

Research paper

Health beliefs about preschool immunisations: an exploration of the views of Somali women resident in the UK

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What is known on this subject

- The Somali community in Birmingham represents a significant proportion of the growing black African population which has the lowest preschool immunisation rates.
- Previous research conducted in Somalia has highlighted the importance of perceptions about immunisations which are shaped by cultural factors.
- Little is known about the views of the Somali population in the UK regarding preschool immunisation, and how their beliefs shape immunisation practices.

What this paper adds

- Opinions among the Somali community are generally positive, although there are specific concerns and anxieties about the MMR vaccine, most notably due to its purported link with autism.
- The perceptions and immunisation practices of Somali women are shaped by culture, religious interpretation and personal experience.
- There is a lack of reliable and culturally appropriate information that addresses the Somali community's specific concerns and anxieties about childhood vaccinations. This should be addressed in order to improve community confidence and trust in immunisation programmes.

ABSTRACT

Childhood vaccination is one of the most important public health interventions, preventing two to three million deaths worldwide every year. Successful immunisation depends on the attitudes of mothers towards vaccination. The Somali community in Birmingham in the UK represents a significant proportion of a growing black African population which has the lowest levels of preschool immunisation. There is no evidence about perceptions of preschool immunisation among Somalis in Birmingham. We explored the health beliefs of Somali women resident in the UK in order to assist healthcare providers to deliver services in a manner sensitive to Somali culture.

Semi-structured interviews were conducted at third-sector organisations providing services to

Somali women in Birmingham. Participants were born in Somalia, but were resident in the UK and had at least one child under 5 years old. Purposive and snowball sampling were employed. Data were analysed using inductive thematic analysis.

Data were collected from 23 participants from two centres. Attitudes towards preschool immunisations were positive. However, there was significant suspicion about the MMR vaccine, predominantly due to anxiety about a link with autism. Beliefs were affected by social and cultural interpretations of Islam and practices associated with them, mothers' personal experiences of preschool vaccinations, and perceptions of their child's susceptibility to infection.

This study highlights the centrality of women's understanding and perception of risk and how these

shape decision making. Risk perceptions were mediated by women's social networks, their knowledge and understanding about the relative risk of infection versus vaccination, and their own experience. There was a strong emotional component to the decision-making process, characterised by mistrust and fear. Appropriate information addressing

anxieties and suspicions, as well as a closer relationship between the local Somali community and healthcare professionals, will be crucial for future vaccination services to ensure adequate uptake.

Keywords: attitudes, beliefs, ethnicity, immunisation, preschool, Somali

Introduction

The first vaccination programme in the UK was launched in 1940, with the immunisation of children against diphtheria (Salisbury *et al*, 2006). Immunisation rates across England today are monitored by the Health Protection Agency (HPA), and have steadily increased over the last 50 years. The HPA recommends that 80–95% coverage of a population is needed in order to achieve immunity against particular diseases. The term *herd immunity* is used to refer to 'the protection of populations from infection which is brought about by the presence of immune individuals' (Fine, 1993). By 2010, 95.3% of children across the UK had received DTP3 by their second birthday, yet only 88.2% were up to date with the measles, mumps and rubella (MMR) vaccine (National Health Service, 2010). Childhood vaccination remains one of the most important public health interventions of the 21st century, and is thought to avert between two and three million deaths worldwide per year (World Health Organization, 2012). A highly controversial publication in the *Lancet* by Wakefield and colleagues in 1998 sparked national and international debate by claiming a link between the MMR vaccine and the development of autistic behaviours (Wakefield *et al*, 1998). Despite the fact that the research was subsequently discredited, this accusation has had a significant impact on the willingness of parents in the UK to vaccinate their children against MMR, and as a result the uptake of vaccination has decreased. There is little information about whether migrants who are parents share the views of the host population about MMR vaccination.

Background

Birmingham is the second largest city in England, and has a very diverse population of over one million people that includes a growing number of black Africans (Birmingham City Council, 2009). A health equity profile of childhood immunisation across Birmingham showed that black Africans have the lowest uptake of

preschool immunisations and are the fastest growing ethnic minority (Pickard, 2005; Birmingham City Council, 2009). The Somali community has contributed significantly to this growth, and currently stands at approximately 40 000 (Jones, 2007). This may be attributable to a range of factors, such as cultural issues and the possible impact of pre-migration parental experiences, but there is no evidence to support these or any other possible explanations for the low uptake of immunisation. It is possible that the views of Somali mothers may have been influenced by the Wakefield publication, which generated confusion and mistrust among many parents and healthcare professionals, regardless of their ethnic and cultural backgrounds. It is therefore important to gain a better understanding of the health beliefs of the Somali community in Birmingham with regard to preschool immunisation in order to improve uptake and help to achieve herd immunity.

LaFond (1993) explored the views of mothers in Somalia about preschool immunisation using community-based focus groups and informal interviews. The study aimed to understand why Somalia had some of the lowest national immunisation rates in the world, despite joining a pledge to achieve universal child immunisation by 1990 (UNICEF, 1996). The study uncovered the belief that immunisation was not effective against diseases such as polio and neonatal tetanus, which were believed to have spiritual causes. Forced vaccination campaigns in Somalia also had a negative effect on mothers' confidence in the safety of vaccinations; many mothers believed that the tetanus vaccine given to women of childbearing age was a form of contraception and was being used by the government to arrest population growth. A more recent study conducted in Somalia addressed various aspects of health, including preschool immunisation. It found that a lack of belief in the effectiveness of immunisations, particularly among fathers, led to poor uptake of immunisation services (Food Security Analysis Unit, 2007).

Twenty years of political and civil unrest in Somalia have led to one of the highest rates of emigration in the world (Central Intelligence Agency, 2012). Many migrants travel considerable distances through several

countries, such as Holland, Sweden and Norway, before they arrive in the UK, where they face new challenges in integrating into a foreign society while trying to maintain traditional customs and practices. Condon (2002) used focus group methodology and semi-structured interviews to explore attitudes to preschool immunisation among 21 minority ethnic women in Bristol, England. She found that Pakistani, Somali and African Caribbean mothers had a positive attitude towards immunisation, although they differed in their desire for increased provision of information. Research conducted by Kulane *et al* (2007) with migrant Somali communities in Sweden explored the specific views of Somali parents in Stockholm with regard to acceptance of the vaccine against measles, parotitis and rubella. They found that Somali parents recognised the importance of immunisation, but were fearful of the MPR vaccine as a result of media reports of its supposed link with autism.

Aim of this project

Little is known about the Somali population in the UK or about the views of Somalis with regard to preschool immunisation. The aim of the study reported here was to explore these views as a basis for ensuring a culturally appropriate service.

Methods

As this study was broadly exploratory in nature, we adopted an idiographic approach with a view to describing individual participants' accounts of their experiences of and perspectives on childhood immunisation from within their own framework of understanding and meaning. This community-based qualitative study drew on the insights into strategies that respond to sensitivities in relation to ethnicity and culture (Elam and Fenton, 2003), paying particular attention to working with individuals in the community who could act as cultural brokers, building trust and providing clear explanations of the possible benefits of the study for the community.

The study was reviewed by the Internal Ethics Committee at the University of Birmingham. This committee is responsible for the ethical review of student projects. A favourable ethical opinion was received.

Data collection

Data were collected using semi-structured interviews that facilitated the exploration of the participants' health beliefs. A topic guide was developed from the results of previous research as well as lessons learned from a pilot interview. The guide allowed for further questions to emerge from the dialogue to enable clarification and exploration of particular views or opinions (DiCicco-Bloom and Crabtree, 2006) (see Box 1). Women were invited to take part if they were over 18 years old, born in Somalia, the mother of at least one child under 5 years old (no minimum age) and resident in Birmingham. These criteria were used to guide purposive sampling of participants. This refers to systematic, non-random sampling whereby 'informants are identified because they will enable exploration of a particular aspect of behaviour' (Mays and Pope, 1995, p. 110). Snowball sampling was also employed; this method is often used in research being undertaken among a population that is normally hard to reach (Penrod *et al*, 2003). Purposive sampling is usually based on the judgement of the researcher and the given resources in terms of cases available for sampling (Mason, 2002). According to Teddlie and Yu (2007), purposive sample sizes are typically below 30. In our study, a sample size of 20–25 participants was estimated to be sufficient to reach data saturation, that is, the point at which additional data are unlikely to yield new information or require revisions to be made to findings that have already been developed (Holloway and Wheeler, 2010). However, we also used snowball sampling by inviting the women to identify suitable potential participants from their social networks (Faugier and Sargeant, 1997).

Centres were accessed via telephone numbers provided by Birmingham City Council (2012). Contact was made with those in leadership roles in the centres who then provided access to the Somali women. Potential participants were approached at the centres and verbally informed of the purpose of the study, as well as being given an information sheet in both English and Somali. The women then had time to consider whether to participate, and an interview was scheduled at a later date with those who agreed to take part. Participants were not asked to sign a written consent form, as such formalisation of the consent process could be perceived as alienating, as well as undermining the rapport that had been developed with participants (Redwood *et al*, 2012). Instead, participants were provided with written information as well as being given the opportunity to ask questions or withdraw from the study. Verbal consent was audio-recorded.

Box 1 Interview topic guide*Understanding about preschool immunisations*

When you hear about immunisations for babies and children, what do you think of?

What do you know about immunisations for children?

What illnesses do children receive immunisations for?

Why do we immunise children?

Personal practice

Have you immunised your child?

Are there certain diseases which you would immunise against first or not at all?

Does religion play a role in your decision to immunise your child?

Beliefs

Is it right for us to immunise children?

Does this depend on the particular disease it protects them against?

Which immunisations would you not give to your child?

Do you think that immunisations reduce disease?

Safety

Do you believe that immunisations are safe for children?

What do you understand about possible side-effects of immunisations?

Do you know which diseases the MMR vaccine protects against?

What do you think of the MMR vaccine?

Interviews lasted around 20–30 minutes and took place at the centres that had facilitated the recruitment of participants. Lay interpreters were made available for participants whose English-language skills were insufficient. Participants were also asked to consent to the interview being recorded on a digital audio recorder. The participants' travel expenses were reimbursed and they received a shopping voucher in appreciation of their participation.

Analysis

Interviews were recorded and transcribed verbatim. Data collection and data analysis were carried out concurrently in order to inform sampling as well as to indicate when data saturation had been reached (Hammersley, 2001). Data were examined using inductive thematic analysis (Braun and Clarke, 2006), with the development of the themes being driven by a concern for identifying participants' experiences, perspectives and beliefs that had the potential to influence decisions to vaccinate their children. Initially, a subset of interviews was read independently by both researchers to search for meanings and salient issues in and across the data. Subsequently, initial codes were identified, such as 'immunisation as protection from potential disease', 'risks associated with non-vaccination', 'risks associated with vaccination', 'fears about autism' and 'personal experiences of vaccination practices in Somalia.' All of the transcripts were then coded by the first author and a subset was checked for consistency by the second author. In joint discussions,

codes were grouped into themes and checked for similarities and differences, emerging patterns and variability. Through a process of reading and re-reading, the themes were refined. This approach to analysis allowed the Somali women's unique perspective to be explored and themes to be grounded in the data.

Findings

In total, 23 participants were recruited for interviews which took place between February and April 2012 at two centres (A and B). Three women interpreters assisted the interviewer with seven of the interviews. The letter *i* is used to denote a direct quote taken from an interview that was conducted with the aid of an interpreter.

The data were organised around three broad themes which facilitated insight into the factors that influence Somali mothers' decision making:

- 1 perceptions about preschool immunisations
- 2 personal beliefs and practices
- 3 knowledge and understanding of preschool immunisations.

Specific quotes from participants have been used to demonstrate the themes outlined above. Additional verbatim quotes can be found in Boxes 2, 3 and 4. These serve to direct the reader to further quotes that support the themes which are further explored below.

Box 2 Protection from infection

It's really good ... cause there's lot of diseases and um a lot of illness going on especially when they're really young ... and I think that will *protect them for their health*.

(Interview B7)

It is important for the kids to get it [immunisations] ... *kids haven't got that power* to like ... to prevent diseases and everything so it's good for them to get the injection ... because their *immune system is low* and everything.

(Interview B9i)

I think it's good. Because um ... I think it's ... a bit *more safety* for your child ... especially when it comes to your children you want to protect them the most ... I feel when, when er I see that those things are available for children, vaccinations, I think it's very good because it gives them a bit *more protection* anyway.

(Interview B10)

Box 3 Fears about the MMR vaccine

I saw some people ... they have phobia about the injection ... they said maybe in the future if you give your child that injection ... maybe err he's getting *some illness* ... and maybe in the future he *never talk properly*.

(Interview A2)

She's got ideas in her head like that the child *might not be able to talk* when he grows up or he might be bit late for his talk ... his behaviour might really go wrong.

(Interview B2i)

Some children you can see ... it is changing [gesture towards mouth] ... *speaking, walking*. But Alhamdulillah I saw my children nothing.

(Interview B4)

My problem the MMR ... I see the difficult to have MMR because *they can't talk, they can't walk*, they can't ... they have the, the problem.

(Interview B6)

I heard that when the kids grow up around like age of nine they start ... maybe get a *little bit effect on it* ... but she was like, that's why, sometimes I got worried about it ...

(Interview B8i)

That one I get confused because the people they say maybe if they do injection ... that injection ... their baby can be like *handicapped* ...

(Interview B17)

Some ladies they say injection [MMR] that one is *like a Polio* and something like that. The children are sometimes *coming disabled* ... they don't give some ladies they say no that's the worst thing injection for the children ...

(Interview B19)

Perceptions of preschool immunisations

Understanding mothers' perceptions of preschool immunisations is crucial to appreciating the reasons that drive vaccination practice. This theme describes views about the importance of preschool immunisations, beliefs specific to the MMR vaccine, and the influence of personal experience on immunisation practices.

General attitudes towards immunisation

All of the participants were positive about preschool immunisations, regarding them as 'very important' for their children's health (Interview B19). Immunisations were viewed as a 'good option for the children' (Interview B3i), with several mothers adding that they 'always make sure that they get it on time' (Interview B7).

Box 4 Participants' reasons for giving the MMR vaccine to their child

Me myself I the three kids I give them the immunisation, I give them the MMR ... but I think it's good to ... in all in altogether it's very important to give them the immunisation whatever it is ... I have done some *researches on the Internet* and I read about it but still nothing convince me that it is er one of the side-effects of the MMR that is going to lead to an autism ... *I talk with the health visitor* that I told her like that I don't want to give her now, maybe year later or six months later or so. She say me it's up to you but I'm advising you to give her you don't know what's gonna to happen during this month, maybe she's going to catch any diseases ... *I speak with my husband*, we agree together ... let us do it.

(Interview A1)

I tried it on my son! It's kinda mean! [Laughter] And then *nothing has happened* and then I said 'Oh it's OK then!' I can give it her [daughter]!

(Interview B1)

She thought like *something that she must do* ... and because she has *received few letters from the GPs* she thought well I don't have a choice I have to take my child now.

(Interview B2i)

Just my daughter she's used the MMR ... I see that many families, Somali family, I see that the MMR the *problem of the boys*, not the girls ...

(Interview B6)

My children are all fine, they all take it ... *I don't think the problem is the MMR*, in my opinion ... maybe there's some children have any ... reaction of their body for the medicine ... that's what I think what is causing the problem. Because if the problem is the MMR ... then everybody who took it will be ill! ... Yeh, so in my opinion it's the body who can't take that, that medication ... for what reason I don't know but ... I don't think it's the MMR.

(Interview B15)

Protecting children from infection

The participants viewed preschool immunisations as important because of their perceived role in protecting children from disease (see Box 2). Some women regarded young children as a vulnerable group who 'don't have power to prevent diseases for themselves' (Interview B20i). Immunisations were seen as providing long-term protection from infection, not just protection when their children were young. One participant explained that immunisations were 'good for your children because maybe when they grow up they sick and maybe they died if they hasn't had the ... injections' (Interview B18).

However, the majority of the participants made a clear distinction between the MMR vaccine and all other preschool immunisations. One participant highlighted this distinction at the start of the interview: 'I think some of them it's good ... my children have had all of them ... except one, but I've done all of them for them and it's really good.' She then explained that 'the one I haven't done is MMR' (Interview B5). Other participants talked at the beginning about their positive perceptions of preschool immunisations, but explained their fears about the MMR vaccine later in the interview: 'Only MMR I very afraid ... but the other injections I don't have any problem' (Interview B6). Another woman mentioned that she 'didn't give the

one for one years old [MMR]', despite later saying that 'all injections is important for the children' (Interview B11). One mother explained that the distinction between the vaccines was due to her belief that the MMR vaccine was more powerful than the other immunisations, and therefore more likely to cause harm to her children.

The perceived risks of the MMR vaccine

The distinction between the MMR vaccine and other preschool immunisations was primarily due to anxiety about a link with autism (see Box 3). One mother explained that the MMR vaccine is the one she is 'not sure about' due to her fear that 'it gives speech problems' (Interview B9i). This mother allowed her child to receive the MMR vaccine, but only because she heard the rumours *afterwards*. The majority of the participants mentioned the fear among the Somali community: 'a lot of people around me say because of the MMR there is a lot of diseases ... especially they are saying about the autism' (Interview A1). This suspicion was fuelled by further rumours about possible risks associated with the vaccination, with women reporting how their ideas were affected by the views of others. One participant described this phenomenon and the effect that it had on her willingness to vaccinate her child:

Loads of Somali women told me if you give your child that one he'll turn into disability ... he will not function the same ... when you hear those things you go – oh my God – I don't want to give him something that ... is actually going to harm him because the whole point of this is actually to improve him, to protect him.

(Interview B1)

This fear had caused five of the participants to refuse the MMR vaccine for their child, even though many of them readily accepted all of the other preschool immunisations. One mother explained that 'sometimes ... you are afraid ... you bring your healthy son in [to see] the GP and they give you injection and some day he become ... handicapped' (Interview B11). Another participant explained that, in her opinion, MMR has 'got more strong things inside' (Interview B5).

Participants claimed to have witnessed the detrimental effects of the MMR vaccine on other children, and cited this as one of the reasons for not vaccinating their own children. One mother explained how her neighbour had a daughter who 'had a brain damage because of that [MMR vaccine].' She therefore felt unable to take her child to the GP for the MMR vaccine: 'when you see those kids, I feel like I don't wanna take my children to let somebody give them an injection.' The mother talked about her shock that the MMR vaccine was able to have that effect on a child: 'I didn't believe that injection could do that ... it's something strong obviously!' (Interview B5). Another participant also talked about her 'phobia' of the MMR vaccine due to the fact that her neighbour's son received the MMR vaccine and is now autistic: 'he can't speak ... and his mum she tells me when he was one and a half years she give that injection. It's the second person I heard ...' (Interview B11).

Anticipated guilt also played a role in decision making about the MMR vaccine. One mother who refused to vaccinate her child talked about how she would blame herself if her child was to become autistic: 'you're just gonna ask yourself every time, why did I do this? You're just going to regret every time ...' (Interview B5). She further explained that it would be her responsibility and not that of the GP, as 'taking them to their GP is my fault! ... and have them the injection and sign for them is gonna be my fault' (Interview B5). Despite this apprehension about the MMR vaccine, 18 mothers had allowed their children to be immunised. Their reasons for doing so are listed in Box 4.

The perceived importance of specific immunisations

Despite the anxiety and suspicion about the MMR vaccine, some participants identified other immunisations as particularly important, including those pro-

tecting against tuberculosis, polio and measles. Beliefs about their importance were based on the perception that childhood diseases, against which these vaccines provide protection, can be placed along a spectrum of severity. The position of a disease on this spectrum was determined by the perceived danger of permanent disability or death. These beliefs were often based on a mother's recollection of witnessing the consequences of certain childhood diseases in Somalia:

The most important one ... polio! Because in our country we used to have a lot of kids ... I know some of my cousins because they didn't immunise them ... now they have a problem with their walking.

(Interview A1)

Several mothers attached great importance to the immunisations received during early childhood, due to the perceived increased vulnerability of very young babies to infection:

If somebody got flu ... it's easy for them to get everything ... they're quite young and can't tell you anything ... the child can just cry.

(Interview B5)

I think ... those in the two, three, four months ... those are very important ... they're so small and so vulnerable at that age ... the fact that everyone who's walking around them ... they could give it to him ... and I think ... yeh definitely. Maybe because in my eyes how smaller they are, how more vulnerable ... that's why I think those are more important.

(Interview B10)

One participant attached much importance to 'the one in three to four years when they starting school' due to the fact that before the child started school they were 'only with you, not for another children', and so were less likely to acquire infections. However, once the child started school they were viewed as being more susceptible to infection, due to their increased interaction with other children: 'when she start at school she need protect more flu ...' (Interview B19).

The influence of personal experience

The attitudes of many of the participants towards preschool immunisations were shaped by their personal experiences during childhood. One mother believed that the vaccine against tuberculosis is the most important vaccination, as 'that's the only important one that they do back home ...' (Interview B2i). Several participants related their own positive experience of immunisation to their current views on preschool immunisations. One woman talked about how her father took 'care to immunise us as kids' and therefore she has 'an idea about immunisations for the kids ... I think it's a good idea' (Interview A1). Another participant believed that 'it's really a good opportunity that we have it [preschool immunisation],

[be]cause I think back home a lot of people they don't get it ... when they have small virus ... they get really poorly and they die quickly' (Interview B10).

Conversely, other participants believed that immunisations are 'not really that important because we never had that back home' (Interview B2i). One woman explained the manner in which her own experience had shaped her belief in the need for preschool immunisations: 'we [Somali women] don't believe that it's gonna help them [children] anything ... basically we don't believe all injections does anything. Because in our country we didn't have one injection ... and as you can see we are healthy and everything!' (Interview B5). This opinion was reiterated by another participant who 'never got it done' and 'never had any harms' (Interview B12i).

The UK urban environment as a potential threat to health

Several participants drew a clear distinction between the importance of vaccinating children in Somalia compared with vaccinating them in the UK: 'it's different you know, compared to our country it's different in here [UK]' (Interview B5). Another participant stated that 'I think the problem – where do you live? [Be]cause when you live the tropical city like my country, it's different ... when you live here it's ... different' (Interview B6). The environment in the UK was viewed as a potential threat to their children's health, as it was perceived as overpopulated and dirty, thus increasing their children's vulnerability to disease. As one participant explained, 'when it was our country [Somalia] ... you've got big country ... it was healthy, every day what you eating, it's healthy ... and we don't do injection, but if you come here you have to do it because the environment ... the ground is small and the people, population is big ... and here it's cold country – you have to!' (Interview B11). This participant emphasised that, in the UK, 'the roads is more ... and too much cars ... [this part of the city], it's not a clean place when you go to there, it's the dirtiest place in [this city]!' (Interview B11).

Personal beliefs and practices

This theme addresses the personal beliefs and practices of the Somali mothers, and the way in which they mediated beliefs about health and illness. The data suggest that these beliefs are shaped by the social and cultural interpretations of Islam and practices associated with them.

The role of ideas related to Islam

Many of the participants reported that religious belief per se did not play a critical role in the decision to immunise their child, as 'our religion don't prevent ...

anything that has to do with improving your health' (Interview B3i). Another participant explained that 'religion doesn't really play a role in my decision.' This was due to the fact that 'in our religion it says whatever that's good for your health ... just do it' (Interview B14i). Indeed, maintaining one's health and the family's health is seen as an obligation in Islam, and the prevention of illness is highly valued (Brooke and Omeri, 1999). However, although most of the women were not against preschool immunisations, they did not necessarily believe in the capacity of vaccines to prevent disease, believing instead 'in God and whatever happens to that child, [be]cause God gave it to her' (Interview B2i). Many of the participants believed that it was Allah who protected their children, and therefore it was ultimately in Allah's gift as to whether or not their child became sick: 'I do believe it [immunisations] ... reduce diseases. But God knows – he can bring the kids to be sick or not to be sick basically' (Interview B8i). This attitude to health and illness, which might be characterised as fatalistic, was evident in several of the interviews, and was most clearly expressed as 'if something's going to happen, then it's gonna happen' (Interview B2i). Fatalism is the belief that all events are predetermined and therefore inevitable, so that there is an unavoidable tension between fatalism and autonomous behaviour (Esposito, 2003). However, in this study, such an attitude did not necessarily prevent mothers from vaccinating their children, but it did appear to affect their confidence in the ability of immunisations to avert disease. As one participant explained, 'it's our responsibility to check our kids and they're in good health and we do as much as we can ... if after I protect them something happens, so that's out of my control, nothing I can do about it' (Interview A1). Another participant explained that 'whatever is going to happen is going to happen ... you just have to believe in these kind of things' (Interview B7).

Gelatine as a constituent part of the vaccine

Interpretations of religious texts also played a role in the participants' trust in the ingredients of vaccines. This was particularly evident with regard to the MMR vaccine and their anxiety that it contained gelatine, a pig-based product forbidden in Islam. Their response to this fear varied. Some women held the view that 'it's only injection' and that it is not a major concern because 'it's not food every day' (Interview B19). Another participant explained that 'if somebody sometimes they are really sick and maybe they need that medicine from gelatine ... it's permitted' (Interview B17).

Nevertheless, several other participants regarded gelatine as a significant barrier to immunisation: 'it got haram things like the pig ... that's the most of thing

we don't like' (Interview B5). One woman stated that her anxiety about the vaccine containing gelatine prevented her from immunising her child: 'if there wasn't the gelatine in it ... she would have got it done as well. Because of the gelatine ... definitely she wouldn't get it done' (Interview B12i). For several participants, the presence of gelatine was mentioned as a factor as significant as their fear of autism in preventing them from vaccinating their child against MMR.

Knowledge and understanding

The mothers' confidence in the immunisation programme was based on their knowledge and understanding of the immunisations and the benefit of these to their children's health. This theme explores their situated understanding, which was a product of community narratives and personal experience, the lack of specific biomedical knowledge among the Somali community, and the lay interpretations of preschool immunisations.

Lay interpretations of immunisation

The participants' understanding of immunisation was shaped by their personal experience and social interactions with others from their community, rather than by biomedical knowledge. Many women attributed the lack of scientific knowledge among the Somali community to the fact that many of them had to leave Somalia before they had completed their education. One mother explained that 'when I finished secondary school, the war started, I didn't go to college and most of the Somali woman they didn't go to school ... they don't have a knowledge' (Interview B11). Another participant added that many of her friends 'don't have a good idea about immunisation', and so many mothers 'didn't do the immunisation up to date to their kids' (Interview A1).

One participant talked about her own lack of biomedical knowledge and how she 'hasn't got a much explanation' about preschool immunisations, which causes her to be fearful of vaccinations. She explained that 'as soon as I take my child there [to the GP] they start injecting the child and I don't know what that is ... and then at night time he might just have a fever or anything ...' The mother explained that 'I don't understand what they just did to my child and whether my child in the future will be [disabled]' (Interview B2i).

Unable to draw on biomedical information about the mechanisms of immunisation, the participants were anxious about the possibility of causing harm to their small children. One mother explained that 'if you ask all the Somali woman [about preschool immunisation] ... they will go "No, very bad!" To them it's like, why would I interfere something if my

child already doesn't have it? ... Why put something in them?' (Interview B1). Another participant described how some women view the vaccine as containing 'five different diseases in one injection, in one needle.' This scares many mothers, who think 'he's a baby, he's very small, he cannot take five different doses in five different diseases in one. So it's going to hurt him instead of taking benefit from him' (Interview A1).

Social obligation

The participants stated that mothers in the UK have a social obligation to vaccinate their children. This was cited as one of the reasons for immunising their own children, irrespective of whether they believed they were doing the right thing. One mother feared that an incomplete vaccination history would be detrimental to her child's future educational prospects: 'when your child starts school they check the red book ... if the child doesn't have all these immunisations then obviously the school is not going to take them.' She then talked about the problems her child might face 'when he grows up or when he decides to go to university ... they might just check up on his past health and if they see there on his record that the child didn't have the MMR or any ... he might have a problem' (Interview B2i).

The participants also described their perceptions of the extent to which preschool immunisations are mandatory in the UK. One participant talked about the fact that 'the GP has sent out letters saying that she must bring her child' and so 'she thought well I don't have a choice I have to take my child now' (Interview B2i). Another participant explained that 'it feels like we have to have it, all the others ... but you can say no to MMR!' (Interview B5).

The need for the provision of information

Many women were aware that they had insufficient knowledge about how immunisation works in children and how immunisation policies are implemented in the UK, and they attributed this to the poor provision of information to the Somali community. The majority of the participants stated that they had not received any written information in Somali about preschool immunisations. One participant asked whether 'the GPs could bring out more information ... other people who can speak the language ...' in order to 'help them understand ...' (Interview B7).

Several mothers also mentioned communication as a 'big barrier' for them to 'know what we need or what exactly this thing is going to be, the benefit of this service for us' (Interview A1). One participant explained that 'it would be nice if you could just pass it and tell anyone from the NHS if they could just explain to them and then the fear that they've got at the moment [would disappear]' (Interview B2i).

Discussion

This is the first study to specifically address the health beliefs of migrant Somali communities in the UK with regard to preschool immunisation. It explored the health beliefs of Somali women residing in Birmingham, and provided some insights into the views of this growing minority ethnic community.

It is evident that perceptions of risk were mediated by three main factors, namely women's social network, their knowledge and understanding about the relative risk of infection versus vaccination, and their own experience. These factors highlighted the way that the women shaped decision making in terms of balancing the potential harm to their children as a result of infection and the harm that might arise from vaccination.

The participants' social network played a significant role in their beliefs about preschool immunisations. There was a strong emotional component to the decision-making process, which was characterised by mistrust and fear. This was especially evident when considering the potential side-effects of vaccines, and it was further exacerbated by frightening stories circulating among the Somali community which many participants believed strongly enough for this to affect their immunisation practice. The influence of the social network was particularly evident in relation to attitudes towards the MMR vaccine.

Fear surrounding the MMR vaccine was fuelled by both a lack of relevant biomedical knowledge and the influence of rumours about the possibility of damage. These rumours persist despite publicity which discredited the study by Wakefield *et al* (1998). Previous research (Brownlie and Howson, 2005; Brown *et al*, 2012) explored the considerable influence of friends and family on mothers' decision making about the MMR vaccine. Participants often mentioned the MMR vaccine, the controversy surrounding its link with autism, and the subsequent effect that this had had on their willingness to vaccinate their child. They cited second or third-hand experience of a link between MMR and autism, and the subsequent effects that this had had on their own opinions about the safety of the vaccine. This phenomenon was also evident in our study, in which several mothers talked about family members or friends whose children appeared to have become autistic after receiving the MMR vaccine. The validity of these claims is impossible to verify. However, what is obvious is the extent to which this fear has penetrated the Somali community and continues to influence decision making about the MMR vaccine. Appropriate information that explicitly addresses anxieties and suspicions, as well as a closer relationship between the local Somali community and healthcare professionals, are essential for improving the

uptake of immunisation against measles, mumps and rubella.

Ehreth (2003) discusses the idea that the decision to vaccinate is often made on a vaccine-by-vaccine basis, a phenomenon that was evident in the specific fear and apprehension among the participants about the MMR vaccine and its purported link to autism. Individuals often had limited knowledge, which added to their dilemma of balancing the risk of infection against the fear of the long-term consequences of vaccination. This sense of conflict between harm and benefit was a theme explored by Brownlie and Howson (2005), whose study participants discussed their fear of making the wrong decision and exposing their child to potentially harmful diseases or to the risk of autism. Parents felt directly responsible and feared subsequent feelings of guilt, a view that was also expressed by participants in our study.

It is important that parents receive the necessary information to enable them to make an informed decision about preschool vaccination. The evidence suggests that parental decision making about preschool immunisation involves seeking both formal and informal information (Marshall and Swerissen, 1999). Similarly, the participants in our study used a variety of sources to obtain information about preschool immunisation and reach a decision about their child. These included discussions with friends, family and religious advisers, as well as research on the Internet. However, several participants mentioned a lack of written information in Somali about preschool immunisations, and a general lack of knowledge among the community. This is a serious issue which arguably affects the ability of mothers to give informed consent with regard to their child's preschool immunisations. It is therefore important that accurate, reliable and up-to-date information is provided to the Somali community, and that healthcare professionals work closely with religious advisers so that mothers can be appropriately counselled.

Many of the participants explained that their previous experience had influenced their opinions and practice with regard to preschool immunisation. The decision to vaccinate is made in the context of life experience, and is a dynamic process that changes over time (Marshall and Swerissen, 1999). This was evident in the extent to which personal experiences in Somalia influenced the attitude of participants towards preschool immunisation; several women recalled high levels of morbidity and mortality among unvaccinated children in Somalia, and so attached increased importance to preschool vaccination. Others believed that preschool immunisations were not necessary, as they had no recollection of being vaccinated as children and yet had remained healthy, which affected their confidence in the ability of immunisations to prevent disease. Vaccination programmes in Somalia

are not as robust as those in the UK, and access would not necessarily have been uniform across the country, with additional variation between rural and urban areas (Cassell *et al*, 2006; Macassa *et al*, 2011). The participants' own experiences of vaccinations could therefore have been shaped by where they lived in Somalia. However, it is important that, despite their own experiences, Somali mothers are made aware of the importance of preschool immunisations in improving child health beyond their own family and community. This might include information about *herd immunity* and the consequences of suboptimal vaccination.

Despite the various health beliefs expressed by the participants, most of the mothers did vaccinate their children. However, their decision was not necessarily based on rational information, but on the fear that an incomplete immunisation history would be detrimental to their child's future educational prospects. Other reasons for vaccination included a perceived social obligation as well as a belief that the environment in the UK posed a greater threat to their child's health than that in Somalia.

Limitations of the study

There are both methodological and ethical challenges when conducting cross-cultural research, especially in relation to interviewing (Redwood *et al*, 2012). These include differences in the social position of the participants and the researcher, as well as in their educational background and understanding of the topic under investigation.

Building and maintaining trusting relationships with the organisations that provided services for potential participants was an important part of the recruitment stage, and enabled staff in community organisations to help to bridge the gap between the researcher and potential participants.

Face-to-face interviews are inherently subject to social desirability bias, that is, the tendency for participants to answer questions in a manner they view as socially acceptable (Garrett, 2010). In our study, social desirability bias could result in over-reporting of vaccination uptake and positive views about preschool immunisations leading to a false representation of attitudes among Somali mothers. However, the range of opinions and health beliefs expressed during this study indicates that this form of bias may not have had a significant effect on the data collected. The participants discussed non-adherence to certain vaccinations and mentioned their suspicion of the MMR vaccine, issues that they would not have discussed if they had wanted to answer questions in a socially acceptable manner.

A further issue relates to the reliability of the data, as the study was conducted by a white non-Muslim researcher who explored the participants' views on a topic that appeared to be influenced by religious belief and culture. Appropriate dress was therefore important, as was an open, non-judgemental manner when potentially sensitive topics were discussed. The researcher's lack of religious affiliation may have enabled the participants to discuss the impact of religious belief on their decision making without feeling under pressure to conform to any particular expectations.

Interpreters were required for seven participants, and were enlisted from the centres at which the participants were recruited. Although external interpreters are preferable, the centres involved in this study were located at the heart of Somali communities. These communities are very close-knit and take time to trust outsiders. We considered the use of an external interpreter inappropriate because it could have negatively affected the trusting relationship that had been developed with the participants, and thus limited the reliability of the data. However, the short time period allowed for this study meant that we did not account for the effects of the interpreters on the data, which may have limited the cross-language trustworthiness of the translated data (Squires, 2009, p. 285). This refers to factors that could compromise the credibility and transferability of translated data.

Conclusions

Our findings indicate that the Somali mothers in this study generally had positive attitudes towards immunising their children, but that they had specific concerns and anxieties about the MMR vaccine. The participants referred to stories circulating in the local communities and limiting their confidence in the safety of the vaccine. Social and cultural interpretations of Islam and practices associated with them affected the decision making of some mothers with regard to both the ingredients used in the MMR vaccine and their confidence that immunisations prevent disease. Our study highlights the importance of women's understanding and perception of risk and how these shape decision making in relation to potential harm to their children as a result of infection on the one hand, and as a result of vaccination on the other. Risk perceptions were mediated by the women's social networks and social norms, their knowledge and understanding about the risk of infection versus vaccination, and their own experience. Their decision making had a strong emotional component, which was characterised by mistrust and fear. Appropriate information that explicitly addresses anxieties and suspicions, as well as a closer relationship between

the local Somali community and healthcare professionals, will be crucial for future vaccination services to ensure adequate uptake.

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NT and SR developed and designed the study. NT carried out data collection and analysis, supervised by SR. NT produced the initial draft of the manuscript, which was revised and developed by SR. Both authors agreed the final draft.

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CONFLICTS OF INTEREST

None.

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