

# Social Media's Influence on Parents' Decision-Making Process of Child Vaccinations

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## ABSTRACT

**Background:** This study examined parent perceptions towards child vaccinations, and sources used leading to inoculation decisions.

**Methods:** A survey was electronically dispersed to parents to examine their perceptions of vaccinations, what source they used to form their decisions, and whether or not they have their children vaccinated.

**Results:** Significant differences on perceptions about vaccinations, those who followed the recommended vaccination schedule, and what sources of information they used were found. There was a significant relationship between parents who ranked using social media as their primary source and reports that they did not, or will not, vaccinate their children. Conclusions: Where parents obtain health-related information was shown to be a significant factor on vaccine perceptions and whether children were inoculated or not.

*Key words:* Social media, health information, inoculation, family health

## INTRODUCTION

Parents are required to make decisions about their children's health and wellness daily. These decisions can be difficult and are rarely made on their own [1]. Parents want to stay informed on family health topics and there is an overwhelming amount of resources readily available to them [2]. One of the biggest decisions for parents to make is around vaccinating their children. There are many controversies around vaccinations that cause parents to question whether or not to have their child inoculated from known diseases.

## Controversy around Vaccinations

Childhood vaccinations have been surrounded in controversy for over a decade; leading to more parents questioning the benefits over potential harm [3]. According to the group ProCon.org, the category with one of the most publicity targeting vaccinations include safety.

Safety is a major concern that parents constantly watch regarding their children's health. There are multiple arguments being made around the topic of safety which relate to the potential adverse effects of vaccines along with the ingredients found in them. The Center for Disease

and Control Prevention (CDC) states that all vaccines carry a risk of anaphylaxis (e.g. allergic reaction) in about one in every million children [4]. The CDC also states that there may be an association with certain vaccines (MMR [measles, mumps, and rubella], and DTaP [diphtheria, tetanus, and pertussis]) causing increased risk of long-term seizures, coma, lowered consciousness, and permanent brain damage [4]. It is important to note that the CDC also states that the rarity of these reactions make it difficult to determine the causation.

Another contested argument around the safety of vaccines is around the ingredients found in them. The CDC states that the most common substances found in vaccines include aluminum, antibiotics, egg protein, formaldehyde, monosodium glutamate (MSG), and Thimerosal [5]. Several ingredients have been linked to many types of complications [4]. Furthermore, mercury is another controversial ingredient that has been found in certain vaccines. Though chemicals like mercury are included in several vaccinations, they are only linked to negative health effects at high doses [6].

### Sources of Medical Information

Brunson has introduced the idea that there are different networks that people rely on when getting health information, particularly around vaccinations [1]. These networks include social networks (i.e. people as sources of information), and source networks (i.e. media, TV, internet, social media sites).

Social networks are defined as a network of people who parents interact with and trust [1]. Given the definition, two distinct sub-categories emerge within the social network, including (1) people and (2) source networks. A people network is defined as a group of individuals whom have an influence on another's decision-making process [1]. Source networks is a broad category that includes media, social media sites, TV programming, and the internet in general. Based on the contested information and debates, it is imperative to investigate the sources that parents use when making decisions regarding childhood vaccinations. This information can help health care providers focus their educational efforts when advocating for child health initiatives.

## METHODS

This study examined where parents get information when making the decision whether or not to vaccinate their children. Furthermore, parents were asked about their own family's behaviours around vaccinations. Specifically, parents were asked if they followed the recommended vaccination schedule, delay vaccinations, or not vaccinate their own children.

Participants for this study were recruited through a marketing advertisement on Facebook. This post contained study information including eligibility, contact information, and the link to the online survey. Once the link was opened, participants were asked to read over the study details and the eligibility criteria before agreeing to participate. This study includes all parents who were at least 18 years old, have a child between the ages of 0-12 years, and are a resident of the United States. Both male and female parents were invited to participate in this study.

The survey instrument included three sections. The first section collected demographic information (i.e. age of the parent and their children, number of children, income, highest level of education, etc...). The second part of the instrument included the Parents Perceptions of Vaccinations (PPV) instrument was used to measure the parent's opinions of vaccinations [1]. The purpose of this instrument was to see the relationship between where parents get their information regarding vaccinations and whether or not they decide to vaccinate their children. The final portion of the survey was directed to the concept of where parents receive their information around vaccinations.

## RESULTS

A total of 50 participants completed the survey. Most participants were; female (82%); in the 31-35 age group (48%), reported as having two children (42%). Table 1 displays the other demographic data reported.

### Parent Perceptions about Child Vaccinations

70% of the participants either agreed or strongly agreed with the statement '*vaccines contain substances that are harmful.*' Furthermore, 76% of participants also agreed or strongly agreed with the statement '*children get more vaccines than are good for them.*' Another interesting result found that less than half agreed (42%) agreed that '*vaccination is necessary to prevent disease.*' Only 34% agreed that '*children are more likely to be harmed by disease than by vaccines.*' Perhaps one of the most interesting results found that 60% participants either agreed or strongly agreed with the statement '*vaccinations may cause autism.*'

### Parent's Decisions about Child Vaccinations

It was reported that nearly half (48%) of parents indicated that they did not (or do not) plan on vaccinating their children at all. This resulted in only 40% stating that they did (or will) vaccinate their children based on the federally recommended schedule.

Interestingly, families from urban areas were

**TABLE 1. Demographic Information of the Participants**

		FREQUENCY	PERCENTAGE
<b>Age</b>	18-25 years	1	2.0%
	26-30 years	7	14.0%
	31-35 years	24	48.0%
	35+ years	18	36.0%
<b>Number of children</b>	1 child	16	32.0%
	2 children	21	42.0%
	3 children	9	18.0%
	4+ children	8	8.0%
<b>Highest Level of Education</b>	High school diploma	6	12.0%
	Associates/bachelor degree	25	50.0%
	Current graduate work	3	6.0%
	Graduate degree or higher	16	32.0%
<b>Household Income</b>	Less than \$50,000	4	8.0%
	\$50,000 - \$75,000	12	24.0%
	\$75,000 - \$100,000	17	34.0%
	\$100,000 - \$150,000	11	22.0%
	\$150,000 +	5	10.0%

significantly ( $r = -.436$ ,  $p = .002$ ) more likely to vaccinate their children. Urban parents were also most likely ( $r = .294$ ,  $p = .043$ ) to use social networks as the primary source to gather vaccination information. Families from rural areas were least likely to vaccinate their children. Age was another variable that correlated with vaccination choices. Specifically, the older parents were significantly ( $r = .385$ ,  $p = .01$ ) less likely to follow the recommended vaccination schedule. Education level was not associated with any vaccination decisions.

### Parent Vaccination Information Sources

The highest ranked source of information (48%) was from the "other sources" (i.e. internet, TV programs, etc.), and the lowest ranked source (14%) was Social Media

sources. These results indicating that participants rely mostly on sources such as the internet and TV programming for health-related information. Table 2 displays the reported sources used when making vaccination decisions.

Since the 'other sources' of information category was such a broad source, the survey also had a "write in" option for the participants. The two most commonly 'other' sources of information that participants wrote in included books ( $n=4$ ) and radio/podcasts ( $n=2$ ).

### Social Media's Impact of Vaccination Decisions

One of the main ideas examined was the impact that social media had on whether or not parents decide to vaccinate, or delay vaccination, of their children. This study found that parents who reported that they have, or plan

**TABLE 2. Sources of Information for Vaccination Information**

		FREQUENCY	PERCENTAGE
<b>Social Media Networks</b>	Twitter	11	22.0%
	Facebook	50	100.0%
	Instagram	26	52.0%
	Pinterest	27	54.0%
	Other	5	10.0%
<b>People Networks</b>	Spouse	35	70.0%
	Healthcare Provider/Doctor	39	78.0%
	Family Members and Friends	45	90.0%
	Parents	35	70.0%
	None	2	4.0%
<b>Other Sources of Information</b>	Internet	49	100.0%
	Magazine articles	20	40.0%
	TV programs	24	48.0%
	Other	18	36.0%

to, vaccinate their children based on the recommended schedule, were significantly ( $r = -.367$ ,  $p = .01$ ) less likely to use social media as a source of vaccination information. In addition, there was a significantly positive correlation ( $r = .507$ ,  $p = .001$ ) between parents who ranked using people networks (i.e. doctor, friends, family, etc...) as their primary source of information and reporting that they did, or will, vaccinate their children.

## DISCUSSION

Though a small sample size was used in this preliminary study, significant patterns were identified. The results found relationships between sources of information that parents use to make vaccination decisions and whether or not they have their children vaccinated or not. Furthermore, where families lived was also a factor in what sources were used to make decisions, and also whether or not they vaccinate their children. Lastly, younger parents were more likely to vaccinate their children than older parents.

The current literature lacks research examining these relationships specifically. The few studies that could be found

have shown that sources of information that parents use do influence their decisions around family vaccinations. For instance, Brunson<sup>1</sup> found people networks were the highest reported source of information that parents used to base their decisions about vaccinations. It was also determined that the majority of nonconforming (e.g. did not vaccinate their children) parents reported to have received their vaccination information from source networks that recommend something other than complete, on-time vaccination [1]. Similarly, Jones found that among all respondents, 40% reported that they viewed the internet as a good or excellent source of vaccination information [6]. Along with the internet as a source of information, multiple articles have stated an increase prevalence of vaccination information being available on social media sites, specifically Twitter [7]. As the presence of social media creates a stronger influence in people's lives, it is critical to examine the impact it has on public health decisions.

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