particularly those who were classed as vulnerable, were raised by vaccinated parents. In a small number of families, children were vaccinated due to parents' long term or untreatable health conditions.

The need for increased protection from the risks of COVID-19 were viewed differently across age groups by vaccinated

parents. It was striking that the age and status of grandparents' health was mentioned by several parents, which influenced parental decisions around vaccinations for themselves and their children. Parents did not feel comfortable with visiting elderly and close family members without the vaccine given the potential risks. Being vaccinated was seen as vital and provided a degree of reassurance that parents were doing what they could to protect their families. After enduring social restrictions throughout the lockdowns and having to rely on screens and technology to keep in contact (Clayton et al., 2020), the ability to spend time with people face-to-face was especially important also.

Anti-vax attitudes

Matt Hancock [former Health Secretary] seemed to be keen for the UK to be the first nation to be implementing the vaccine, and he made the questionable decision that the vaccine was to be stockpiled prior to approval (Independent TV/ITV, 2020). Because of the rush to introduce a vaccine, unvaccinated parents felt that the COVID-19 vaccination was not like any other childhood immunization programme due to the lack of testing in comparison. The speed of the rollout was a regular concern, even amongst vaccinated parents.

"I think about it, but then I've not gone to be vaccinated yet. I think because it's quite new". (Cora, mid-thirties, unvaccinated)

Some who were not entirely opposed to the vaccine, found themselves undecided and felt cautious. For one unvaccinated participant who was also a single parent, there were not only concerns about the safety of the vaccine but the risk of becoming ill with side effects or more serious repercussions for the household.

"My brother's like, "Oh, I had the vaccination, it's fine, I just had to go to bed for a day, I was fine'... I can't go to bed for a day. You know, I can't. And if some terrible reaction happens, I'm on my own [with children to care for]". (Collette, mid-forties, unvaccinated)

Although a couple of parents had consented to their children's vaccinations, they were still concerned about the potential physical effects that may arise for younger populations and specifically, for prepubescent girls (such as fertility issues in the future). These worries were considered in the decision making process but overall did not deter parents from vaccinating their children. Unvaccinated parents frequently aired their concerns over the safety of the vaccine, and the lack of research undertaken or questionable laboratory methods. The fact that the vaccines were developed by experimenting on

animals and not humans made some question the accuracy of testing. Concerns about the use of nanoparticles in some of the vaccines were raised since biotechnology may have genetic impacts or be exploited for other perhaps commercial ends by pharmaceutical companies.

“I looked at what can be done now with tiny, tiny things and how, you know, if planes might fall from the sky with 5G, who knows what nano technology was in genetically modified inoculations... how that can be manipulated”. (Collette, mid-forties, unvaccinated)

One unvaccinated and breastfeeding mother was hesitant to take up the vaccine based on concerns for her breastfed child and the possible health implications for mother and child if she took up the vaccination. At the time of the research, government guidance for pregnant and breastfeeding women was quite new. There was a feeling among some parents that no testing could sufficiently predict the impacts of the vaccine over a long period of time.

“If they do inject you with all this stuff and they’re like, ‘yeah, it’ll stop you from getting this virus now’. But what’s it gonna do to you in the future? Is it gonna make you more likely to catch cancer or are you gonna be more likely to have bone deficiency or, you know what I mean, something stupid that you wouldn’t really expect. You know what I mean, like maybe it just means your blood count will be lower or your white blood cells will be lower. Something weird that no-one ever foresees and then it just happens anyway”. (Damon, early-thirties, unvaccinated)

Some parents who had not been vaccinated expressed what seemed to be repressed alignments to conspiracy theories related to national security. Whereas others [including some of those who were vaccinated] more explicitly said that they were believers in conspiracy. Some interviewees felt that data was purposely hidden from the public and that certain pieces of information did not add up.

“The place in Wuhan where it’s supposed to have started, there are places that are creating things for warfare or for different uses...People have said it’s not safe, but also, their facilities exist to make chemical warfare things”. (Collette, mid-forties, unvaccinated)

It was common for some people, who were both vaccinated and unvaccinated, to suggest that the disease was not really very dangerous. Younger populations were particularly seen as being less likely to suffer from adverse effects of COVID-19, this led to some of the vaccinated and unvaccinated parents to refrain from the roll out offer for their children. Government advice for very young children was also relatively new, which contributed to parental hesitancy and a “wait and see approach” for vaccinated parents.

“Maybe that’s being a parent, as well as going, ‘actually, should I be doing this to you or not?’ And almost a fear of, I don’t know if I’m doing the right thing or not”. (Brian, late-forties, vaccinated)

The advice to get booster jabs by the Government, added further speculation and doubt over the effectiveness of the vaccine by the unvaccinated parents. Similar views were aired by some of the vaccinated parents in terms of vaccine efficacy when the boosters were being rolled out so soon. Interestingly a minority of vaccinated parents expressed their reluctance to undergo repeated booster vaccination programmes in the future believing that the vaccine programme was getting too excessive. It was viewed as an inconvenience to keep getting jabs, and that their natural immunity would be strong enough, as they had contracted COVID-19 in the past. Similar views were aired by vaccinated parents with regards to booster jabs for children.

One of the unvaccinated younger fathers suggested that he had not received a range of available vaccines in the past and was a healthy adult, and in a similar vein, he questioned the necessity of the COVID-19 vaccine and its safety. Interestingly the same father had agreed to standard childhood immunisations for his children as he wanted protection for them, but this did not extend to COVID-19 vaccines with questions of safety in mind. However, he allowed his oldest child (who was in secondary school) to make the decision for himself.

“I never had any of them vaccinations. I just always believe stuff like the Flu jab and that should be for older people. You know what I mean don’t you, cause obviously they’re more prone to being really poorly from the Flu. Whereas when I get poorly, I just get poorly. I just wing it off and be like, “yeah fine, deal with it... I’ve always been a bit of a risk taker”. (Damon, early-thirties, unvaccinated)

Mistrust of government and clinicians

Vaccinated and unvaccinated parents did raise a level of critique and skepticism toward the Government with regards to their response to the outbreak in general.

“Like they, as soon as they knew this virus was getting worse and they knew they had no control over it, they should have instantly put us in lockdown and stopped the travel abroad. But as soon as they had the slightest thought that everything was getting better or we’ll put in the word that everyone else does it. As soon as the Government started struggling and realized, they’re running out of money, they needed to get everyone back to work and get everyone back on holiday again. So in the process, they started allowing people to do what they want and getting them back in work.

And then before you know it, it's back going up through the roof, you know what I mean? And obviously they're losing control of it again". (Damon, early-thirties, unvaccinated)

Parents would also cite the thalidomide tragedy as an example of how the medical profession cannot always be trusted. Their concern was not only for their children, but also for the impacts of the injections upon their future grandchildren. Both vaccinated and unvaccinated parents felt that further research into booster jabs was necessary.

"Even if you don't trust the people that are telling you things, okay, you try and see beyond it, and I guess that's the benefit of having an independent science group behind the government. As long as it's genuinely independent in terms of being able to discuss matters and be clear about the approach they take to weighing risk, you know, to the various options that they will be taking into consideration". (Joseph, mid-forties, vaccinated)

For vaccinated parents, criticisms raised toward the Government did not deter their trust in the overall messages presented, in relation to the vaccine's safety, and the importance of vaccinating toward overall health benefits.

"I trust that whatever politician was in power would have advisors that were suitably qualified. And as long as I believed that the politicians were passing that info on then yeah, I'd probably believe them. It's always the case that the other parties that are not in power will try and discredit and so on and maybe have an alternative view". (Nola, late-forties, vaccinated)

Interestingly, and contrary to suggestions in existing literature, the recent political scandal relating to lockdown breaches, lockdown parties and dismissals did not affect the viewpoints of some parents, despite such news being heavily featured in the wider media and social media. It was felt by some vaccinated parents, that the nature of politics meant that political disagreements and outrage was to be expected and these actions did not influence their decision-making with regards to the vaccine for them or their children.

"Yeah, that's politics. Its name calling, it's throwing dirt at the others. It's politics, that's what's happened, that's what's always happened. I really don't care if the man's [Boris Johnson] had a drink in his back garden. I really don't care if he has broken a rule, fine, people break rules. Is he the wrong person for the job? I don't know, maybe. There's a question mark over his integrity, but at the end of the day, he's a politician". (Nathan, late-forties, vaccinated)

One unvaccinated parent however felt that the lack of integrity and conviction of politicians encouraged the public to ignore and mistrust official advice and guidelines.

"You're ruining the NHS singlehandedly if you don't do this." And now, like I said, I look on the Daily Mail and everyone's like, this is bullsh*t, I'm not doing it anymore, I'm not gonna do it, I'm gonna have my party thanks. Or, you know, I missed my so and so's last dying words, and Boris is partying. Respect where respect is due, and if the mouthpiece of the nation can't be trusted and respected, it shifts things, and you're allowed to take that into account". (Collette, mid-forties, unvaccinated)

Where did opinions come from?

When asked about their pro-vax and/or anti-vax feelings and how they were formed, we learned from parents that they based their views in large part from Government announcements and public health messages, and further, from what they saw within mainstream media such as Newspapers, TV and Radio. Vaccinated and unvaccinated parents also reported watching COVID-19 related programmes or related segments on daytime shows for information.

"When I was working from home, I might have had a snippet of time watching 'This Morning', so I'd catch what some of the doctors had said about it. So I'd say that that would sway my decision". (Libby, early thirties, vaccinated)

The majority of the sample cited the internet as the biggest source of information; this was due to ease of access [browsing on mobile phone and tablets] and its instantaneous nature. Online news reports from UK and international sources helped shape opinion, and anything found on social media was readily available to be either rejected or absorbed, with parents making value based judgements on the reliability of the source.

"I suppose the tricky thing as well is just muddling through stuff and identifying what is, what could be misinformation and just really understanding where you're getting your information from. Is it from credible sources? But again, you know, a lot of people, general public wise won't be that way inclined to reflect on that bit. They'll just take it from Facebook or what's written in a sharpie pen on the back of the public toilet door". (Dale, early-thirties, vaccinated)

A small number of the sample were knowledgeable of previous pandemics, including SARS/Severe Acute Respiratory Syndrome in East Asia. Having seen how international governments combated the SARS outbreak, these participants were very accepting of UK Government advice. Parents with international connections [such as migrant families, people with relatives overseas, or expats] often followed international reporting from European, Asian and African sources, alongside

UK reporting when deciding on the vaccination themselves. For many parents, the breadth of reports, websites and guidelines, could become overwhelming and lead to confusion when contradictory information was read.

“We see the news in Hong Kong and things like that, and the fact that they’re doing everything that they can to stop the spread, because they’ve had experience from SARS and, you know, swine flu and things like that. Whereas in the UK, I think a lot of British people tend to find themselves a bit, it’s all about freedom, it’s all about making a political stance about my rights, human rights and things like that, and they just make it a little bit more complex than what it should be”. (Lexi, early-forties, vaccinated)

Alongside the views of the Government and the official public health messages, some parents had conducted their own research into the vaccine, its benefits and risks. This included for example, accessing medical or professional reports, official websites such as the WHO website or the NHS website, academic peer reviewed journals, and professional blogs (by medical experts). Vaccinated parents, when compared to unvaccinated parents, appeared to access a larger range of online material in their research.

“Yeah, I just read anything. Like get on the bus, I pick up the newspaper. When I’ve run out of stuff on the newspaper to read then I get my phone and read that instead. But a lot of places they’re just rubbish and they just talk a lot of rubbish. I look at it and I think, “yeah that’s not right... If I ever question it, I’d actually just Google and research it”. (Damon, early-thirties, unvaccinated)

When using and reading outputs online, both vaccinated and unvaccinated parents questioned the legitimacy of the sources they came across. This then led to further searches to enable comparisons and to evaluate information.

“I do refer to the NHS and the WHO a little bit more, but then it depends where the information has come from. If you’ve got, like, social media posts, then I don’t think that is entirely trustworthy. It’s just searching on the internet, for instance, if this professor wrote an article about something and someone shared it and they’re saying, “Oh, look, this guy said the vaccine is all boo-hockey or whatever,” then I would go on the search engine, I’ll search for this professor and make sure he’s legit. But I think a lot of people just look at that, ‘Oh, he’s a professor, we need to trust that.’” (Lexi, early-forties, vaccinated)

In terms of the news and latest updates, all parents in the sample regardless of vaccination status and opinion, had cited and accessed COVID-19 news reports by the BBC. They also read news items directly on official websites, read newspapers,

and watched news on TV. Vaccinated parents were more likely to consult with broadsheet newspapers such as The Independent or The Guardian *via* their direct websites or newspapers. Such papers were seen by vaccinated parents as being more reputable than tabloid papers like the “The Sun” and “The Daily Mirror”. Some internet sites who create content for global audiences, often had a global perspective which parents found useful.

“I might not be looking at Facebook or Instagram, because I’m not a big social media person. But I’m always on the news sites, especially with everything, like the Ukraine war and everything unfolding, and then with the COVID-19 pandemic and every day they were publishing how many people were getting infected, and which countries had it. I think during the last two years, because of everything, all these key events that have happened in our lives, I’ve spent so much more time just following the news and stuff to see what’s happening”. (Fiona, mid-forties, vaccinated)

Vaccinated and unvaccinated parents felt that they were aware of and mindful of the potential bias within news reports and the presence of fake news, whilst reading and conducting their research.

“Like half of the news websites that I read are off Facebook. And you know yourself that half of them are full of sh*t. I mean they just get you there so you can listen to it. Like best way to put it, half of its gossip, none of its actually true”. (Damon, early-thirties, unvaccinated)

Some parents also raised the issue of the possible political bias within more reputable news sites when reading, using the BBC as an example.

“Politics is a bit unsettled sometimes. And it did feel at times as if the BBC was being a bit of a mouthpiece. Like they’re working quite closely with the Government to drip feed an idea before the idea became policy, which I think the BBC has to be careful of. You know, not getting too close to management effectively”. (Brian, late forties, vaccinated)

The social media melting pot of information

Social media would often enter the interview conversations when discussing sources of information. Social platforms attract and act as a melting pot for various information outlets including Government announcements, public health messages, international perspectives, subversive messages, fake news and even the opinions of friends and family. An indication of broader public opinion could be garnered based upon a glance at the “likes” and comments of social media posts, which again

sometimes swayed parents in their thinking. Many parents mentioned social media as providing influential platforms for vaccination information regardless of how much they consulted with such applications or websites themselves. Most were using Facebook, Twitter, YouTube, Pinterest and Instagram, with Facebook being the most popular for personal use overall. Some vaccinated and unvaccinated parents had consulted with social media such as Facebook to intentionally explore vaccination views and stories, others came across them as a result of scrolling activities more generally.

Social media was useful to a small degree, but ultimately it was deemed as an unreliable source by both vaccinated and unvaccinated parents. One vaccinated parent was quite expressive in their views of others who rely solely on social media as research.

“I just think it’s pure laziness that they’re relying on Facebook and YouTube videos and social media, and finding fake papers, what not to support and what they want to believe in. Yeah, those people, I’d rather not associate myself with them”. (Lexi, early-forties, vaccinated)

The prominence of fake news and anti-vax groups online were seen as a significant factor for the lack of credibility on such platforms. This was noted as an issue by most parents regardless of vaccination views and status.

“I wouldn’t necessarily believe information that I see on, for example, Facebook. Anything that’s on there you take with a pinch of salt. I’m on a few Facebook pages and on other things for vegans and they do speak very strongly about not needing the vaccination and they’re quite left wing most vegans. And well no, that’s a sweeping statement. A lot of vegan views are quite left wing so they just oppose the right wing whether it’s right or not, you know. So they’re quite anti-vax but I’ve not agreed with that”. (Nola, late-forties, vaccinated)

It was noted by one parent, that the anti-vax debate is complex on social media, whereas some protestors may be basing their views on personal opinion, others were seen to be medically trained or highly educated. The diversity of the anti-vax community has to be recognized and it would be inaccurate to assume that anti-vaxers or anti-vax supporters on social platforms were all uninformed individuals. Many different voices share the same space on social media.

“They’ve all got different reasons for being anti-vax. So you’ve got some doctors that aren’t having it because they’ve been working with COVID-19 patients for the last two years, they might have had it. So they believe they’ve got the antibodies, fine, you don’t want it. And then you’ve got

the anti-vaxers that are the Karens from school who are just spouting on Facebook just for the sake of it and causing a drama”. (Ariana, late-thirties, vaccinated)

For both vaccinated and unvaccinated parents, it was interesting to note that as a result of the pandemic and lockdown restrictions, many had increased their screen use at home and work and this had continued despite the restrictions coming to an end. The increased use of screens, particularly smartphones, then led to an increased exposure to social media platforms and vaccination debates.

“When I’m in the office, I do my set hours, I do seven hours and then one hour for lunch, but then because I’m at home, I’m just sat here, it’s comfortable, so I spend another maybe eight hours in total, or nine hours even, doing work, spending my lunch on it [screens], watching Netflix on my computer, rather than on the TV, so munching on my lunch and watching Netflix or just looking at Facebook and scrolling”. (Lexi, early-forties, vaccinated)

“Me personally, I find myself on my phone a lot more... It’s more just searching the web and stuff you find yourself doing more. Like during the actual lockdown there was nothing you could really do anyway. So the actual main lockdown, because you couldn’t go out and you couldn’t do nothing, you just found yourself sitting on your phone a lot more. Just trying to like to pass the time”. (Damon, early-thirties, unvaccinated)

In contrast, parents such as Nathan and Ariana, had recognized in themselves that they were spending too much time on screens and social media especially [which was also perceived as damaging to mental health]. Moving away from social media led to the decision to withdraw or reduce their online presence more generally, lessening exposure to vaccination debates online and turning to other sources such as friends and family.

“I’ve had to actually delete a few apps just cause it was so addictive and I was so conscious that I am quite a lot of the time, just sat here looking at that instead of looking at my work... And I had to delete it, it was just so addictive... So I took the cold turkey approach. Just deleted it, got rid of it. I’ve got friends who’ve got rid of Facebook”. (Nathan, late-forties, vaccinated)

For both vaccinated and unvaccinated parents, the media also helped to reinforce their existing viewpoints. Individuals may have autonomously arrived at pro-vax or anti-vax perspectives; dependent upon what they considered was most advantageous for themselves at any given time or perhaps through the influence of their friends, families or colleagues.

The role of interpersonal communications

Most vaccinated and unvaccinated parents had spoken to friends and families about the vaccination or the vaccination programme. At times, these discussions were part of informal social conversations, whereas other times, friends and associates [neighbors, colleagues, friends of friends] were specifically consulted for their advice, and some of the parents had spouses and other family members who were medically trained. Advice from these sources was heavily trusted and helped parents to come to a decision about the vaccination for themselves or their children.

“My step-mum, she’s a nurse but she vaccinates children at schools for something else. I had spoken to her about it and I trust her views as well. She had no reservations about it”. (Libby, early-thirties, vaccinated)

For unvaccinated parents, the role of personal contacts was often significant. For Collette [whose friends had advised against vaccinations], her close relative then directly advised her to take the vaccine, which led to a straining of their relationship when she refused. For Cora, she was influenced by the negative experience of side effects based on her friend’s experience, and no others in her immediate family were vaccinated, which made her feel justified in her decisions. For both of these parents, the knowledge of other people’s negative experiences with the vaccination, led in part, to vaccine hesitancy and avoidance for themselves and their children. This was not the sole influence on their decision but became aligned with the broader research they had conducted.

“I think my opinion came from friends and from just doing my own research really, and from my understanding. I done my own research, it was the very beginning of January 2020, watching the virus coming over... A lot of my friends who have had it [vaccination] now regret it. And they had it, and I was like, oh, great, good for you, and then they’ve come back saying, ‘I really regret it now because...’. One worked for the NHS, this, that and the other. And her moods have really just changed. A friend of mine who works in a care home said the way it affected elderly patients, she said it was like instant Alzheimer’s, instant personality shifts, anger and negativity. A sweet lady became an angry, hateful lady, and then died, and she saw this pattern of her personality shift. I think what’s scary is it can affect, it can make menopausal women’s periods start. That’s big. Oh, it might affect your periods so that they change. It’s big”. (Collette, mid-forties, unvaccinated)

“Well my colleague says he used to go to the gym quite a lot. Like he likes to do weights and stuff like that. And he says that he’s felt like lazier since. I mean he says

he knows someone that used to do running, like long distance and he apparently can’t run as far now”. (Cora, early-thirties, unvaccinated)

Interestingly, most unvaccinated parents were happy to keep their views to themselves and did not push the anti-vaccination agenda onto others despite their concerns about the vaccine. Whether this was due to a social stigma attached to anti-vax people or not was uncertain. Some said that anti-vaxers were made to feel socially irresponsible. In response to this, one unvaccinated parent suggested that in some ways, those who did not take up the vaccine actually behaved more responsibly than vaccinated individuals.

“I would have thought people that weren’t vaccinated probably protect themselves more than people that do or have been vaccinated. Yeah, because I think some people think that because they’ve been vaccinated, they’re not as likely to catch it and they’re not as careful”. (Cora, early-thirties, unvaccinated)

Unvaccinated parents also felt that vaccinated contacts, including friends and family would try to sway them in their personal decisions. For Collette, her unvaccinated status had led to conflicts within the wider family and caused her to miss out on significant family events, but this did not affect the decision making process and the choices made.

“My point is, if it works so well and you’ve had it, then why are you so worried about the odd person like me who hasn’t?... I actually said to my dad, ‘Can you just please tell people it’s not up for discussion. I’m not talking about the vaccine.’.. I don’t need for anyone else to believe what I believe in order for me to believe it’s, you know, a truth that will benefit me and my children”. (Collette, mid-forties, unvaccinated)

Vaccinated parents were more likely to encourage others to take up the vaccine or consider it. One mother for example described how she used her experience of the vaccine, combined with her research and knowledge of the roll out, to help others who were undecided about the vaccine or worried about the legitimacy of vaccine reporting in the mass media.

“People around me, they were worried about this news and they don’t even know whether it’s true or not. They were kind of hesitant not taking the vaccine which I have I do have people or friends around me who were worried and they asked, ‘oh is this true’. I would just tell them I had my vaccine done, the first jab and nothing happened. So I was doing my bit, sharing my experience to those around me who are worried”. (Jemma, mid-fifties, vaccinated)

Discussion

Amongst all the interviews, most participants presented themselves as fitting the media narrative of “pro-vax” and we experienced only a small number of people who were opposed to having a COVID-19 vaccination for themselves. As such, we would say that parents in our study match the national statistics stating that 93% of UK adults and children over 12 years old are vaccinated (UK GOV, 2022). However, there were two areas in which these “pro-vax” interviewees seemed to also take an “anti-vax” position. The first was in relation to repeat vaccinations for themselves: It seemed that any latent concerns amongst parents about the vaccine’s reliability and efficacy were triggered by a potentiality of repeat injections. When asked if they would be happy to take multiple vaccinations each year moving forward, we experienced hesitancy. The participants generally felt uncomfortable about this suggestion and felt they would begin to question the effectiveness of such a prophylactic. It was a similar story for the second area of “anti-vax” sentiment, that of vaccinating children: A number of parents expressed deep concerns and often opposition, in regards to exposing their children to a procedure that has only been around for a short period of time and has yet to be thoroughly (in the participants’ mind) tested and measured. Anti-vax sentiments toward children were reflected by government through the findings of the JCVI/ Joint Committee on Vaccination and Immunization, who could not recommend universal vaccination for all children due to safety concerns. The Government response to the JCVI was to make child vaccinations non-urgent and for parents to be encouraged to make a choice, rather than being made to feel that children’s vaccinations are an obligation. Parents were encouraged to make their accurate and informed choices about child vaccinations based on evidence. However, it was not clear what evidence should be drawn upon. Our interviews identified three routes to information and evidence that influenced parents’ decisions: Government, the media and interpersonal communications.

Government

The UK Government has consistently taken a pro-vax position with little political opposition in regards to the rollout of the COVID-19 vaccines for children. However, on the 3rd of September 2021, the JCVI, declined to endorse vaccinating healthy 12–15 year olds, with the margin of benefit being considered too small in terms of health (Mason and Elgot, 2021; Walker and Davis, 2022). British Government ministers, including Boris Johnson, were allegedly frustrated by the increased caution being exercised by the JCVI in its final decision about child vaccinations at the time (Swinford, 2022). The main concern for politicians was that the UK was beginning to become an “outlier” in comparison to other developed nations

such as the USA, Israel, Germany, France and Spain, who have all made significant progress with their child vaccination programmes. For example, by November 2021, the USA had already vaccinated more than 2 million children between the ages of 5–11 against COVID-19 (Smith-Schoenwalder, 2022). On the 16th of February 2022, the then Health Secretary Sajid Javid announced the “non-urgent” rollout of the COVID-19 vaccines to 5–11 year olds (Gallagher, 2022). The JCVI in return agreed that vaccination for the age group should go ahead on the basis of preventing a “very small number of children from serious illness and hospitalization” in upcoming COVID-19 waves. In providing this advice, both Sajid Javid and the JCVI stressed the importance of parents and carers being able to have the right information so that they could make an informed decision on whether to consent to vaccinating their children, the implication being that Government were not full advocates.

Government portrayals and presentations of vaccines for children can be viewed as largely positive and informative. The official media coverage also appears to be aimed at being transparent with parents about the effect of the vaccine on children, and the role played by the UK’s Medicines and Healthcare products Regulatory Agency in ensuring the vaccine is safe. Our data demonstrates that Government advice and public health messages helped participants to some degree with regards to perceived safety of the vaccine and subsequent uptake, and many vaccinated parents felt that the COVID-19 vaccine was safe for adults and children. However, in accordance with some international data, we discovered that perceived safety issues connected to the vaccine did cause some to show hesitancy (Evans et al., 2021; Ruggiero et al., 2021). Previous literature suggests that parents who are hesitant about the COVID-19 vaccine for themselves will tend to be reluctant to get their children vaccinated also (Montalti et al., 2021; Pan et al., 2021), but our study has established that this is not the complete story. Instead, our findings in relation to COVID-19 are consistent with existing research on other vaccines that suggests parents apply more caution when considering a vaccination for their children, compared to themselves (Akarsu et al., 2021).

In relation to governmental messages and public health campaigns regarding collective responsibilities, vaccinated parents generally supported this agenda. Vaccinated parents generally felt it was important to vaccinate themselves and their children as a social responsibility to look after others. Both vaccinated and unvaccinated parents felt that a failure to conform with pro-vax attitudes, could lead to shaming by others and stigmatization (some unvaccinated parents directly experienced this). For many of the vaccinated parents in our study who had vaccinated children also, they saw the vaccination roll out as a success despite the varying public attitudes toward it. Some parents praised the role of the Government and trusted the political officials and the advice they provided, particularly with the involvement of SAGE on immunization. When making comparisons to other countries,

some felt that the Government had handled the outbreak reasonably well.

Although there were criticisms raised with regards to the Government's record of unsuccessful and confusing lockdown measures such as track and trace and the tier system, and then further concern of the Government's integrity during "partygate"; these concerns did not prevent a number of parents from vaccinating themselves or their children. Interestingly, some parents did not let the scandals relating to government officials and lockdown breaches affect how they saw official COVID-19 advice. Some parents felt that reported scandals were part and parcel of the drama of politics. Others felt that they wanted to "move on" from COVID-19 and pay attention to other more important events that were occurring, such as the Ukraine war. For some parents, political issues and scandals relating to certain public figures, could be separated from the wider advice provided by the Government itself and the Chief Medical Officer. Existing research suggests that higher rates of vaccine uptake are associated with trust in authorities, but our study has shown that despite some of the parents' reservations about the British Government, this did not wholly influence them in their vaccine decisions. Many parents who were critical of the Government, were still being vaccinated and a smaller number were also happy to vaccinate their children. This insight is also related to the wider finding that vaccinated parents in this research drew upon multiple sources of information and advice in their overall vaccination views and did not consider the Government's message solely in isolation.

Media

All of the parents that we spoke to had conducted some level of independent research on the COVID-19 vaccine gained through the media. Sources of trusted information included watching TV (particularly the BBC), reading newspapers and ingesting online resources such as official websites, national and international news and academic publications. There were notable differences between pro-vax and anti-vax parents in terms of the range of literature consulted as part of their research. Vaccinated parents were more likely to consult with a larger number of outputs and resources, including specialist, technical or academic readings. In contrast, unvaccinated individuals tended to consult with less reputable sources, and drew significantly upon their personal experiences and the advice and experiences of friends and family. The impact of social media was mentioned by all parents as being significant regardless of vaccine views and stances, and for many, the influence of social media (which was largely seen as negative) was almost unavoidable. [Fridman et al. \(2021\)](#) stated that it is essential to better understand different media sources' influence on vaccine hesitancy. In our research, we found that as a result of imposed lockdowns, many of the vaccinated parents and all of

the unvaccinated parents had increased their screen use for work and leisure purposes and inevitably became exposed to more social media. The parents we interviewed were mostly regular users of social media which as discussed, formed a melting pot of information and misinformation from multiple sources, some reliable, some not. Studies have shown that exposure to misinformation on social media can reduce vaccine intent and increase hesitancy ([Loomba et al., 2021](#)) with individuals becoming less likely to get vaccinated if they read negative information ([Pan et al., 2021](#)). However, our study indicated that parents were well aware of the risks of exposure to misinformation and had even developed a perceived resistance to it and in some cases strategies against it, such as avoidance or fact checking.

Both vaccinated and unvaccinated parents were aware of the potential bias, fake news and misinformation that could dominate online readings, leading to further searches online of government and public health information. Media sources and discussions with friends and family also provided further insights. In contrast to existing research, we have seen that vaccine misinformation and increased exposure to social media did not necessarily have a strong influence upon all parents. This may be related to the parents' high awareness of misleading and inaccurate information online, and/or their independent research and consultation with others as a result. Furthermore, at the time of the interviews, a small number of vaccinated parents had decided to reduce their online scrolling and participation as a result of the pandemic, by re-evaluating priorities in terms of spending less time on technology and social media. Given such findings, it is important that the influence of social media on parental vaccine decisions for themselves and their children is not over-estimated and not seen simplistically in terms of cause and effect. The impact of social media can be complex in regard to vaccination decision-making ([Jamison et al., 2020](#); [Cascini et al., 2022](#)) and should be considered as part of the wider context of governmental, media and interpersonal communications.

Interpersonal communications

In a study by [Evans et al. \(2021\)](#), they found that vaccine hesitant individuals are less likely to refer to traditional media and government sources and had high mistrust in these sources of information. This may explain why unvaccinated parents in our study placed a higher value and regard on the views and experiences of those they were close to. We found that unvaccinated parents had often been directly advised by family members or friends not to vaccinate. Unvaccinated parents also drew on the negative vaccination experiences of others who were known to them directly, or hearsay from people they knew, to form their own opinions or to justify their non-vaccination status. The knowledge of other people's negative reactions was

not questioned in the same way that some of the media sources were, rather, they trusted their friends. In such ways, interpersonal sources of information were given more prominence compared to other sources, and the unvaccinated participants' negative views of the Government and the media, were then used to further validate their viewpoints.

Parents who feared coronavirus infection (Yigit et al., 2021), or a new outbreak, or the persistence of the pandemic (Goldman et al., 2020), were more likely to take up the vaccination (Pan et al., 2021) and implement it for their children, and discussions with friends and family were a common outlet for these fears, arriving in openly shared pro-vax sentiments. Those with anti-vax sentiments also felt more comfortable to discuss these feelings in private and intimate settings with trusted others. Fear of being publicly shamed or criticized for being anti-vax, forced some people to keep their views to themselves. Unvaccinated parents who had not contracted COVID-19 themselves, potentially underestimated its effects, which in turn may have influenced their viewpoints on the seriousness of the virus, the necessity of the vaccine, the perceived health impacts, and concerns about side-effects. Some unvaccinated parents certainly seemed to believe that side effects of the vaccine were more serious than the risks of the disease itself and shared these views with their broader interpersonal networks of family and friends.

As we have seen throughout this article, parents form their choices through a multitude of stimuli and whilst official guidance is generally respected and followed by those who are in favor of vaccinations, those who are opposed to vaccinations often have a mistrust of government and place their trust in other sources, including interpersonal communications. The Government has been seen to be untrustworthy in terms of their integrity (by not sticking to their own lockdown rules), and their general approach to managing the pandemic has been considered inadequate by many. Some parents as a result have chosen to disregard Government advice and make judgements based upon their own experiences and reasoning, or sometimes, based on the judgements and experiences of people that they do trust including friends and family. As such, anti-vaxers reflected upon what they and their trusted circle "knew" rather than what they were "told" by the state.

Conclusion

When seeking to understand COVID-19 vaccine hesitancy toward children, we should start by recognizing the process parents go through in terms of accessing risk. In our study, there were often feelings expressed by interviewees that COVID-19 is not so serious as a disease [particularly for children] and this was also a message that came through official government channels. Furthermore, concerns about the safety of the vaccines in terms of their long-term impacts upon health have been

unable to be addressed, simply because the vaccines themselves and some of the technologies used to develop the vaccines are so new. As such, when presented with a choice, where will parents potentially see the greatest risk—from the vaccination or from the virus? Whilst the parents we interviewed seemed generally in support of official guidance, the advice in terms of child vaccinations was significantly more relaxed than it was for adults. If Government had announced child vaccinations to be urgent and of high importance, would parents have felt more inclined to vaccinate their children? Or would even more parents perhaps have expressed hesitancy in an effort to protect their children? It is hard to say with any certainty, but the indications from this study are that UK parents would rather not vaccinate children unless it is deemed demonstrably necessary.

Criticisms have been raised of qualitative research approaches in general, however, through the use of qualitative research, our findings have demonstrated the complexity of influences upon parental attitudes toward child vaccinations in a way that quantitative studies would be unable to reveal. From this, we are able to suggest that future vaccine information and strategies should consider the nuanced nature of parental decision making and to have a wider scope in reaching parents, and acknowledge the plethora of trusted sources that exist outside of official announcements. Future research may benefit from a mixed methods approach to help achieve this. The hearts and minds of parents would need to see strong evidence with their own eyes that vaccinations are needed for children, that testing is rigorous and that they are safe in terms of side effects; since even within the pro-vax elements of society, we have found some hesitancy, doubt, and mistrust under certain conditions.

Recommendations

Vaccine hesitancy seems to be justified by parents according to the following phenomena:

- A. The vaccines were known to be rushed and they began to be stockpiled before being approved. Therefore they may be unreliable.
- B. The use of nanoparticles in some vaccines is new science. Since their use is emergent and not commonly understood, conspiracy theories arise.
- C. The side effects of the vaccines are known to be varied and common and for some, may possibly be more serious than the disease itself. Furthermore, exact causes of reactions such as Myocarditis were unknown.
- D. The testing of vaccines was seen as insufficient, has not been lengthy enough and often undertaken on animals, not humans.

- E. The Government did not display integrity through their own behavior during lockdown which impacted upon public trust; furthermore the failures of the tier system and the test and trace system, made the Government appear inadequate.

It may be that some or all of these reasons for vaccine hesitancy are founded in legitimate concerns; as such, if the encouragement of vaccine uptake for children is the desired goal, then more clarity and certainty for the hesitant would be needed to alleviate these. In order to pursue vaccination uptake for children, the recommendations from this paper to would be:

1. To ensure that the vaccine is demonstrably safe, without hesitancy from government bodies such as the JCVI.
2. To help parents understand the precise severity of potential risks caused by the coronavirus disease upon children.
3. To build trust in the Government through the setting of better examples by those in office.
4. To build public trust in science, through movements toward human testing and a better clinical understanding of side effects and complications.
5. To promote widespread discussion about the science and ethics behind nanobiotechnology, resulting in greater knowledge and understanding of nanomolecules.

Some of these recommendations may simply not be possible in the short term, and a rapid response to the pandemic forces the hand of Government to compromise these recommendations. As such, vaccine hesitancy may be a phenomenon we have to acknowledge and try to learn from for the future.

Data availability statement

The datasets presented in this article are not readily available because participants have not consented to archiving data. Requests for further information on the datasets should be directed to bfil@leedstrinity.ac.uk.

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Ethics statement

The studies involving human participants were reviewed and approved by the Institute of Childhood and Education's Ethics Committee, Leeds Trinity University. The patients/participants provided their written informed consent to participate in this study.

Author contributions

CC and RC undertook primary research in relation to the article. SA-A and IM undertook some of the literature review. MP undertook primary research and made a small contribution to authorship. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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