

Parents' Vaccine Beliefs: A Study of Experiences and Attitudes Among Parents of Children in Private Pre-Schools

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ABSTRACT

Even among highly vaccinated populations such as Rhode Island (RI), there exists a vulnerability to disease outbreaks. This is the basis for requiring proof of immunization for enrollment into school. Although RI grants medical, temporary, and religious vaccination exemptions, little is known about the beliefs of RI parents who seek exemptions for their children. The purpose of this small-scale, cross-sectional, Web-based survey is to describe the vaccine behaviors and beliefs of parents of children attending private pre-school in Providence, RI.

In spite of limitations, the results provided the intended baseline assessment of the target population. While such findings should be interpreted with caution, they can be used as the foundation for future research and interventions.

KEYWORDS: Pediatrics, Vaccination, Questionnaires, Diphtheria-Tetanus-Pertussis Vaccine, Influenza Vaccines

BACKGROUND

When a critical mass of a community is immunized against a contagious disease, there is little opportunity for an outbreak.¹ However, "community immunity" is limited, especially as the proportion of unvaccinated individuals increases. Even among highly vaccinated populations, there exists a vulnerability to outbreaks of disease.^{2,3,4,5} For that reason, enrollment in many educational settings is contingent upon proof of immunization. For example, public and private schools in RI require that children receive certain immunizations before attending, but with some exceptions;⁶ more than 90% of RI children entering kindergarten are vaccinated.⁷

Objective

The purpose of this survey was to describe the vaccine behaviors and beliefs of parents of children attending private pre-school in Providence, RI.

METHODS

Survey Instrument

This Web-administered survey was designed to capture a moment-in-time representation of respondent characteristics that may be related to vaccine behaviors and beliefs. This mode afforded both anonymity (no information could be linked to a specific respondent) and privacy (there was no social presence of an interviewer, which has been shown to influence responses).

The questionnaire was carefully prepared based on principles related to good survey and question design.⁸ After establishing basic eligibility criteria, the questionnaire covered five topic areas that progressed from the broad to the specific with the most sensitive questions appearing last: (1) eligibility; (2) relationship to the pre-schooler; (3) behaviors related to vaccines; (4) beliefs related to vaccines, including evaluation of information sources; and (5) demographic characteristics.

Participants

The target population for this survey was parents or guardians of children who attend private pre-school in Providence, RI. Several logistical factors contributed to this decision. First, this population has had a relatively recent experience with childhood vaccines and would be more likely to remember the pertinent details about their experiences and beliefs. Second, unlike public schools that require research to be approved by municipal bodies, private schools require only the approval of the headmaster or principal.

Schools that were asked to participate were listed on the Web site: www.privateschoolreview.com; those included in the analysis agreed to distribute the survey link to parents of children in pre-school and generated at least one completed survey. We restricted the sample further and excluded schools with fewer than 50 students; many of the smaller schools were skilled nursing facilities with pre-school-like components.

The survey links were distributed to the Brown/Fox Point Early Childhood Education Center, Federal Hill House Early Learning Center, French-American School of Rhode Island, The Groden Center, Inc., Montessori Children's House, Moses Brown School, Mt. Hope Child Care Center, and Providence Hebrew Day School. Follow-up communication from some schools indicated that the data collection periods ranged from five days to two weeks.

RESULTS

The sampling frame was composed of 26 schools; eight agreed to participate, and five generated at least one complete response to the survey. After excluding observations due to lack of consent (n=10), ineligibility (n=4) and incomplete surveys (n=5), 51 remained in the sample. Respondents' mean age was 37 years, with a range of 25 to 45 years. Female respondents composed 82% (n=42) of the group, and 84% (n=43) of respondents identified their race/ethnicity as White. In terms of education, 90% (n=46) reported having graduated from college, and 76% (n=39) were employed full-time when they took the survey. Most respondents (76%, n=39) earned an income of more than \$75,000 per year. Twenty-six respondents were affiliated with the Brown/Fox Point Early Childhood Education Center; 11 with the Moses Brown School; 9 with the Montessori Children's House;

4 with the Providence Hebrew Day School; and 1 with the Federal Hill House Early Learning Center. (Refer to **Table 1** for more details on the respondents' characteristics.)

Most health-related decisions pertaining to selecting a doctor for the child, taking the child to appointments, and ensuring the child receives recommended care were made jointly between the respondent and his/her partner. While 71% (n=36) recalled discussing the pros and cons of vaccines with their child's health care provider, 29% (n=15) did not. In total, three respondents (6%) indicated that their child had been exempted from a vaccine. With regard to beliefs about vaccines, 94% (n=48) agreed or completely agreed that the benefits of childhood vaccinations outweigh their risks. Respondents were equally divided between agreeing or not knowing (20%, n=10) about whether too many vaccines could overwhelm a child's immune system. Six percent (n=3) agreed or completely agreed that vaccines cause autism; 16% (n=8) agreed or completely agreed that vaccines are given at too young an age; and 8% (n=4) agreed or completely agreed that it is better for children to get diseases naturally. (Refer to **Table 2** for more details on the respondents' vaccine behaviors and beliefs.)

Among those respondents who sought exemptions, all three sought exemptions from the influenza vaccine; two each from hepatitis B, rotavirus, and measles, mumps, and rubella, and varicella vaccines; and one each from pneumococcal and inactivated poliovirus vaccines.

Table 1. Respondent characteristics (N=51)

	n	%
Age		
Mean age	37	--
Gender		
Female	42	82
Male	9	18
Race/ethnicity		
White	43	84
Asian	6	12
Other	2	4
Education		
Grades 12 through GED (High school)	2	4
College 1-3 years (Some college or technical school)	2	4
College 4 years or more (College graduate)	46	90
Grades 9 through 11 (Some high school)	1	2
Employment		
Employed full-time	39	76
Homemaker	8	16
Self-employed or student	4	8
Annual income		
Less than \$25,000	1	2
\$25,000-\$49,999	3	6
\$50,000-\$74,999	4	8
More than \$75,000	39	76
Prefer not to say	4	0
School		
Brown/Fox Point Early Childhood Education Center	26	50
Moses Brown School	11	22
Montessori Children's House	9	18
Hebrew Day School	4	8
Federal Hill House Early Learning Center	1	2

Table 2. Respondent vaccine experiences, attitudes, and beliefs (N=51)

	n	%
Who makes most of the decisions related to your child's health care when it comes to...		
Selecting a doctor		
Me	20	39
My partner/spouse	3	6
Joint decision between me and my partner/ spouse	28	55
Taking the child to a doctor's appointment		
Me	21	41
My partner/spouse	2	4
Joint decision between me and my partner/ spouse	28	55
Ensuring the child obtains recommended care		
Me	11	21
My partner/spouse	2	4
Joint decision between me and my partner/ spouse	38	75
Memory of discussing the pros and cons of vaccines with your child's health care provider		
No	15	29
Yes	36	71
Children received a vaccine exemption		
No	48	94
Yes	3	6

Table 2. Continued

	n	%
<i>Respondents were asked to state the extent to which they agree or disagree with the following statements:</i>		
The benefits of childhood vaccinations outweigh their risks		
Completely agree	35	69
Agree	13	25
Disagree	3	6
I don't know	0	0
It is important for children to get all doctor-recommended vaccinations		
Completely agree	32	63
Agree	13	25
Disagree	5	10
Completely disagree	1	2
I don't know	0	0
Too many vaccines could overwhelm a child's immune system		
Completely agree	5	10
Agree	5	10
Disagree	20	39
Completely disagree	11	21
I don't know	10	20
Immunizations sometimes cause autism		
Completely agree	1	2
Agree	2	4
Disagree	14	27
Completely disagree	24	47
I don't know	10	20
Vaccines are given at too young an age		
Completely agree	3	6
Agree	5	10
Disagree	24	47
Completely disagree	15	29
I don't know	4	8
It is better for children to get diseases naturally		
Completely agree	2	4
Agree	2	4
Disagree	20	39
Completely disagree	25	49
I don't know	2	4

	n	%
<i>Respondents were asked to rate the quality of each of the following vaccine information sources.</i>		
Child's primary care physician		
Excellent	36	70
Very good	10	20
Good	4	8
Poor	1	2
I don't know	0	0
Alternative health care providers		
Excellent	6	10
Very good	10	20
Good	10	20
Fair	10	20
Poor	10	20
I don't know	5	9
Other parents		
Excellent	2	4
Very good	4	8
Good	10	20
Fair	20	39
Poor	11	21
I don't know	4	8
Magazines		
Excellent	1	2
Very good	4	8
Good	12	24
Fair	20	39
Poor	13	25
I don't know	1	2
Internet		
Excellent	2	4
Very good	3	6
Good	10	20
Fair	20	39
Poor	16	31
I don't know	0	0
Governmental organizations (for example, the Centers for Disease Control [CDC])		
Excellent	22	43
Very good	14	27
Good	9	18
Fair	4	8
Poor	2	4

CONCLUSIONS

In spite of this study's limitations, the analysis reveals some valuable findings that may be used to inform future vaccine initiatives. The role of misinformation in the decision process to have a child vaccinated is a well-documented concern.^{9,10,11} Our study supports the hypothesis that misinformation and vaccine hesitancy are present among parents of pre-school aged children. This study also aligns with prior research that has shown that parents generally believe that the benefits of childhood vaccinations outweigh their risks, and that it is important for children to get all recommended childhood vaccinations.^{10,11}

There are several limitations that underlie this study's findings. In addition to the study's small sample size (n=51), the characteristics of schools listed on www.privateschool-review.com may not be representative of all private pre-schools in Providence, RI. The content of the survey was limited in that it did not ask about the health status of the children, nor did the questions probe deeper into the specific reason for the vaccine exemption. That two of the three exemptions were temporary may suggest that timing, an acute illness, or cost – some circumstance unrelated to beliefs – gave rise to the exemption.

Given the importance of understanding the unvaccinated child population, future iterations of this study could include more schools and involve cooperation from public school officials. Results from larger studies could be used as the foundation for broader research into attitudes toward childhood vaccination, interventions tailored for parents with specific vaccine beliefs, and education to prepare health care providers for conversations with concerned parents.

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