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Parents' Perception of the Effects of Childhood Vaccinations



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ABSTRACT

Background and Objectives: Parents' perceptions regarding the effects of childhood vaccinations could have a serious implication on the health of their child and the health of the community. The purpose of this study was to determine the knowledge level of parents and the perception of the effects of vaccinations among parents of small children. **Methods:** This was a quantitative, cross-sectional study with a descriptive design. A survey was distributed to 120 parents 18 years and older from a community at an early learning center and a college campus in northern Indiana, USA. One parent from each family was asked to participate. The surveys contained eight demographic questions, in addition to 18 survey statements. The Roy Adaptation Model (RAM) guided the study on parental immunization knowledge and decisions. **Results:** The analysis indicated the participants are likely to vaccinate their children based on the safety of the vaccine, the purpose of the vaccine, education regarding the vaccine, and the factors influencing vaccine administration. Most parents (97.5%) believe that vaccinations are used to prevent future illness. A positive yet unanticipated finding was that the majority of participants did not believe autism was strongly associated with vaccinations. Among the participants, 82% stated it was recommended not to vaccinate a child when they are ill. This was a false statement and showed there needs to be education given to the parent regarding vaccinations. Another finding was that 77% of the participants agreed their decision to vaccinate their children was because of personal history. **Conclusion:** Vaccination education should be geared towards the gaps in knowledge for participants to understand all aspects of vaccines and how they are related to childhood. Recommendations for practice include the need for increased and more frequent education during parenthood to enhance the rate of vaccinations.

INTRODUCTION

Vaccinations are a part of an individual's health care starting at birth and continuing through their lifetime ("Children's Hospital," 2016). Vaccinations are needed to prevent diseases from occurring in the individual and to prevent the spread of disease throughout a community. If this issue is not addressed, parents may remain uneducated, and children will continue to go without vaccinations, possibly leading to an increase in life-threatening diseases. The healthcare professional should be concerned if there are a knowledge deficit and the effect it could have on a community. This should provide a basis for increased and accurate education. The purpose of this study was to determine the knowledge level of parents and the perception of the effects of vaccinations among parents of small children.

BACKGROUND

Based on a report ("Global immunization," 2016), 85% of children in the world receive vaccinations each year against diseases such as tuberculosis, polio, diphtheria, tetanus, pertussis, and measles. However, the remaining 15% of non-vaccinated children result in over 1.5 million deaths in children younger than five years old from diseases the vaccines protect against. Many people today are misinformed or under-educated about the need for vaccinations. There are multiple causes of under-education and misinformation and how this directly influences a parent's decision to approve or deny a vaccine for their child. Because of this, children are not being vaccinated, and this is detrimental to the health of society. "Of the 10 causes of death in those less than five years old, several are infections, meaning they can be transmitted from one person to another" ("Global immunization," 2016, para. 4).

Many individuals portray the message that vaccinations are not safe and that they are linked to autism. Parents associate the number of vaccinations received during the first few years of life as when symptoms of autism start to become evident (Halter & Varcarolis, 2014, p. 192). The media has a large impact on community health and it is becoming a larger issue when information presented is incorrect. With an increase of vaccination disapproval, there may be a rise in the risk and number of people exposed to those preventable diseases. The Center for Disease Control and Prevention (CDC, 2016a) propagated the importance of keeping immunization levels high. They addressed the issue by stating that immunity levels within the community would drop if children were not vaccinated, which would eliminate herd immunity, leading to a disease outbreak.

Problem Statement

Based on CDC (2016b) information, vaccinations are currently preventing two to three million deaths yearly, and if vaccination coverage and acceptance improved, 1.5 million additional deaths in children could be prevented. Furthermore, 19.4 million infants worldwide are lacking basic immunizations. This lack of vaccinations among children could be caused by many factors, including a lack of education among parents (CDC, 2016b). Parents' perceptions regarding the effects of childhood vaccinations could have a serious implication on the health of their child and the health of the community. A negative perception of vaccines is often associated with a lack of sufficient education received by the parents.

Purpose Statement

The purpose of this study was to determine the perception of parents regarding the effects of childhood vaccinations.

Research Question

The research question in this study was: What are the perceptions of parents regarding the effects of childhood vaccinations?

REVIEW OF THE LITERATURE

Several studies were collected through online databases provided by the college library. Databases accessed included Academic Search Premier, Cumulative Index to Nursing and Allied Health Literature, and EBSCOhost. To obtain the literature needed, phrases such as *vaccinations*, *education and vaccinations*, *vaccination impact*, and *parental understanding on vaccinations* were searched. The articles ranged from the year 2013 to 2016. Studies were selected from peer-reviewed journals and used to create a background and basis for the study.

Clark, Cowan, Filipp, Fisher, and Stokley (2016) conducted a quantitative survey of 791 parents with at least one daughter between the ages of 11 and 17 years. The barriers to receiving the human papillomavirus (HPV) vaccine were studied, and the focus was placed specifically on the interactions between parents and providers. The goal was to observe if there was a correlation between parental perception of the provider and children's vaccination status. It was found a higher proportion of those who completed the vaccine series reported the doctor 'strongly recommended' the vaccine, while those who did not complete the

vaccine series received no specific recommendation about the vaccine (Clark et al., 2016, p. 703). It was observed and recorded that barriers also included lack of provider recommendation to the parents, lack of information or education given regarding the vaccine, and safety concerns. Researchers stated that these could be avoided with “parent-physician conversations” (Clark et al., 2016).

Gilkey et al. (2016) stated the goals for their study was “to support efforts to address parental hesitancy towards early childhood vaccination, we sought to validate the Vaccination Confidence Scale using data from a large, population-based sample of U.S. parents” (p. 1). There was an evident link between parent’s vaccination beliefs and the refusal or delay of vaccinations in their children. Gilkey et al. summarized that “vaccination confidence is closely tied to early childhood vaccination behavior” (p. 2). This statement was made after evidence from sampling the 9,354 parents who completed the 2011 National Immunization Survey showed that parents who were educated had an increased sense of confidence in their decision and therefore approved the vaccination for their child (Gilkey et al., 2016).

Jit et al. (2015) aimed to provide knowledge and show the relationship between economics and vaccination programs. To conduct this research, a conceptual framework that captured causal pathways to link vaccines to their proposed benefits was created. Next, “a rapid review of the validity and strength of evidence behind each pathway” was conducted (Jit et al., 2015, p. 7). The researchers concluded that there was unclear evidence to link economic benefits related to immunizations. This was confirmed by the 20 studies (Jit et al., 2015, p. 7) that linked to one or more of their conceptual framework pathways, which lead to an unclear conclusion of the matter. Jit et al. concluded that although there were clear benefits to receiving vaccines, there was not enough strength in the findings to link that vaccines and economics were related (p. 8).

Luthy, Burningham, Eden, Macintosh, and Beckstrand (2016) investigated common questions that parents had about vaccinations and attempted to answer these questions. The study was conducted in the school setting and involved school nurses and parents of students. Since school nurses play an important role in the health of children within a school, they could answer many questions that parents had about the topic of vaccinations. School nurses are well respected among parents; therefore, they are in a key position to educate parents and promote childhood vaccinations while also dispelling common myths (Luthy et al., 2016). Thus, the involvement of the school nurses increased immunizations.

Morhardt et al. (2016) studied “vaccine hesitancy and the anti-vaccination movement” (p. 1). A curriculum was designed to help trainees communicate with parents who were possibly hesitant toward vaccines or against vaccines. After simulation and education to the 26 trainees, the encounters were graded by experienced faculty on a consistent Likert scale. Results showed that the curriculum increased the trainees’ willingness to engage parents and improved their ability to educate, comfort, and counsel families. Morhardt et al. stated, “Our study demonstrated that providing this education curriculum positively influenced trainees’ engagement in conversation with vaccine-hesitant families” (p. 1).

Rabinowitz, Latella, Stern, and Jost (2016) investigated “the effects of ideology on perceptions of harms and benefits related to vaccination as well as judgments of others’ attitudes” (p. 1). There was a survey presented to 367 United States adults about their opinions of vaccinations. The results produced a clear correlation between political party and the parents view on vaccines. Rabinowitz et al. stated that liberals were more likely to promote pro-vaccination and view them as facts rather than beliefs, which differed in comparison to moderates and conservatives (p. 1). The information obtained indicated that “individuals’ perceptions—and misperceptions—of others’ attitudes and behaviors affect the decisions they make about health-related practices” (Rabinowitz et al., 2016, p. 16).

Salazar et al. (2016) sought information about the structure and material that were relevant to a curriculum pertaining to the education of immunizations. The study was conducted in Georgia, USA because the high incidence of children not receiving all of their recommended vaccines. “The Healthy People 2020 goal is 80% coverage for each recommended immunization, but coverage rates in Georgia among adolescents fall below these goals for all but tetanus, diphtheria, and pertussis vaccine” (Salazar et al., 2016, p. 512). The researchers held focus groups with middle and high school science teachers who were teaching an immunization curriculum. These focus groups addressed the teachers’ perspective on the effectiveness of the curriculum. The curriculum was first developed to teach children about the importance of receiving vaccinations. Throughout the focus groups, teachers gave their perspective on, “the curriculum’s impact, content, structure, and packaging” (Salazar et al., 2016, p. 512). The teachers recommended, “Increasing emphasis on disease transmission and symptoms to keep students engaged” (Salazar et al., 2016, p. 512). The results of this study will be applied to the curriculum to better educate children about vaccinations to raise the percentage of children who are being vaccinated in Georgia (Salazar et al., 2016).

Scott (2015) studied the measles-mumps-rubella-varicella (MMRV) vaccine, also known as the ProQuad. They found that approximately 20% of children born yearly have incomplete vaccination schedules. Scott (2015) attributed the incomplete/lack of vaccination in children to the complexity of vaccination schedules, which is why the varicella vaccine was ultimately added to the MMR. This vaccine itself may not be the solution to increase compliance in vaccination schedules, but it indicates that incomplete/lack of vaccination schedule is a serious medical issue and needs to be addressed (Scott, 2015).

Seither et al. (2016) found that “routine monitoring of vaccination coverage and exemptions among kindergartners at the state level is important to ensure all children are protected from vaccine-preventable diseases” (p. 5). Within recent years, implementation of state-mandated vaccinations has become a reality for school systems. Seither et al. compared information from the 2014-2015 school-year to the 2015-2016 school-year regarding kindergartners’ immunization records. After reviewing the statistics, there was little change noted at a national level. However, as states slowly change their laws and regulations regarding school-required vaccinations, they have seen an increase in their vaccination coverage. This study identified the need for more knowledge and focus on immunization. This allows for the creation of an action plan to improve vaccination coverage and ensure more children can benefit from the protection offered by vaccines (Seither et al., 2016).

Thomas, Blumling, and Delaney (2015) studied the influence that religion has on a parents’ decision to have their child receive the HPV vaccine. The parents surveyed were residents of small rural communities and had children between the ages of 9 and 13 years old. Focus groups were organized with the parents to understand their decision to vaccinate or not vaccinate their child against HPV. “Together, religiosity and spirituality were found to play integral roles in these parents’ lives and influenced their attitudes toward HPV vaccination uptake for their children” (Thomas et al., 2015, p. 1). Understanding the reasons that parents choose to vaccinate or not vaccinate their children can help the healthcare team better care for a community.

This review of the literature reinforced the need to assess the perceptions of parents about vaccinating their children. Many of the issues addressed in each of these articles differed from the other, but the underlying focus remains controversial regarding vaccinations. It is important to dissect these controversies, no matter what they are, to understand the mindset of parents with young children.

THEORETICAL FRAMEWORK

The Roy Adaptation Model (RAM)

The theoretical framework used to guide this survey was the RAM concept. The adaptation model of nursing is a prominent nursing theory that aims to explain or define the provision of nursing science. Roy's model sees the individual as a set of interrelated systems that strives to maintain a balance between various stimuli.

The RAM concepts include the environment, the health of the aggregate, the person, the goal of nursing, and adaptations. The *environment* includes conditions that influence the way humans behave or adapt. The concept of *health* involves the process of becoming whole or integrated. The *person* is the human adaptive system and a whole with parts that function as a unit for some purpose (Roy & Andrews, 1999). The *goal of nursing* through RAM is to promote change in each of the four modes, which include physiologic-physical mode, self-concept-group identity, role function mode, and the interdependence mode. Lastly, *adaptation* includes the process and outcome whereby thinking and feeling individuals or groups use conscious awareness and choice to create human and environmental integration (Roy & Andrews, 1999).

All of the concepts in this adaptation model apply to the research study. The environment in which parents have raised influences the parent's likelihood of having their children vaccinated. Where the parent stands in their own health is also an influencing factor on their opinion of the importance of vaccinations for their children. The parent understands that the human functions as a whole and the health and well-being of their children rely on their health journey throughout life. By seeing their child as a whole person, it is vital to protect them from potential threats of disease. The adaptations that are vital to this research are the opinions and behaviors of parents pertaining to their vaccination knowledge and beliefs.

DEFINITION OF TERMS

Operational Definitions

Vaccinations are an example of primary preventative medication. Vaccinations are used to help build one's immune system. They are also used to help prevent the occurrence of illness and disease in communities. *Perceptions* include having the ability to see, hear, or become

aware of something through the use of senses. Parents can hold perceptions about vaccinations before they are educated about them. After they are educated about vaccinations, their perceptions can stay the same or change. *Effects of vaccinations* often depend on the type of vaccinations the individual is receiving. The common side effects of vaccinations include fever, aches (head and joint), fatigue, and injection site reactions (pain, redness, and swelling). Serious adverse reactions include fainting, diarrhea, pneumonia, seizures, and allergic reactions. The effects of vaccinations can also include the perceived permanent changes in the child after the vaccination, such as the belief that autism or paralysis could occur.

Parents were anyone 18 years of age or older who had at least one living child. This did not include parents whose only pregnancy ended in a miscarriage or stillbirth. This ensured that the participants in the survey were only relevant sources. *Children* were defined as humans who were within the recommended immunization schedule age ranges. This included newborns to the age of 18 years. During this age range is when most of the recommended immunization doses are given and vaccination schedules completed. *Education of parents* was defined as the health care provider informing the parents of the types of vaccination, the purpose of the vaccination, why it is recommended, and the possible side effects of the vaccination. This occurred verbally by having a conversation and allowing the parents to ask questions or visually by providing a handout with the information. Best practice is to include both verbal and visual types of education. This is one of the most important keys in the medical field as it is a preventative measure. *Autism*, also known as autism spectrum disorders, were defined as complex neurobiological and developmental disabilities that typically appear during a child's first three years of life (Roy & Andrews, 1999). It also affects social interaction and communication with a range in severity (Roy & Andrews, 1999). There is often an association in the community that this condition can be caused by getting a vaccination.

Conceptual Definitions

Adaptation is the human's ability to change something based on a situation. An adaptation makes something suitable for a specific situation. It is a response or adjustment to a way of thinking or acting. *Stimuli* can be internal or external. It is something that promotes or evokes a response from a human through one's senses. Stimuli affect one's perception through the five senses. Humans are heavily influenced by environmental stimuli around

them. Stimuli can produce a physical or emotional response. *Behavior* is the way that one acts or conducts oneself, especially towards others. Behavior also includes the way that one acts in response to a particular stimulus or situation. The way that a parent views vaccinations can heavily affect their behavior when deciding to vaccinate their children.

METHODS

Design

A quantitative, non-experimental, cross-sectional descriptive design was applied to this study. A cross-sectional study was efficient because it analyzed and explained some behaviors, which were represented in a contingency table. A Likert-type scale with frequency ranges from one to four, with one being strongly disagreed and four being strongly agree was used to obtain the perceptions of the participants. A survey with 18 Likert-type items and 8 demographic questions was distributed and collected after obtaining signed informed consents from participating parents. As recommended by Schmidt and Brown (2015), face validity and peer review were obtained by having staff and peers comment on the questionnaire to determine if it appropriately measured the perceptions.

Population and Sampling Frame

A sample size of 120 parent's age 18 years or older were surveyed. There were varying demographics represented. Participation in this research study was random, voluntary, and confidential. Participants varied in age, gender, ethnicity, number of children, and economic status.

Geographic Location

The research took place at an early learning center and a college campus in Indiana, USA. The locations were chosen for convenience to reach a large population of parents. This provided an adequate and diverse population of parents to survey.

Consent and Confidentiality

Approval from the College Institutional Review Board was obtained prior to the distribution of surveys. Before participation in the study, the participants signed an informed consent form. The informed consent described the purpose of the survey, lack of anticipated effects

(financial and physical) on the participant, and how confidentiality was maintained. Withdrawal from the study was allowed at any point in time, and contact information was provided. The signed consent form was copied and given to the participant to keep for his or her own record. All collected data for this research was submitted to the School of Nursing (SON) to be stored electronically for three years. The SON staff scanned the data into the computer and stored it on discs in a locked cabinet in a locked storage room. No one other than the nursing administrators or the research coordinators has access to the stored records. All of the researchers completed the National Institute of Health (NIH) Office of Extramural Research web-based training course. This course explained more about “Protecting Human Research Participants.” Through the knowledge from this course, the researchers were better equipped to protect the confidentiality of the participants of this survey.

Survey Instrument

The questions were developed based on a review of the literature. Eight demographic statements preceded the survey statements. A Likert-type scale was used for the remaining 18 statements, which consisted of the options to strongly disagree, disagree, agree, and strongly agree. The purpose of the scale was to measure the amount and accuracy of education received by parents before vaccinating their children. The scale also measured what influenced the parent’s decision to accept or deny vaccinations.

The first three statements in the survey sought to measure the knowledge of parents. The next eight statements questioned the impact of vaccines on the children, followed by four statements to understand the education received by the parents. Five statements finished the survey and attempted to understand what influenced the parents’ decision to vaccinate. Each of the statements had a score from one to four and was analyzed by ordinal measurement while the demographics were based on a nominal measurement.

The content of the survey was not altered throughout the surveying process. The survey was considered to have face validity because it was reviewed and critiqued by two peers and two nursing faculty. Modifications were made based on feedback from reviewers. A Likert-type scale was chosen because it allowed the subjects to agree or disagree with the statements based on their understanding and knowledge of childhood vaccinations. The results were entered into Excel. The results were then evaluated through the calculation of a mean and

standard deviation. Tables and figures were included; one for demographics and the others based on highest to lowest mean.

RESULTS

The survey results were analyzed and compared to the review of the literature. The RAM had been introduced with the idea that thinking and feeling individuals use conscious awareness to make choices. Data collection took place at an early learning center and a college campus. Permission was obtained from both venues before data collection. Informed consent forms and surveys were distributed during school hours. Confidentiality was maintained by separating the informed consents and completed surveys. No participants indicated their names on the questionnaire. Consent forms were explained and signed voluntarily by the parents before participating. Data collection was performed March 4, 2017, through April 4, 2017. The final number of surveys obtained was 123 and were reduced to 120 valid surveys after three were discarded because they were incomplete.

Demographic Characteristics

The 120 participants were all parents of at least one child who was 18 years or older. Table 1 exhibits the demographic statistics of the participants. The majority age ranged from 34-41 years old (34.2%) and 26-33 years old (26.7%). More females (70%) than males (30%) were surveyed. With the sample, the majority were married (87.5%) and 58 included two children per family (48.3%).

Table 1. Descriptive Statistics for Participant Demographic and Background

Variable	Frequency (f)	Percentage (%)
Age Range		
18-25	9	7.5
26-33	32	26.7
34-41	41	34.2
42-49	15	12.5
50 or greater	23	19.2
Gender		
Male	36	30
Female	84	70
Fully Vaccinated		
Yes	112	93.3
No	8	6.67
Race		
African Origin	9	7.5
Asian	5	4.2
Caucasian/White	97	80.8
Hispanic	5	4.2
Other	4	3.3
Number of Children		
1	20	16.7
2	58	48.3
3	26	21.7
4+	16	13.3
Marital Status		
Married	105	87.5
Single	4	3.3
Divorced	11	9.2
Widowed	0	0
Education Level		
Less than HS	0	0
HS Diploma	19	15.8
Associate	13	10.8
Bachelor	58	48.3
Masters	24	20
Other: PhD	6	5
Health Insurance Coverage		
Yes	114	95
No	6	5

Note. (N=120)

Item Set Description

The survey consisted of 18 statements that required a response based on the Likert-type scale. The responses included strongly disagree (1), disagree (2), agree (3), and strongly agree (4).

These responses were then transferred to correlating numeric values between one and four.

Five statements were related to the purpose of immunizations (Q. 2, 4, 7, 8, 10). Six statements were related to the safety of immunizations (Q. 1, 3, 5, 6, 9, 11). Three statements were dealt with the education parents received (Q. 12, 13, 15). The education could be the research completed by the parent prior to visiting the doctor and also the education done by healthcare professionals. Lastly, five statements sought to understand the influencing factors of parents in deciding to vaccinate (Q. 14, 16, 17, 18). For items 1, 2, 9, 14, 15, a higher mean indicated more education. For items 3 through 8, 10, and 11, a lower mean indicated more education. For questions 12, 13, and 16 through 18 dealing with influence, the higher mean indicated more influence from surrounding factors.

In Table 2, the mean levels and standard deviations were calculated for the 120 surveys. The results were ranked from highest to lowest mean. The means ranged from 1.66 to 3.54. Based on the findings, in general, the participants had similar perceptions of childhood vaccinations. Within the 18 survey items, there were four major themes that were used to identify the perceptions of the parents. These themes were the purpose of vaccinations (Q. 2, 4, 7, 8, 10), the safety of vaccinations (Q. 1, 3, 5, 6, 9, 11), education received (Q. 12, 13, 15), and influence (Q. 14, 16, 17, 18). Based on these themes, a high mean for each was found. The entry that had the most agreement was regarding the purpose of vaccinations, “The purpose of a vaccine is to prevent future illness” (M= 3.54, SD= 0.55). The parents also had a high agreement with the safety statement, “Vaccines are safe” (M=3.24, SD= 0.66). The agreement of education about the vaccinations also was high as indicated by “The education I received prior to administration of vaccine included enough information for me to feel informed” (M=2.88, SD= 0.81). Lastly, an agreement on which influence was a determining factor was found, “My own history of vaccinations influenced my decision to vaccinate my child” (M=2.84, SD= 0.87).

Table 2. Parents Perceptions of the Effects of Vaccinations

Variable	Mean	SD
The purpose of a vaccine is to prevent future illness.	3.54	0.55
My child will be safer in school if they are vaccinated.	3.31	0.68
Vaccines are safe.	3.24	0.64
It is recommended not to vaccinate when a child is ill.	2.96	0.68
The education I received prior to administration of vaccine included enough information for me to feel informed.	2.88	0.81
I did my own research about vaccines before going to the doctor.	2.87	0.89
My own history of vaccinations influenced my decision to vaccinate my child.	2.84	0.87
The education I received influenced my decision to approve the vaccination.	2.76	0.87
I felt comfortable denying the vaccination if necessary (no pressure from medical professionals).	2.72	0.82
Family/Friends had an influence on my decision to vaccinate.	2.33	0.86
Vaccines are started too early in a child's life.	2.2	0.87
Vaccines can overload my child's immune system.	2.13	0.83
Most of the diseases my child is being vaccinated for do not occur within the United States.	2.1	0.80
There is a link between vaccinations and autism.	2.03	0.80
My child doesn't need certain vaccines because they are mild diseases and not deadly.	1.99	0.82
Media had an influence on my decision to vaccinate.	1.89	0.80
Infants have natural immunity and do not require vaccines.	1.83	0.79
If everyone else around is vaccinated, my child does not need it.	1.66	0.66

Note. (N=120). Items were rated on a 4-point Likert-type scale ranging from 1 (SD) to 4 (SA), so higher means indicate a higher level of education and opinion.

SUMMARY

This research study asked the question, "What are the perceptions of parents regarding the effects of childhood vaccinations?" The results of the parents' perception of purpose, safety, prior education, and influencing factors regarding vaccinations showed a positive correlation in vaccinating their children. The results conveyed that 90% of the surveyed parents believed vaccines to be safe. Trusting vaccinations to be safe showed that they would allow their children to be vaccinated. Along with that knowledge, 93% of parents stated that their children would be safer in school if they were vaccinated. With the safety of their children as an important factor to most parents, it showed that parents were more likely to vaccinate their children to keep them safe from illness.

While there were many positive findings in this study, there were also some negative results. Among the participants, 82% stated it is recommended not to vaccinate a child when they are ill. This is a false statement and showed there needs to be education given to the parent regarding vaccinations. A lack of education was also found in that 77% of the participants identified their decision to vaccinate their children was because of their personal history. Healthcare is changing and new information is constantly being published. This may indicate that parents are vaccinating their children simply because that is what they did and they may be hesitant when new vaccines are released because they did not receive the vaccine as children. The following sections explain the results along with recommendations for healthcare and further research.

DISCUSSION

The results indicated that most parents (97.5%) believe that vaccinations are used to prevent future illness. This finding correlates to Gilkey et al.'s (2016) study, which stated that "vaccination confidence is closely tied to early childhood vaccination behavior" (p. 2). The current study showed that parents who have a positive perception of vaccinations are more likely to have their children vaccinated. Through analyzing data, it also became clear that parents who were informed by their provider about vaccinations prior to vaccinating their children (77.5%) were significantly more likely to vaccinate their children.

The current findings correlate well with the study from Clark et al. (2016), "It was found a higher proportion of those who completed the vaccine series reported the doctor 'strongly recommended' the vaccine, while those who did not complete the vaccine series received no specific recommendation about the vaccine" (p. 703). Although a 'strong recommendation' from a provider may be perceived as trying to convince parents, it is an opportunity for them to ask questions and be informed. The parents who had an informed conversation with their child's healthcare provider prior to vaccination were more comfortable with the decision to accept or deny specific vaccinations. It was also found that the environment that parents are consistently in influence their perceptions of vaccinations as shown in the RAM. Religion, age, education level, and prior history of vaccination plays an integral role in the perceptions that parents hold about vaccination in addition to the geographic area that they live in and the regional perceptions.

Thomas et al. (2015) stated, “Together, religiosity and spirituality were found to play an integral role in parents’ attitude toward vaccination uptake for their children” (p. 1). Factors, such as religion and environmental influences, play a part in how likely a parent is to vaccinate their children; while, direct relationships with family and friends had less of an influence. It was found that only about half (49%) of parents were willing to take advice from family members before vaccinating. This is an increase from the number of parents who were influenced by the media, which was less than 25% of all parents.

Discussion of Findings in Relation to Research Question

The data indicated four themes on the perceptions of parents regarding effects of childhood vaccinations. The purpose of vaccines is to prevent future illness. Vaccines are viewed as safe. The education the parent received prior to the administration of a vaccine included enough information for them to feel informed. The parents own history of vaccinations had the strongest influence on the decision to vaccinate their child. Overall the parents’ perceptions of vaccinations demonstrated that they are safe and used to prevent future illness, which influenced them to vaccinate their children. Each theme of questions was then broken down for further review.

After calculating the mean of the five ‘purpose’ of vaccines research items, “the purpose of a vaccine is to prevent future illness” had the highest mean of 3.54 (SD= 0.55). Of the 120 participants, 117 stated that they agreed or strongly agreed that vaccines prevented future illness. This finding showed that there was a significant agreement between parents vaccinating their children and understanding the purpose of the vaccine. While there was a high number agreeing with the statement, there were only three parents that disagreed with the purpose, and none strongly disagreed (see Table 3 and Figure 1).

Table 3. Parents Perception of the Purpose of Vaccinations

Variable	Mean	SD
The purpose of a vaccine is to prevent future illness.	3.5	0.55
Most of the diseases my child is being vaccinated for do not occur within the United States.	2.1	0.80
Infants have natural immunity and do not require vaccines.	1.83	0.79
My child doesn’t need certain vaccines because they are mild diseases and not deadly.	1.99	0.82
If everyone else around is vaccinated, my child does not need it.	1.66	0.66

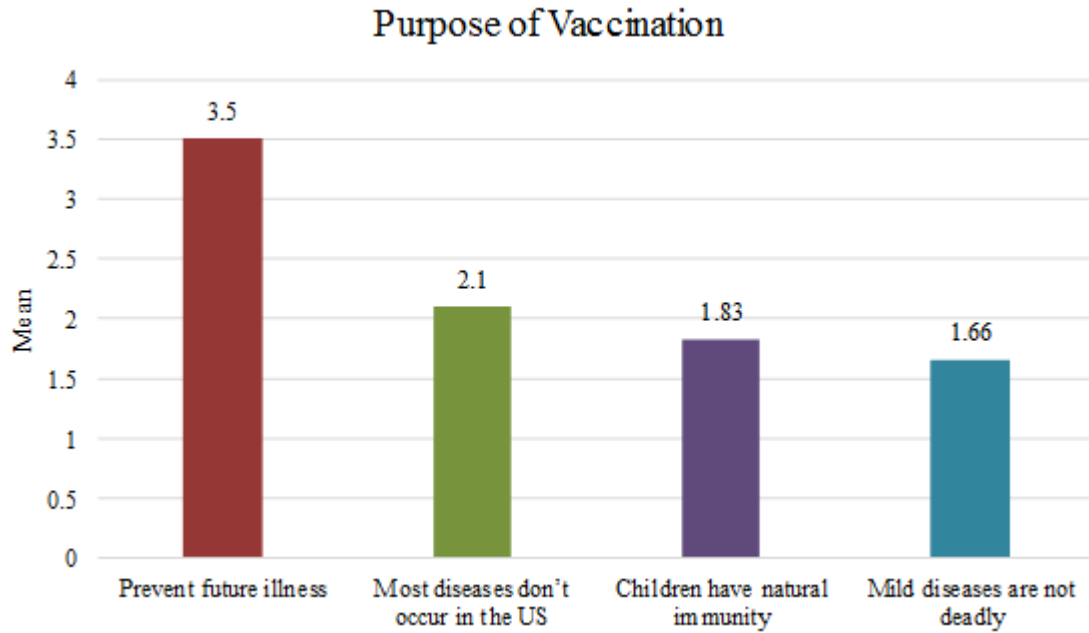


Figure 1. Perception of the Purpose of Vaccinations. N=120

Out of the six safety-themed items, “vaccines are safe” had the highest mean of 3.24 (SD= 0.64). Of the 120 participants, 108 stated they agreed or strongly agreed vaccines are safe. This finding showed there was a significant agreement between parents vaccinating their children and believing in the safety of vaccines. While there was a high number agreeing with the statement, there were 11 parents who disagreed with the safety and only one strongly disagreed (see Table 4 and Figure 2).

Table 4. Parents Perception of the Safety of Vaccinations

Variable	Mean	SD
Vaccines are safe.	3.24	0.64
My child will be safer in school if they are vaccinated.	3.31	0.68
It is recommended not to vaccinate when a child is ill.	2.96	0.68
Vaccines are started too early in a child’s life.	2.2	0.87
Vaccines can overload my child's immune system.	2.13	0.83
There is a link between vaccinations and autism.	2.03	0.80

N=120

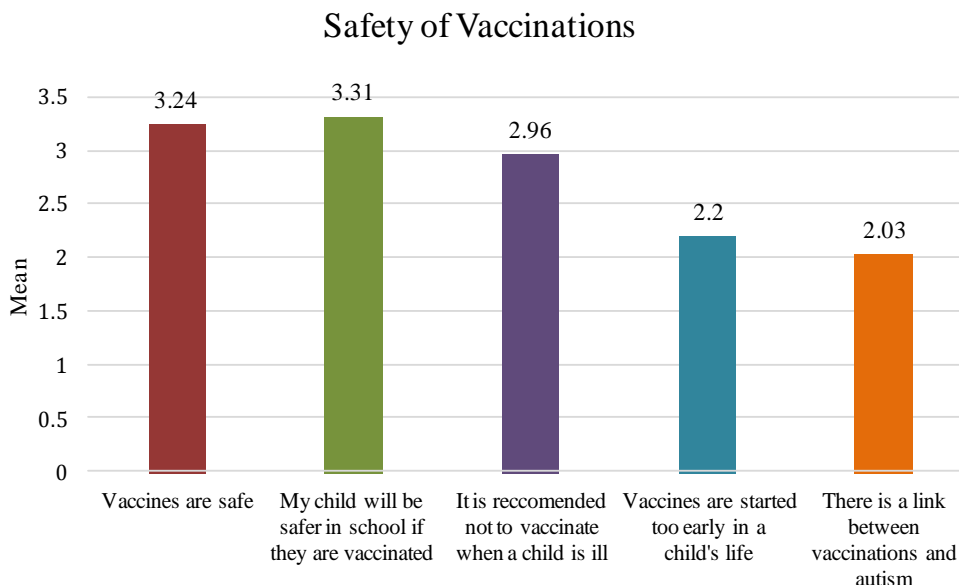


Figure 2. Perception of the Safety of Vaccinations. N = 120

Education received before vaccinating children was found to be high based on the question, “the education I received prior to administration of the vaccine included enough information for me to feel informed” with the mean of 2.86 (SD= 0.81). Of the 120 participants, 93 stated they agreed or strongly agreed to receive a prior education. This finding showed there was an increased agreement between parents vaccinating their children and feeling informed about the vaccine. While there was a high number agreeing with the statement, there were 17 parents who disagreed with proper education and 10 strongly disagreed (see Table 5 and Figure 3).

Table 5. Parents Perception of the Education Received about Vaccinations

Variable	Mean	SD
The education I received prior to administration of vaccine included enough information for me to feel informed.	2.88	0.81
I did my own research about vaccines before going to the doctor.	2.87	0.89
The education I received influenced my decision to approve the vaccination.	2.76	0.87

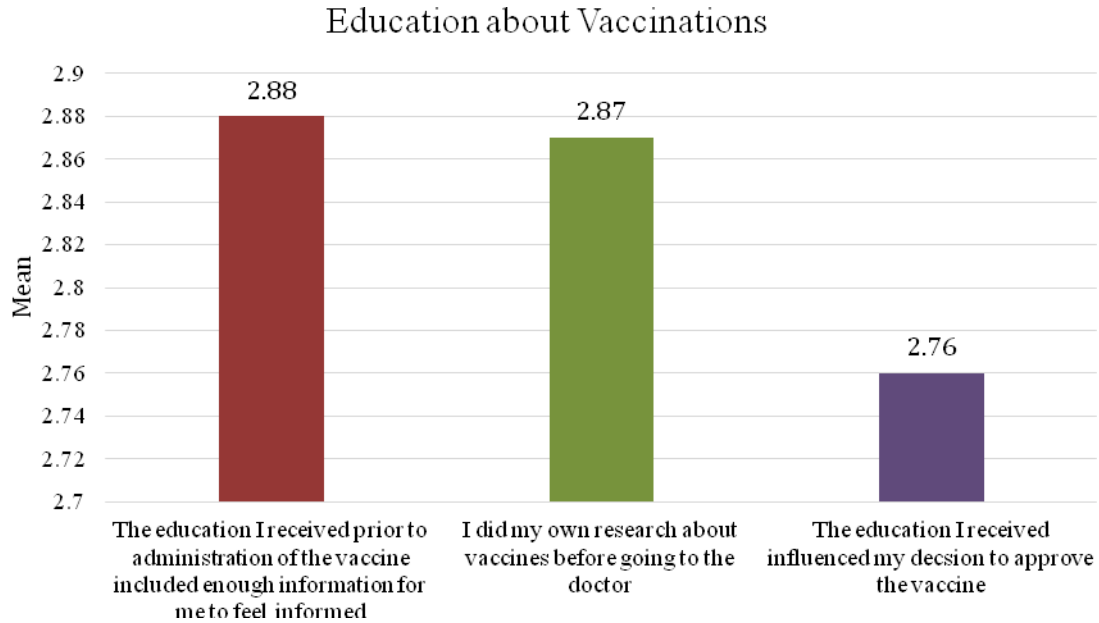


Figure 3. Perception of the Education Received about Vaccinations. N=120

It was shown that personal history determined if a child was vaccinated based on the survey statement, “my own history of vaccinations influenced my decision to vaccinate my child.” This resulted in the highest mean in the influence theme presenting a mean of 2.84 (SD= 0.87). Of the 120 participants, 86 stated they agreed or strongly agreed to their own history as a strong influencing factor to their child being vaccinated. This finding showed a high association between parents vaccinating their children because of their own vaccination history. With a high number in agreeing with the statement, there were 23 parents who disagreed with proper education and 11 strongly disagreed (see Table 6 and Figure 4).

Table 6. Parents Perception of the Influencing Factors towards Vaccinations

Variable	Mean	SD
My own history of vaccinations influenced my decision to vaccinate my child.	2.85	0.87
I felt comfortable denying the vaccination if necessary (no pressure from medical professionals).	2.72	0.82
Family/Friends had an influence on my decision to vaccinate.	2.33	0.86
Media had an influence on my decision to vaccinate.	1.89	0.80

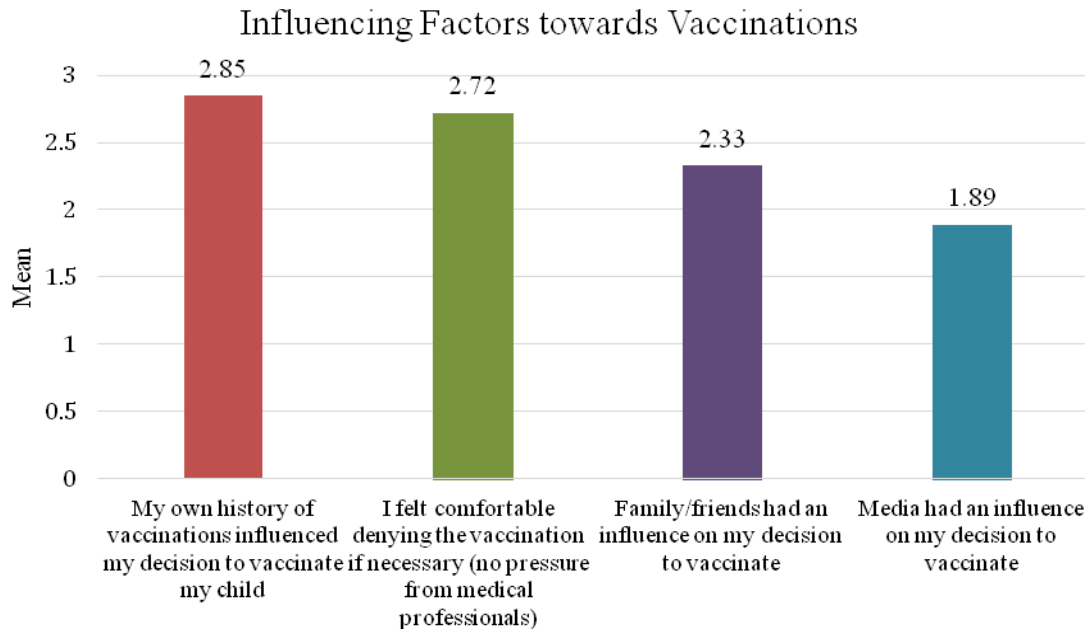


Figure 4. Perception of the Influencing Factors towards Vaccinations. N=120

COMPARISON

After the analysis and calculation of the findings, it was then significant to compare the highest means of the research themes. The highest means for all themes are noted in Figure 5. While there was a slight increase in the mean for purpose and safety, all four themes were to be a key factor in deciding if a parent should vaccinate their children or not.

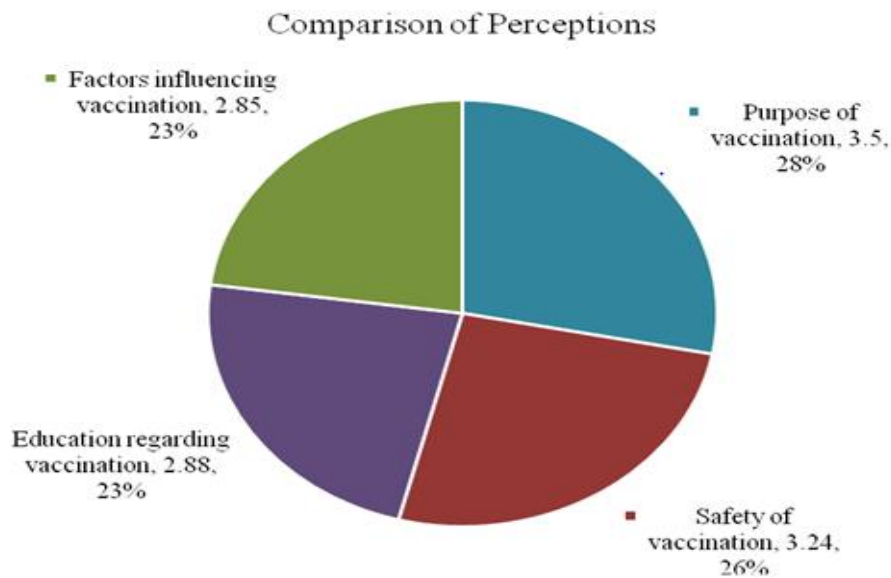


Figure 5. Comparison of Parents Perceptions of Vaccinations based on Mean. N=120

LIMITATIONS

There were multiple limitations to this study. The study was performed in the Midwest region of the United States. The opinions that people held about vaccinations and vaccinating their own children may have been related to the region that they live in and societal influences. In addition, the majority of school systems made it obligatory for children to be vaccinated before attending school. There were very few ways for parents to avoid this rule, so they may have been required to vaccinate their children even if they did not agree.

Time constraints were avoided as much as possible; however, they were a limitation. If a mother or father was with their children and did not have time to sit down and adequately read through every question on the survey, the results could have been skewed. The research method used a survey, which did not allow parents to explain their reasoning for vaccinating or not vaccinating their children. Other limitations included not having a large enough sample with varying demographics. The survey tool was new and did not have established reliability and validity. While there were limitations to the study regarding demographics, and geographical location, the researchers concur that valid data was obtained.

IMPLICATIONS

The CDC (2016b) indicated, “82% of parents cited their child’s health care professional as one of their top 3 trusted sources of vaccine information.” Surveying the parents of children to understand their knowledge level regarding vaccinations brought great benefits to healthcare providers. Gaining insight on the education parents are receiving about the importance of vaccinations provided healthcare providers with a new approach to patient teaching. With nurses as one of the top influencing factors in schools on whether a child is vaccinated, it is a priority to use upstream thinking to provide better education to parents where it may be lacking. This will help future generations understand the importance of immunizations and could lead to lower rates of preventable diseases.

RECOMMENDATIONS

Teaching and education from medical professionals about vaccinations should be increased if possible, by starting education once the mother is pregnant. Educating subjects should include information about newer vaccines on the market, natural immunity, and if the

vaccination is acceptable when the child is sick. Removing the barriers, or worries the parents may have regarding vaccinations may result in an increased vaccination rate in children.

Recommendations for Practice

Based on the findings, healthcare professionals need to be aware of the education a parent receives. When a parent's education is being evaluated, it is important to assess the knowledge base the parent already has, to influence how much time and effort is devoted to each parent. This is especially true when giving and educating about a new vaccine. The research showed a strong influence with parents who agree on giving a vaccine based on their own history. This influence does not apply to new vaccines and can even become a barrier if the effects of the new vaccine are not clear. Vaccination education needs to be taken seriously as it is a major factor in the decision of the parents.

Recommendations for Future Research

Further research should be performed at a national level with an increase in diversity. Different religions, races, age groups, and location can have a significant effect on the results of future studies. The research conducted in the future could also survey based on a specific new vaccination compared to an older vaccination to get an accurate representation of how much education is being completed. The focus should be placed on healthcare professionals and where exactly the parents are receiving vaccination education. Researchers should also question how many children are fully vaccinated at the time the survey is completed to find the rate of childhood vaccination.

SUMMARY

While completing the literature review, a lack of data was discovered concerning parents' perceptions about childhood vaccinations. This indicated a gap in the information and an essential need for additional research studies. Vaccinations are a large part of a child's and a population's health. Research is needed to determine how parents feel about vaccinating their children today. These results indicated parents were likely to vaccinate their children based on their beliefs about the purpose, safety, education received, and influence.

CONCLUSION

The conclusion drawn from this study was that there were four main themes when deciding to vaccinate a child. The majority of parents agreed that vaccines were used to prevent future illness and that this was a driving force to vaccinate their children. Research indicated that parents were more likely to vaccinate their children if they received adequate information from their provider. The analysis of the research statements indicated the participants were likely to vaccinate their children based on the safety of the vaccine, purpose of the vaccine, education regarding vaccination, and the factors influencing vaccination.

It was discovered that the more the parents believed in the purpose, safety, education, and influence of the vaccination, the more compelled they were to vaccinate. Another conclusion involved a need for more encompassing education given to the parents. A positive yet unanticipated finding was that a majority of participants did not believe autism was strongly associated with vaccinations. Vaccination education should be geared towards the gaps in knowledge for participants to understand all aspects of vaccines and how they are related to childhood.

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