How parents make decisions about their children's vaccinations

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A R T I C L E   I N F O

Article history:
Received 15 May 2013
Received in revised form 17 August 2013
Accepted 28 August 2013
Available online 25 September 2013

Keywords:
Vaccination
Parents
Decision-making
Qualitative research

A B S T R A C T

Background: Continued parental acceptance of childhood vaccination is essential for the maintenance of herd immunity and disease prevention. As such, understanding parents’ decision-making in relation to their children’s vaccinations is vitally important.

Objective: This qualitative study sought to develop an understanding of the general process parents go through when making decisions about their children’s vaccinations.

Methods: Interviews were conducted with U.S.-born parents living in King County, Washington who had children ≤18 months of age. These interviews were recorded and transcribed verbatim.

Results: Through the application of grounded theory, a general decision-making process was identified. Stages in this process included: awareness, assessing and choosing, followed by either stasis or ongoing assessment. The greatest variation occurred during the assessing stage, which involved parents examining vaccination-related issues to make subsequent decisions. This research suggests that three general assessment groups exist: acceptors, who rely primarily on general social norms to make their vaccination decisions; reliers, who rely primarily on other people for information and advice; and searchers, who seek information on their own, primarily from published sources.

Conclusions: These results imply that one-size-fits-all approaches to vaccination interventions are inappropriate. Instead, this research suggests that interventions must be targeted to parents based on how they assess vaccination.

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1. Introduction

Vaccination is meant to prevent disease, and according to recent studies it is extremely successful at doing so [1,2]. This success, however, is precarious. It depends on the maintenance of herd immunity, which in turn depends on the continued acceptance of vaccination, particularly among parents who must decide whether or not to vaccinate their children.

In an effort to understand why some parents do not accept complete and on-time vaccination, research has been conducted on a variety of topics including: parents’ knowledge, attitudes and beliefs about vaccines and vaccine-preventable diseases (VPD) [3–9]; the role health care providers play in parents’ decision-making [10–13]; and parents’ perceptions of and experiences with barriers to vaccination [14–20]. While this research offers valuable insights into particular aspects of parents’ decision-making, less research has been conducted on how parents actually reach their vaccination decisions. This paper describes the results of a qualitative study that examined parents’ vaccination decision-making in order to develop a clearer understanding of this process.

2. Methods

Data for this study were drawn from interviews with parents. Participation was limited to U.S.-born parents whose children were ≤18 months of age. These recruitment criteria were chosen to ensure comparability in the sample. Participation was further limited to parents living in King County, Washington, a large, diverse county in western Washington State, historically known for lower than average vaccination rates [21,22].

Parents were recruited to participate through a variety of methods including: flyers hung in parks and community centers, emails sent to parenting listservs, and short presentations made to community groups. All interviews were conducted by the author, an anthropologist, and were recorded and transcribed verbatim. The protocols of this study were approved by the University of Washington IRB.

Grounded theory, particularly as described by Charmaz [23], informed both the data collection and analysis in this study. Following the tenants of this approach, the initial recruitment of parents was purposeful to ensure a sample of parents who made all types of vaccination decisions and who were also diverse in terms of...
age, education and income; characteristics that previous studies [22, 24–27] suggested play a role in vaccination decision-making. Interviews with parents at this stage were open-ended and focused on how parents reached their vaccination decisions.

In compliance with the methodology of grounded theory, coding occurred simultaneously with data collection. Initial coding was open and close to the text, meaning that codes were developed to reflect the actions, intentions and meanings of the respondents, often using their own words. As additional interview texts were coded, constant comparison provided a means to group similar codes into categories.

Once preliminary categories were identified, recruitment of participants shifted from selecting a diverse sample to selecting participants who were able to provide insights that addressed specific questions identified in the emerging analysis. Called theoretical sampling, this process also resulted in the development of more focused interview questions. Topics explored in the resulting semi-structured interviews included: the steps parents took to reach their vaccination decisions, the sources of information they considered, their feelings about their current vaccination decisions and their future vaccination plans. Data collection continued in this vein until all questions in the emerging analysis were answered and the resulting model was fully developed.

Analysis at this stage continued to occur simultaneously with data collection. Coding, however, moved from open, close coding to theoretical coding, which involved making comparisons between codes and categories and categories in order to further define them. Memo-writing, including model drawing, facilitated these comparisons. This process ultimately led to the development of the theoretical model presented in this paper.

As a final step to evaluate the validity of the results, 4 parents who participated in interviews were asked to read and comment on the model. These parents were diverse in terms of their vaccination decisions and were generally representative of the larger sample. Additionally, 4 parents who were not included in any part of this research were also asked to read and comment. After parents’ responses were received they were carefully considered, and as a result a few minor adjustments were made.

3. Results

Interviews were conducted with 15 mothers and 3 couples (Table 1). The findings of this research suggest that the process of parents’ vaccination decision-making is complex, but that a general process does exist (Fig. 1).

3.1. Pre-decision making factors

Parents do not enter the vaccination decision-making process as blank slates; their personalities, backgrounds, and previous life experiences influence their decision-making as well as the decisions they ultimately reach. While life experiences are highly individualized – it is unlikely that any two parents will have identical experiences let alone identical reactions to them – there was one pre-decision making factor that all participants in this research had in common and that was highly influential in the ultimate decisions many of them reached: exposure to general social norms.

Using the definition of norms provided by Ellickson [28], that norms are behaviors considered “normal” and behaviors that are enforced by some type of social punishment, it is clear that vaccinating was the general social norm for participants in this study. The idea that childhood vaccination is normal was pervasive in the interviews. Using words such as “normal,” “the right thing,” and “natural,” participants who made all types of vaccination decisions routinely described childhood vaccination as customary and expected part of life; as one participant described: “It felt natural, it’s like you’re just supposed to do it.”

The existence of social punishments was also apparent. Many vaccinating participants expressed negative opinions about parents who did not completely vaccinate and in some cases even anger. Using words like “lazy,” “selfish,” and “irresponsible,” these participants suggested that parents who did not vaccinate were not doing what was right for the community or their individual children. These negative opinions, in turn, impacted relationships, as one participant explained: “I don’t talk about it [partially vaccinating]. When I did one of my friends started saying ‘That’s crazy! You’ve got to get vaccinated’ and ‘I can’t believe you wouldn’t do that.’ So I don’t talk about it anymore. I don’t want my friends to judge me.”

3.2. Awareness

Actual decision-making begins when parents enter the awareness stage and become cognizant of vaccination as an issue that directly impacts their children. While parents may have a general concept of vaccination prior to this point, until they consider their own children’s vaccinations they have not entered the awareness stage. Once parents become aware of vaccination in this way, they
do not need to become re-aware. Thus the awareness phase is only experienced by first-time parents.

Awareness happens at various times for different parents. In this study, some participants became aware of vaccination before they were ever pregnant. Most participants, however, become aware of vaccination later, either during their pregnancies or shortly after the births of their children.

3.3. Assessing

After parents become aware, they enter the assessing phase. Assessing involves examining issues related to vaccination so that decisions can be made. While all parents go through the assessing phase, the ways in which they do so are profoundly different.

This research suggests that parents' assessing of vaccination occurs along a continuum, ranging from extremely minimal assessing on one end to highly informed and involved assessing on the other. While individual parents may occupy short or extended ranges along this continuum, three primary divisions exist (Table 2): parents who completely accept general social norms (acceptors), parents who rely on others (reliers), and parents who actively search for themselves (searchers). Due to the considerable differences between these groups, additional information on assessing will be considered in light of each of these groups.

3.3.1. Acceptors

Assessing for acceptors is extremely minimal, almost to the point of being absent. The primary consideration for this group is knowledge of general social norms, which in this U.S.-based population was strongly pro-vaccination. Acceptors tend to accept these norms with little or no questioning. Thus, acceptors do not investigate vaccination per se. Instead they assume that there is one right decision to make and that everyone else is making that decision; as one vaccinating participant explained: "It wasn’t a big deal! Everybody gets [vaccines]. When I was little I got them and my brothers and sisters got them. We all got them. It’s just something that people do." These sentiments were seconded by another participant who stated: "It wasn’t something I spent a lot of time thinking about because I just assumed it was a no brainer. I knew I had to do it."

A consequence of passively assessing vaccination in this way is that acceptors tend to be uninformed. This includes being uninformed about the diseases vaccines protect against and when vaccines are meant to be administered. Some of the claims made by acceptors in this study included that most vaccinations are given to 10–12 year-olds, that vaccines are given to prevent bubonic plague, and that smallpox vaccinations are still required for school entry.

3.3.2. Rielers

Assessment for reliers is active, as opposed to the passive assessment of parents in the accepting category. While knowledge of general social norms remains important for reliers, parents in this group are also keenly aware of the norms espoused by their own social networks. In this way, reliers' perceptions of others' decisions play a significant role in their own decision-making; as one vaccinating participant explained: “Everyone I know has gotten their kids vaccinated and that’s kind of a big influence, you know, just seeing that everyone else is doing this.”

Besides being aware of the norms espoused by the people in their own social networks, reliers also depend on these individuals for information, direction and advice about vaccination, as a completely non-vaccinating participant stated: "I started [researching vaccination] by asking people, mainly my friends what they thought. Then I asked the pediatrician." While some reliers may also consult additional sources of information such as the Internet, magazines and books, this is secondary to consulting with those around them, as another participant explained: "My mom sent me a book and I read parts of it and then I just stopped. I thought once she’s born I’ll read it but I haven’t. And then, you know, you meet other new moms and I did talk to some of them about it and that’s why I decided to vaccinate."

The final characteristic of reliers is that they tend to be uncritical, or only minimally critical, of the information and advice they receive, as yet another participant explained: "At the two week check-up I think [the pediatrician] was the one who was like ‘OK you’ll come back at two months for a check-up and vaccinations.’ And he didn’t even ask did we want to or not want to. And I didn’t ask. Honestly, I just trusted that he knew what was best for my son.” Only in cases where reliers have already made their decisions are they likely to reject information or advice from people they would otherwise trust. In this way, reliers are more likely to reject alternative perspectives outright, whether in favor of vaccinating or not vaccinating, without really considering them first.

3.3.3. Searchers

Unlike assessment in the previously mentioned groups, assessment for searchers is both active and highly involved. While searchers are aware of general social norms and the norms of their social networks, this knowledge has little influence on their own decision-making. As one completely non-vaccinating couple explained:

Participant 1: People tell us that we’re privileged to make this decision, that we shouldn’t do it. But I’m like he’s our kid so we’re going to make the best decisions we can for him.

Participant 2: Yeah and not because of any society pressure. Likewise, searchers tend to not rely on others for advice, insights or information. Instead they conduct their own research, primarily through seeking information from published sources including government websites, books and even the primary literature. While they may also consult with a few, often carefully chosen, individuals, this is secondary to finding and evaluating information on their own, as one partially vaccinating participant described: “It was a long, drawn out process. I mean we went back and forth and

Table 2
Characteristics of the different assessing groups.

<table>
<thead>
<tr>
<th>Importance of</th>
<th>Acceptors</th>
<th>Rielers</th>
<th>Searchers</th>
</tr>
</thead>
<tbody>
<tr>
<td>General social norms</td>
<td>Extremely important</td>
<td>Slightly important</td>
<td>Not important</td>
</tr>
<tr>
<td>Social network norms</td>
<td>n/a</td>
<td>Extremely important</td>
<td>Not important</td>
</tr>
<tr>
<td>Sources of information</td>
<td>A key source of information</td>
<td>A minor source of information</td>
<td>Not a likely source of information</td>
</tr>
<tr>
<td>Social networks (friends, family, etc.)</td>
<td>n/a</td>
<td>Slightly critical</td>
<td>A key source of information</td>
</tr>
<tr>
<td>Published sources (books, etc.)</td>
<td>n/a</td>
<td>reliers tend to turn to others for information and advice. While reliers may investigate vaccination themselves they tend to do so only superficially.</td>
<td></td>
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<tr>
<td>Level of critical assessment</td>
<td>Acceptors rely on general social norms as the basis of their decisions. They accept these norms with little or no questioning. They do not investigate vaccination.</td>
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<tr>
<td>Key characteristics of this group</td>
<td>Acceptors rely on general social norms as the basis of their decisions. They accept these norms with little or no questioning. They do not investigate vaccination.</td>
<td>reliers tend to turn to others for information and advice. While reliers may investigate vaccination themselves they tend to do so only superficially.</td>
<td>consider multiple sources of information and are highly critical of the information they obtain.</td>
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</tbody>
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argued a little bit and we made worksheets and we read books and went to workshops and brought back information. And then I found this naturopath who’s known for her expertise in vaccinations and I’ve talked to her about what to do next.”

Searchers also tend to be critical of the information they obtain, as exemplified by one participant’s description of the research relating to the MMR vaccine and autism: “Like the British study that everybody uses that does have concerns about [the link between the MMR vaccine and autism] it was very faulty, I mean 12 children and then several of the people involved have come forward and agreed that there was no evidence for what they came up with.” For searchers, this critical examination generally extends to sources for and against vaccination. Unlike reliers, searchers tend to not dismiss alternative perspectives without considering them first.

3.4. Choosing

After assessing vaccination, parents enter the choosing phase. When choosing parents have several options: on the most basic level they can accept, delay or reject vaccination. Parents can also opt to make blanket vaccination decisions, for example their children will receive all of the required vaccines according to the recommended schedule, they can choose to make decisions on a vaccine-by-vaccine basis, or they can opt to do something in between. As with assessing, when choosing occurs varies from parent to parent. In this study some participants made their choices well in advance, while others held off choosing until the moment vaccines were offered.

3.5. Stasis, reassessment and ongoing assessment

After making initial choices about vaccination, parents enter one of two categories: stasis or ongoing assessment. In stasis, parents’ vaccination decisions remain static. Changes to decisions are not ruled out, but for the present parents plan to keep doing whatever they are doing, as one participant explained: “I’m happy with what we’ve decided and unless something comes up that won’t change.”

Parents can enter the stasis phase at any time and they can stay there indefinitely, even after the births of subsequent children. As one participant who had recently had her third child explained: “I did what I did before. I got all of my other girls vaccinated so of course I didn’t have to figure it out again.” Parents in the stasis phase can also transition out of this category and re-enter the assessing phase. This transition is reassessment.

Reasons for reassessing are numerous. For participants transitioning to vaccinating, reasons provided in this research included having pro-vaccination conversations with others, discovering new information about vaccines or VPD, and believing children’s risks have changed due to increasing age, school entry or travel to foreign countries. For participants transitioning to not vaccinating, reasons for reassessment included feeling a growing concern about the increasing number of vaccinations; having children experience bad reactions to vaccines; and learning about exemptions to vaccination requirements. It is also possible for parents to reassess and ultimately make the same decisions they made before, for example when parents become aware of a vaccine they did not previously know about but ultimately decide to do what they have done in the past.

As an alternative to entering the stasis phase, parents have the option of staying in the assessment phase after they make their initial vaccination decisions. This is ongoing assessment. Parents in the ongoing assessment phase continue to assess issues related to vaccination, although the particular issues vary. While some continue to assess vaccination generally, others only continue to consider vaccinations as they are offered to their children, and yet others only continue to assess specific topics such as a particular vaccine

4. Discussion and conclusions

Previous research has focused on a variety of topics relating to parents’ vaccination decisions [3–20]. While the findings of these studies offer valuable insights that have and continue to inform interventions aimed at improving vaccination rates, there is an implicit assumption that parents develop their understandings, for example a particular belief about VPDs or a certain level of hesitancy toward vaccination, in the same way. The research presented in this paper suggests this is not always the case.

While parents go through a general process to make decisions about their children’s vaccinations, how they do so, and particularly how they assess vaccination, varies. Thus, in addition to considering parents’ understandings, like their beliefs or levels of hesitancy toward vaccination, in the same way. The research presented in this paper suggests this is not always the case.

In relation to interventions specifically, previous research has noted the importance of social norms in regards to parents’ vaccination decision-making [7,29–33]. This study also found that social norms play a key role, particularly in the assessments of acceptors and reliers. Thus, in order to maintain or improve vaccination rates among parents in these groups, it is imperative that interventions are targeted broadly so that they (1) function to maintain a general pro-vaccination social norm (important for parents in both groups) and (2) incorporate the people parents are likely to include in their social networks such as their spouses/partners, family members and friends (important for reliers). If this is not done, it is almost certain that vaccination rates in these groups will not improve and it is even possible that rates will decrease [31,34,35]. Examples of this happening can already be found in some communities in the U.S. and countries around the world [34–40].

Unlike assessment in the accepting and relying groups, assessment in the searching group is not based on social norms. Instead assessment for parents in this group is primarily based on critical evaluations of published sources. In relation to interventions, this type of assessment necessitates that intervention materials be provided to parents in published form and that the materials provide specific information about vaccination and related topics. Additionally, because searchers tend to be critical of the information they obtain, intervention materials would also benefit from the following characteristics: evidence provided for the conclusions reached, a lack of opinions and/or scare tactics, a balanced perspective that realistically considers the multiple types of risks involved and a recognition that not everything about immunity, vaccines or VPD is known. By targeting interventions in this way, the intervention
matters will be more likely to both reach and influence searchers and thus maintain or even improve vaccination rates among parents in this group.

The findings of this research should be interpreted in light of a few limitations. First, qualitative research is inherently ungeneralizable. This means that the results of this study may not be representative of parents in King County or of parents nationally. Second, the research was limited to U.S.-born parents. Thus, the experiences of immigrant groups are not represented in this research. Finally, this study used cross-sectional data to develop a longitudinal model of parents’ decision-making. Future research, including longitudinal qualitative research, studies of different cultural groups and validation of this study’s results through survey research with a larger population, would go far in addressing these limitations and in expanding the understanding of how parents make decisions about their children’s vaccinations.

In conclusion, this research suggests that one-size-fits-all approaches to vaccination interventions are inappropriate. Instead, this research suggests that interventions must be targeted based on how parents assess vaccination, in addition to other topics of interest such as parents’ knowledge, attitudes, beliefs or levels of hesitancy.

References


