ORIGINAL SCIENTIFIC PAPER

QUALITATIVE RESEARCH

Factors contributing to high immunisation coverage among New Zealand Asians

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ABSTRACT

INTRODUCTION: While New Zealand (NZ) immunisation coverage has improved steadily over the years, there is inequity between ethnic groups, with rates lower in Māori and Pacific people and highest in Asian people. This qualitative study aimed to identify attitudes and behaviours of NZ Asian parents of children under the age of five years that might contribute to their seeking immunisation for their children.

METHODS: In-depth, semi-structured interviews were conducted to explore attitudes, values, experiences, knowledge, behaviour and perceived barriers regarding childhood immunisation. Transcripts were analysed using a general inductive approach.

FINDINGS: Key themes identified were a general positive attitude towards immunisation, being well-informed and aware of the value of immunisation, accepting governmental encouragement to use immunisation services, and perceiving minimal barriers to immunisation services access.

CONCLUSION: The findings of this study suggest that high immunisation coverage rates among NZ Asians may be primarily due to parental attitudes, rather than the quality and accessibility of immunisation services in NZ.

KEYWORDS: Asian continental ancestry group; child; culture; ethnic groups; immunisation; qualitative research

Introduction

In June 2012, the New Zealand (NZ) immunisation coverage rate for the childhood immunisation series was 92% for the previous one-year reporting period.[1] Although the rate has improved over the years, it still has not reached the international target of 95% coverage required to reach herd immunity within a population.[2] Factors impeding achieving the 95% goal include socioeconomic status, structural issues in immunisation delivery, attitudes towards immunisation, and cultural and ethnicity barriers.[3–5]

This study focuses on the influence of ethnicity and culture. There is obvious disparity in immunisation coverage for different ethnic groups in NZ.[1] Research to date has focused on ethnic groups with low levels of coverage, particularly Māori and Pacific people.[5] Strategies employed as a consequence of such research have brought some improvement, especially in the coverage rate of Pacific people, now higher than the national average at 95%.[1]

However, less attention has been given to ethnicities with high coverage. The NZ Asian population has the highest immunisation rate of any ethnicity (96%). Generally, NZ health sector reporting of ethnicity categorises the population into 'Asian', 'Māori', 'Pacific peoples' and 'European' and 'other'. The Asian ethnic group, as defined by the Asian New Zealand Foundation and used in this study, is an aggregate of people from 24 different countries, including people originating from east and south of Afghanistan, but excluding those from Middle Eastern countries.[6] This differs from the NZ census, which also includes Fijian Indians in the Asian ethnic group.

Attitudes of Asian peoples towards childhood immunisations have been investigated interna-

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tionally.[7–9] These studies show that Asian parents generally maintain a positive attitude towards childhood immunisations and have high rates of immunisation uptake, where immunisation service and delivery are accessible.[7,8] In NZ, the Asian population is rapidly increasing, but their health remains under-researched.[10]

Rather than focusing on why children in some ethnic groups have low immunisation rates, we hypothesised that understanding the reasons why some groups ensure timely vaccination of their children may help inform strategies to improve childhood immunisation coverage and, if applicable, may help reduce ethnic inequities, and hence, improve the NZ overall immunisation rate.[1,11]

The aim of this study was to identify attitudes and behaviours of NZ Asian families that might contribute to their seeking immunisation for their children.

WHAT GAP THIS FILLS

What we already know: Although immunisation rates have increased steadily in New Zealand (NZ), discrepancies for coverage between ethnicities still remain. The Asian ethnic group has the highest immunisation rates in NZ.

What this study adds: The high immunisation rates in the Asian ethnic group in NZ may be due to Asian parents generally having a positive attitude towards immunisation, being well-informed and aware of its value, accepting governmental encouragement to use immunisation services, and perceiving minimal barriers to immunisation services access.

Methods

Study design

The study was undertaken among NZ Asian parents of children under the age of five years living in Auckland. Qualitative methodology was used to explore their attitudes, values, experiences, knowledge, behaviour, and perceived barriers regarding childhood immunisation. In-depth, face-to-face semi-structured interviews were conducted with parents to address the research question. A qualitative methodology was chosen in order to yield rich information in a previously unexplored health topic.

Interview schedule design

The design of a semi-structured interview schedule was informed by a review of the literature to identify key areas to be explored (see Appendix A in the web version of this paper). The main areas of focus were parents' general attitudes and opinions on childhood immunisation; their experiences with the childhood immunisation service, either in NZ or their birth country; and opinions on immunisation-related information and perceived barriers to immunisation. Demographic information collected included ethnicity, length of residency in New Zealand, and the child's immunisation status.

Study procedure

The study aimed to conduct interviews that would last approximately 40 minutes. The interview process was modified in order to adjust the participants' preferences based on their cultural values, if needed. For instance, the request for both parents to be interviewed was accommodated on two occasions. Interviews were continued until data saturation occurred and were conducted during a four-month period, from July to November 2011.

Participant recruitment

Participants were consenting parents of an Asian ethnic background, with a child or children under the age of five years, living in Auckland. Exclusion criteria included individuals unable to speak English and unavailability of a suitable interpreter. Sampling was purposive, aiming for maximum diversity. Participants were recruited through community-based organisations identified through a website providing information on Asian groups based in Auckland. In addition, emails were circulated to the investigator's networks to reach potential participants who were of Asian ethnicity but not necessarily in a community group, and flyers containing study information were also distributed at an Asian festival.

Ethical approval

Ethical approval for the study was obtained through the Northern Regional A Ethics Com-

Table 1. Participant demographics

Participant	Gender	Age (years)	No. of children	Ethnicity	Religion	Country of birth	New Zealand residency (years)
1	Male	30–39	1	Indian	Sikh	India	NR
1A	Female	20–29	1	Indian	Sikh	India	NR
2	Male	40–49	1	Malaysian Chinese	Christian	Malaysia	NR
2A	Female	30–39	1	Malaysian Chinese	Christian	Malaysia	NR
3	Male	40–49	1	Korean	–	Korea	NR
4	Female	30–39	1	Korean	Christian	USA	30
5	Male	30–39	3	Filipino	Catholic	Philippines	4
6	Female	30–39	1	Korean	Christian	Korea	31
7	Female	30–39	2	Hong Kong Chinese	–	Hong Kong	21
8	Female	30–39	2	Hong Kong Chinese	Christian	Hong Kong	15
9	Female	30–39	2	Chinese	Buddhist	Malaysia	19
10	Female	30–39	1	Chinese	Catholic	Hong Kong	19.5
11	Female	30–39	1	Chinese	–	China	11
12	Female	30–39	1	Chinese	–	China	7
13	Female	30–39	3	Bangladeshi	Islam	Bangladesh	11
14	Male	30-39	2	Indian/Australian	Hindu	India	13
15	Female	30–39	1	Chinese	–	China	10
16	Female	40–49	3	Sri Lankan	Buddhist	Sri Lanka	0.8
17	Female	30–39	1	Myanmar	Buddhist	Myanmar	6.5
18	Female	30–39	1	Malaysian	–	Malaysia	15

NR Non-resident status

mittee (Ref. NTX/11/03/001). A participant information sheet on the aim and nature of the study was provided, and written informed consent was obtained from each parent who agreed to participate.

Data collection

Interviews were arranged by phone and conducted at a place of the participant's convenience. Audio-recording and handwritten notes were used with permission. Interviews lasted 30–40 minutes and were fully transcribed. Interview data were collected in an iterative process in which themes from the early interviews were specifically checked in later interviews. Interviewing ceased once data saturation had occurred, with no new themes emerging.

Data analysis

Interviews were transcribed verbatim and anonymised. Identifiable information from consenting participants was held separately in password-protected files. Audio-recordings were deleted from the recording device once they were transferred to the computer.

Thematic analysis was used to identify patterns and themes across all interview transcripts.[12] Transcriptions were read several times before individual written interview responses were inductively analysed to identify themes and subthemes. Interviews were then collated and analysed for emerging categories, which were combined into major themes through ongoing discussions between the researchers until con-

sensus was reached about the main themes being expressed. Theme codes were applied to the data. Data were independently coded by two researchers, with discrepancies resolved through adjudication. Codes were collapsed into thematic groups, to develop the final list of themes and subthemes.

Findings

Characteristics of the participants are outlined in Table 1. A total of 20 parents were interviewed in the age range of 20–49 years. In two cases, both mother and father were interviewed; hence, the findings relate to 18 children. There were 15 mothers and five fathers interviewed, with the majority having one child, and a maximum of three children. Five of those interviewed were not yet NZ residents, with the remaining 15 having been resident for less than one year through to 31 years. None were NZ-born and there was diversity of ethnicity and birth country (India, Bangladesh, Sri Lanka, Malaysia, Korea, United States–born Korean, Myanmar, the Philippines, Hong Kong and China). Participants were of a variety of religious affiliations, including Buddhist, Sikh, Muslim, Hindu and Christian. All 18 children to whom the study related were fully vaccinated according to the NZ schedule.

The four key themes identified were: a general positive attitude towards immunisation, being well-informed and aware of the value of immunisation, governmental encouragement to use immunisation services, and perceiving minimal barriers to immunisation services access.

General positivity towards immunisations

The most prominent theme was a general positive attitude towards immunisation, expressed by all participants. Three subthemes that were underlying factors were culture and tradition, trust in vaccines, and belief that any potential risks were outweighed by benefits.

All participants reported being immunised as children themselves and immunisation was seen as a tradition passed through generations. Grandparents often were involved in children's immunisation in one form or another (after-care or reminding the parents of due dates).

> We grew up that way so we'll do it for our children 'cause our parents did it for us. It's just something that has already been ingrained kind of in us, you know. (#2)

> Yeah [it's something my parents did]. So it's like a tradition to immunise. (#17)

Immunisations were seen as an integral part of life for the participants, as demonstrated by these quotes. The normalisation of childhood immunisations may be a contributing factor in high immunisation rates among the Asian population.

Most participants placed considerable trust in vaccines, the government and health professionals. A difference was observed based on the length of residency. Participants who had lived outside their birth country for over 20 years placed greater trust in medical science and safety of vaccines, whereas short-term NZ residents had more trust in the government and their health professionals.

> I do believe that these people from the health or whatever, they know what they are doing... We trust that they know what they're doing. (#2)

> But if the New Zealand government thinks ... these are the good vaccinations for children, then I'll probably agree that because it must be the suggestion from the specialist who are professionals. (#11)

As suggested by these quotes, participants shared a firm belief that the health sector would only endorse beneficial health services and sufficient research would be undertaken by NZ authorities to ensure vaccine safety. Trust in vaccines and health professionals are important to maintain immunisation uptake.

Some concerns were raised, but were offset by recognition of benefits provided by immunisations. Parents were aware of possible adverse effects or had heard incorrect or exaggerated risks of childhood immunisations, but chose to vaccinate their children regardless.

> I do hear about sort of odd risks here and there but I think the benefits [are] far, far greater and I think it's essential to get immunised. (#3)

> Generally I'm for it. ... I think the biggest ... controversy was the MMR with the link to Asperger's and autism ... and I must admit I was like a bit concerned about that. But then all of that study [was] shown to be not valid anyway. (#6)

> Vaccination yes... risk... everything has a risk but I think the risk of putting them through three, six, 12 months' worth of pain, suffering, organ damage... liver... all those things. ...I think I'd be a very poor parent if I did that. (#14)

These quotes show the risk–benefit analysis participants undertook in order to reach their final decision to immunise their child. This finding is important in showing that although childhood immunisation may be a norm in the Asian ethnic group, their choice is nevertheless well informed.

Information and awareness

Participants were generally well informed and aware of the importance and purpose of childhood immunisations. There was general understanding among participants regarding possible side effects, as well as negativity surrounding immunisations, but these concerns did not have a negative effect on their decision to immunise.

> He was my boss and he said 'Oh we don't believe in vaccines', and I said 'But you believe in God?' And he didn't really like my comment. I said, 'You're an educator. Stop being such a nutter... a tree-hugging hippy.' (#14)

Acknowledgement of anti-immunisation groups showed the participants' knowledge and awareness of childhood immunisations. Participants were aware of anti-immunisation lobbyists and commented that these movements could possibly erode public confidence in vaccines.

General practitioners and the *Well Child/Tamariki Ora Health Book* (provided to parents as part of the NZ Well Child Programme) were quoted as being the primary sources of information. Other health professionals, such as midwives and Plunket nurses were also valuable sources of information for most parents. Plunket is an organisation providing health services for babies and young children up to the age of five years. Plunket nurses provide new mothers with home visits and educate them and provide information on immunisations as part of their service.[13]

> Yes, we can always ask the Plunket nurse or always ask the GP. They [are] happy to help us understand that. (#12)

Additional information was sourced by most participants and those who had not looked up extra information knew where to access more information if needed.

> I did speak to a few paediatrician colleagues of mine. But yes, I did look at the internet and looked at what scientific evidence is available on the topic. (#16)

This finding was important in highlighting and reiterating that the study participants were knowledgeable of both the benefits and associated adverse events of childhood immunisations. This finding also shed light on the methods undertaken by participants to alleviate concerns and to make a fully informed choice regarding childhood immunisations.

Encouraging immunisation services

Participants commented on the immunisation services in NZ and their respective home countries as having some level of influence on their decision to immunise. The two subthemes were an appreciation of NZ immunisation services and their home countries also encouraging immunisation.

Most participants highlighted appreciation of immunisation services provided in NZ. Participants commented on the services provided by Plunket. In addition, general practices were seen as effective in maintaining immunisation uptake and ensuring the process is an easy one. Participants acknowledged the ease of getting children immunised in NZ. Some participants stated that there was more trust placed in NZ authorities than in their home countries.

> I think the Plunket system is not bad because in other Asian countries they don't really have such a comprehensive system to take care of baby and mothers, so I think that's a good thing. (#10)

In some cases, participants commented on the accessibility and affordability of immunisations in NZ. Free immunisation services in NZ were a welcome change, as some participants recalled immunisations in their home countries being quite costly. The ease of getting children immunised was a driving factor for participants.

> That's why we [are] happy.... this country's health system. In our country we have to pay lot of money if we get some disease or if our child needs to get immunised. (#13)

In most instances, participants recalled their home countries having well-established immunisation services and promoting childhood immunisations. Therefore, most were already aware of the importance of vaccinations and were keen to get their children immunised, even after migrating to NZ.

> Yeah, they had quite a good programme when I was born already and it was free and it's quite readily accessible as well. (#8)

This theme recognised and commended the organisation of the NZ immunisation service. Participants most frequently mentioned the ease of accessing immunisation through primary care. In addition, free childhood immunisations and the comprehensive care provided by Plunket, working alongside primary care, was appreciated by participants.

Minimal barriers

Participants were asked about any potential barriers they may have faced in getting their children immunised. The majority did not face any difficulties in accessing timely childhood immunisations.

> No waiting time at all... 'cause normally we book in quite early and it's always available on that day. Like for the last immunisation, if I want to go on that day or even I think like changes, I can always get the day that I want. It's quite easy. (#10)

Participants also mentioned that if there were any obstacles or difficulty in getting their child immunised, they would find a way to overcome those barriers.

> For the... I think for the first, well up to five months, I was having maternity leave by that time. So that was alright. The one at 15 month, I think I probably... I took a morning off to take him to the doctor. (#12)

Participants who had lived outside their country of birth for over 20 years placed greater trust in medical science and the safety of vaccines, in contrast to short-term NZ residents who had more trust in the government and NZ health professionals

Participants made suggestions of strategies and resources that could further improve uptake. These included provision and distribution of different resources, such as DVDs for immunisation-related information. Translated resources in multiple languages were also suggested (although these are already available in NZ), and to be easily accessible to those in lower socioeconomic groups. Participants also mentioned that there was a need for more information on non-funded vaccines, such as the rotavirus vaccine, which was unfunded at the time of this research.

Discussion

The Asian population in NZ is primarily a new immigrant group,[14] with the highest immunisation coverage rates of any ethnicity in NZ.[1] Asian immigrants in a Canadian setting similarly have been found to have high immunisation coverage.[15] Ethnic discrepancies in immunisation rates have been raised internationally[16,17] and are also observed in NZ coverage.[1,5] However, these studies have focused on ethnic groups with low coverage. Our data suggest multiple enabling factors may explain the high coverage observed among NZ Asians. These were operating for diverse Asian ethnicities, including Chinese and Indian.

Almost all participants demonstrated a combination of positive attitudes, being well informed, finding NZ immunisation services encouraging,

and facing minimal barriers. Several other studies have confirmed the association between immunisation coverage and parental attitudes.[18–21]

Participants who had lived outside their country of birth for over 20 years placed greater trust in medical science and the safety of vaccines, in contrast to short-term NZ residents who had more trust in the government and NZ health professionals. This shift in the focus of trust within Asian immigrants may be explained by their tending to adapt to the host country's lifestyle patterns with increased length of settlement.[14]

Study participants described undertaking a risk–benefit assessment before immunising their child. A study in the United Kingdom (UK) designed a decision-making process model to explain parents' reasons for not immunising their children and showed that these parents undertook a risk–benefit analysis as well.[22] While the UK parents reached a different decision to participants in the present study, they felt that their decision not to immunise was an informed one. Similarly, participants in this study demonstrated the choice to immunise their children was informed and they were well aware of both the benefits and associated risks of immunisation.

General practitioners were reported to be the primary source of information about immunisation. This finding is similar to the results of a study which examined parental attitudes to immunisation across five European countries.[23]

Although a NZ study previously found that practice nurses raised culture and language as barriers to immunisation coverage for Asian people,[24] our study participants reported minimal barriers in accessing immunisations. Clinic hours, language competency and related costs were not raised. Some participants reported taking time off work to take their child for immunisation, but this was organised well in advance. One participant reported transportation problems and sought public transportation or friends' help to get to immunisation appointments. This indicates that Asians parents may actually face barriers, but overcome these because they give childhood immunisations a high priority.

Most parents reported accessing immunisation information from more than one source. This is similar to findings of another UK study, which reported that most participants obtained information from several sources when deciding whether or not to immunise their children.[25] In this study, parents of fully-immunised children were more likely to be satisfied with information obtained, which may explain the association between information and full immunisation status of children in our study.

Strengths

One of the strengths of the study was the diverse range of participants in terms of ethnic subgroups, religion, socioeconomic status, and length of residency in NZ. The study yielded a rich dataset because interviews were continued until complete data saturation was achieved.

Limitations

Some limitations of this study require that the findings are interpreted with caution. Given the study's qualitative nature, it is difficult to extrapolate results to other groups. Furthermore, responses may have been influenced by participants answering in a socially desirable manner. Asian parents who could not speak English were not a part of this study. We also were unable to find any Asian parents to participate in the study who had not immunised their children and, clearly, such participants might have presented a different perspective.

In addition, it is also important to note that this research study does not address the complex heterogeneity of the Asian population in NZ. Future research could be undertaken to investigate immunisation attitudes and behaviour in subgroups of the NZ Asian population.

Final comments

Our findings suggest that reasons for high immunisation coverage rates among NZ Asian people are attitudinal, rather than logistical. The study identifies enablers contributing to high uptake of childhood immunisation by NZ Asians.

While it may be difficult for these findings to be extrapolated to improve coverage rates of other NZ ethnic minorities, participants recommended certain changes that could be employed in order to further improve immunisation rates, including additional resources for parents. Attitudinal change by parents towards the value of getting timely vaccination of their children is likely to have the biggest impact in improving immunisation rates in families of other ethnicities.

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COMPETING INTERESTS
None declared.