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The Components of Vaccine Hesitancy and the Role of Patient Education in Promotion of Vaccinations in Newborns

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**The Components of Vaccine Hesitancy and the Role of Patient Education in Promotion of
Vaccinations in Newborns**

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NURS 4500: Nursing Research and Senior Thesis

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Abstract

Background

Due to an array of reasons relating to vaccine hesitancy, many newborns are without their standardized and recommended vaccinations as a result of their parent's beliefs. Parents hold the power to vaccinate their children. Nurses must provide reliable information, debunk myths, and pursue pro-vaccination ideas when educating a parent about newborn vaccinations. By doing so, vaccine hesitancy should decrease and vaccination rates should increase. Unvaccinated newborns are put at a greater risk for contracting serious illnesses that may spread to others or even lead to one's own death.

Objective

To identify common factors regarding vaccine hesitant parents of the newborn population using data from the research studies investigated. Some studies may include data from a newborn and adolescent population (up to 18 years of age), but the primary focus of this thesis is on the newborn population. Both reasons for vaccine hesitancy and probable educational interventions will be researched. The evidence gathered will then be interpreted to formulate an effective plan to promote the benefits of getting vaccinated using face-to-face patient education and appropriate healthcare resources.

Summary of Findings

After reviewing a variety of reliable research studies, it is evident that there is a pattern amongst those who feel vaccine hesitancy versus those who do not. The overarching factors include personal beliefs, religious beliefs, political beliefs, lack of knowledge, and lack of access to resources. However, one study revealed that parents are not against vaccinations as long as the benefits clearly outweigh any potential consequences. Parents are also likely to turn around their vaccine hesitant perspective for their children.

Proposal

Once a clearer understanding of vaccine hesitancy in parents and its relation to their children is developed, the proposal of a quantitative study will be made. This quantitative study will be quasi-experimental and will focus on expecting mothers. The study will use survey and experimental methods to determine if patient education intervention is effective for combating vaccine hesitant beliefs and improving vaccination rates.

Introduction

Vaccine hesitancy can occur due to an array of reasons such as concerns about risk versus benefits, religion or personal beliefs, and lack of healthcare knowledge or vaccination education. These reasons may influence a parent's decision on whether or not they want to vaccinate their newborn with recommended vaccines. This choice puts the already vulnerable population at an even greater risk for contracting diseases. As a healthcare professional, nurses become one of the "most trusted sources of information for vaccines" (CDC, 2012) even for parents that may seem very hesitant. Nurses can assist parents in realizing the purpose and benefits of vaccinations by offering a positive recommendation of vaccines and guidance towards necessary resources. A thorough understanding and different perspective was adapted after review of the six literature articles. However, there is a gap in the literature studies surrounding the effectiveness of face-to-face patient education interventions. This gap may hold a key solution to increase vaccine rates and decrease vaccine hesitancy. A research study proposal will be made to further investigate the missing piece of patient education with face-to-face as the mode of communicating. The future research study will answer the following questions: Where do expecting parents stand in regards to their perception of recommended newborn vaccinations? Are expecting parents more likely to change their outlook compared to current parents? Is an educational program that emphasizes the health promotion model effective in informing the expecting parents about vaccines? Will the educational program be significant enough to change their stance in regards to vaccination hesitancy?

Research Question

Prior to the research study proposal, knowledge about vaccine hesitancy must be gained. The literature review will answer the questions: What are the reasons associated with vaccine hesitancy? What educational tools and promotion have been used to convey the significance of

standardized immunizations in newborns? By gaining this fundamental knowledge base, a valid research study proposal can be produced.

Problem Statement

The problem at hand is that people who are vaccine hesitant for themselves may translate these beliefs to their newborn and decide to keep them unvaccinated. Although the COVID-19 pandemic has brought on a higher rate of vaccinations, there are still many that remain hesitant or are untrusting of vaccines. In the United States, 80.7% of newborns receive the DTap vaccine, 79.6% receive the Hib (primary series and booster dose) vaccine, and only 68.3% receive the combined 7-vaccine series by 24 months of age (CDC, 2019). Emphasizing pro-vaccination ideas and the continuation of development for effective vaccine patient education is detrimental in increasing these rate percentages.

Literature Review

The objective of this literature review is to synthesize relevant and reputable literature relating to the issue of vaccine hesitancy amongst the newborn and children population. This literature review aims to answer the question of why someone may be vaccination hesitant, especially when it comes to their own children or the younger population in general. The most recurrent reasons found across the studies of these literature pieces will be further discussed in hopes to better understand the vaccine hesitancy perspective. The information will then be used to create possible effective patient education plans that promote vaccinations in a positive and informative way.

The way in which all research was done and literature articles were found were through Google's scholarly article search platform. The search terms used included "vaccine hesitancy", "newborn", "childhood", and "beliefs". This method of research was chosen over PubMed or any single database because it would yield a wider variety of results from various sources. This left freedom for selection of the literature articles that would best meet the question and needs of this

research topic. The databases that will be referred to in this literature review are the Cochrane database, SpringerLink, Taylor and Francis, and Science, Pew Research, and ScienceDirect.

The searched terms used generated thousands of results, however, only six articles will be used in this review. Each article chosen was thoroughly read through and reviewed for accuracy and relevance towards the issue being researched. This literature review will be split up into four categories that stem from the four pertinent scenarios that may lead to vaccine hesitancy found across the articles used. These categories are risks vs benefits, religious and personal beliefs, lack of healthcare knowledge and vaccination education, and parental status (see the Appendix for a Literature Review table, summarizing the articles). By isolating the primary reasons for concern, a more detailed proposal for change can be presented.

Category One: Reasons for Vaccine Hesitancy

Extensive literature and research done by Alfieri et al., Cooper et al., and Crescitelli et al, are categorized together because they developed categorical reasoning behind vaccine hesitancy parents. They are all large studies, two of which are comprehensive synthesis reviews. They may have similar discoveries. Understanding the reason behind one's point of view will be crucial in developing an effective and relevant educational intervention.

Article One: Parental COVID-19 Vaccine Hesitancy for Children: Vulnerability in an Urban Hotspot

This research study done by Alfieri et. al (2021) discusses the vulnerability of the childhood population, the deep need for vaccinations in an urban setting, and how vaccine hesitancy impacts this issue. It was chosen to be in the first category because it considered sociodemographic factors that may influence vaccine hesitancy. The study was completed in Cook County, Illinois, in 2020 which would be considered during the rise of the COVID-19 pandemic. The study methods used were quantitative, specifically through a cross-sectional online survey medium. Logistic regression was used to formulate the probability distribution of

the researchers' hypothetical outcome. The sample size targeted included 1702 parents of various ethnicities, but only 1425 were included in the final analysis. This decision could have been due to skewed data, however, the true reason is not disclosed. Their main findings revealed that 33% of parents regardless of sociodemographic factors were vaccine hesitant for their child. From this percentage, COVID-19 vaccine hesitancy was more prevalent in non-Hispanic black parents than non-Hispanic Caucasian parents. Vaccine hesitancy is also higher in parents of children who are publicly insured and come from lower socioeconomic backgrounds. The researchers concluded their study by stating that parents and families who have been affected heavily by the COVID-19 pandemic are more likely to be hesitant about a future COVID-19 vaccination.

Article Two: Factors that Influence Parents' and Informal Caregivers' Views and Practices Regarding Routine Childhood Vaccination: A Qualitative Evidence Synthesis

This second research article was chosen to be in the first category because of its direct objective to “explore parents’ and informal caregivers’ views and practices regarding childhood vaccination, and the factors influencing acceptance, hesitancy, or nonacceptance of routine childhood vaccination” (Cooper et al., 2021). The phenomenon that fueled this study was that many children do not receive recommended vaccinations despite being considered the first line of prevention for serious diseases. The study is a systematic review that looked at 145 previous literature from 1974 to 2020 of multiple reliable databases to map out consistent themes that influence a parents’ view on childhood vaccinations. Although over 100 studies were reviewed, only 27 were utilized for analysis for their qualitative methods and focus on key points desired by researchers Cooper et al. The influential themes yielded from this review were 1) Broader ideas and practices surrounding health and illness, 2) Vaccine ideas and practices of people the parents socialize with, 3) Political issues and concerns that the parents trust or distrust in, and 4) Previous experiences with vaccines, healthcare workers, and accessibility determinants of the vaccines (Cooper et al., 2021). Researchers like Cooper et al. who construct systematic reviews

or synthesis give the reader a comprehensive overview of studies' findings. However, it creates variability in how the initial studies were done and questions the validity of the concluding arguments.

Article Three: A Meta-synthesis of the Key Elements Involved in Childhood Vaccine

Hesitancy

Similarly, researchers Crescitelli et al. (2020) conducted a systematic review and meta-synthesis of qualitative studies that unveiled five overarching categories that were steady influences related to vaccine hesitancy. This study referred to reliable databases for studies and narrowed their focus towards 27 studies involving 1557 parent participants. The objective of their research was to “examine study validity, adequacy, and potential applicability of the results” (Crescitelli et al., 2020). This study found five overarching themes that are closely related to the findings mentioned in the previous article further validating the elements of vaccine hesitancy are alike amongst many settings. The five themes adapted are 1) Risk misconceptions, 2) Doubt towards vaccine-related companies or employers such as pharmacies and health professionals, 3) Parental alternative health beliefs, 4) Philosophical views on parental responsibility, and 5) The knowledge levels parents have about childhood vaccines (Crescitelli et al., 2020). This study hopes that conceptualizing these factors will guide healthcare workers to better address the growing challenge of vaccine hesitancy in parents for their children. Conclusively, the suggested approach made in the study’s conclusion reminds healthcare workers that vaccine hesitancy may stem from good intentions in that these parents believe what they feel is right for their child.

Category Two: Educational Interventions

This category will includes research studies done by Hofstetter et al., Williams, and Shen SC et al. These studies take into account the prevalence of vaccine hesitant parents and attempt interventions using patient communication and education to determine the influence it may have. These studies are crucial in understanding what intervention methods have been evaluated. The

data reviewed from these studies will help pilot the most relevant and in-depth research study proposal.

Article One: Clinician-parent Discussions about Influenza Vaccination of Children and their Association with Vaccine Acceptance

The first article of this category was selected because it was very clear in the intervention methods used and how the study was performed. Its objective to use patient education as a tool for addressing vaccine hesitancy aligns with the investigative interests of this thesis. Researchers Hofstetter et al. (2017) formulated a secondary analysis of a cross-sectional observational study to examine how communication techniques of clinicians may encourage or discourage vaccine acceptance. Their sample size included 17 clinicians who were to have 50 visits with parents of children less than 6 months of age. During each video visit, the clinician would use a scheme of 10 communication behaviors to introduce and recommend the influenza vaccination to parents. The data collected from this study was analyzed using bivariate methods and generalized linear mixed models. The key points yielded showed that vaccine hesitancy was less likely to occur if the topic of vaccinations was initiated by the clinician in a positive manner. Additionally, pursuit by the clinician despite vaccine hesitancy in parents overall increased acceptance of the vaccine. Finally, encouraging bundling of recommended vaccinations further welcomed the acceptance of the influenza vaccine. These modes of communication relating to vaccinations overall yielded positive responses from parents and did not affect the quality of the online video visit.

Article Two: Addressing Vaccine Hesitancy: Clinical Guidance for Primary Care Physicians Working with Parents

This systematic literature analysis done by Shen et al. (2019) outlines more general but comprehensive interventions that should be used when working with vaccine hesitant parents. Their objective is “to provide primary care physicians with clinical guidance for addressing parental vaccine hesitancy” (Shen et al., 2019). The information referred to in this article was

taken from previous literature found on the PubMed database. The criteria for their search are English articles published within 10 years of 2018. They have included the search terms used for their investigation, however, it is not clear how many articles were analyzed for their final study. Some of the search terms used were “vaccine hesitancy”, “acceptance”, “parents”, “children”, “communication”, and “clinical practice”. Through their search, researchers Shen et al. listed some critical ways healthcare workers can motivate vaccine acceptance. These ways include 1) Start providing information and education early on, 2) Present vaccines as the default approach, 3) Build trust, 4) Be honest about side effects while providing reassurance about safety protocols, 5) Focus on the protection of the child and the community, 6) Share true experiences of patient stories along with stating evidence-based facts, and 7) Address possible pain and ways it can be managed. While some of these concepts may seem obvious, they are essential in demonstrating patient centered care especially for vaccine hesitant parents. It remains the healthcare workers responsibility to be a trusted source of health information.

Article Three: What are the Factors that Contribute to Parental Vaccine Hesitancy and What can we do about it?

This research article done by Williams (2014) is unique in that it encompasses qualities of both category one and two, however, it was selected for this category because of the insightful results it produced. Researcher Williams organized a quantitative cluster randomized trial as the mode for conduction of this study. This study sampled 1,222 parents or guardians of two-week old infants who were previously screened as hesitant based on a 15 question Parent Attitudes about Childhood Vaccines Survey (PACV). The goal of this study was “to determine the factors that contribute to parental vaccine hesitancy and how healthcare advocates can approach this” (Williams, 2014). This literature review will focus on the latter half of the objective. William took the reasons for vaccine hesitancy to propose the best communication strategies and educational tools that can be utilized against these conceptualizations. The study was performed

by randomly providing half of the participants with an online educational video, handouts of accurate vaccination information and common myths related to childhood vaccines. These educational interventions yielded a significant increase in vaccine acceptance compared to those who did not receive any intervention. Although this study showcased great validity, it is not clear how each tactic directly influenced the parent's perspective. It also utilized an online and paper format for education, whereas face-to-face education may be even more effective.

Discussion of Literature

The six literature pieces researched has provided a good foundation of knowledge about parental vaccine hesitancy. However, this phenomenon has only been scratched on the surface and holds more depth worth looking into. These studies yielded some valid results, however, are varying in study methods and data analysis. The information obtained from review of these six studies can usher the way towards a more concrete patient education plan.

Proposal for Further Study

After extensive review and analysis of literature works, it is evident that further research must be done to formulate the most effective approach nurses can apply when addressing vaccine hesitancy, especially among new parents. The question still remains: Is-face-to-face education more effective than other modes of interventions in persuading and informing parents about the benefits of vaccines? There were significant similarities in reasons for vaccine hesitancy across most of the literature studies reviewed. Research and analysis must continue to explore these vital reasons in order for there to be a tipping point of increased vaccination rates and decreased vaccine hesitancy.

Theoretical Framework

The theoretical framework that is most applicable to the topic being researched is that of Nola Pender: Health Promotion Model theory. This theory is composed of five key concepts: person, environment, nursing, health, and illness. The purpose of this theory is to “assist nurses

in understanding the major determinants of health behaviors as a basis for behavioral counseling to promote healthy lifestyles” (Nursing Theory, 2019). This idea best compliments the aim of this research as the vaccine hesitancy population can be better understood once the reasons behind their perspective are revealed. With knowledge of why people experience vaccine hesitancy, nurses can develop a more thorough patient education plan to address these specific concerns. Nursing interventions related to patient education will increase self-awareness in those who are vaccine hesitant. By referring to Nola Pender’s theory, the proposed research study will determine whether or not the promotion of health through patient education will decrease vaccine hesitancy.

Primary Research Aim

The primary research aims of the proposed study is to determine whether or not face-to-face patient education interventions have a greater success rate in decreasing vaccine hesitancy and increasing vaccination rates compared to other interventions used such as online videos or handouts. By completing this study, educational intervention approaches will be practiced and specific methods can be determined as more effective and reliable. This study is also important in enforcing a positive mindset regarding vaccinations for upcoming generations.

Ethical Considerations

Ethical considerations that must be made before the research study can be legitimized and begun. First, participation in this study will be completely voluntary and the participants hold the right to withdraw at any time. The study will involve an educational intervention, which may take up as much as an hour of the participant's in-person time at a further date, which will be made clear in the consent form and will need to be considered as a potential burden for patients.

Secondly, a detailed description of the study will be provided and a written consent form will be required for participation. The consent form will include what the study is about, what the role of participant entails, benefits of the work being studied, how the data will be analyzed and

used, and terms of privacy and confidentiality. No names will be used. A numerical Study Identifier (Study ID) will be assigned to each participant to protect privacy. Study data will only be stored on a password protected computer.

Thirdly, the Institutional Review Board (IRB) at Dominican University of CA will be need to approve of the study under the Protection of Human Participants (IRBPHP) standard directive. Approval by this group will ensure protected rights and welfare of human participants for studies engineered under the authority of Dominican University of CA.

Research Methodology

Design

The research study proposed will be an experimental study with the primary aim being to determine if face-to-face education interventions is more effective than other modes of education interventions (online videos, handouts, etc.) in relation to decreasing vaccine hesitancy amongst pregnant women. The proportion of participants whose perspectives change after an educational intervention will be examined. The study will focus on vaccine hesitant expectant mothers. The hypothesis is that face-to-face interventions are more effective than other educational modes in persuading expectant mothers about the benefits of vaccinations, therefore, increasing vaccination rates.

Population

The population for this study will be pregnant women in Marin County, California (CA), United States (U.S.A.). The researcher will collaborate with a local Obstetrical Medical Practice. A convenience sample will be recruited from the Obstetrics (OB) practice, located in Marin County, CA. The sample will include 100 expectant mothers who are unknowledgeable or hesitant about vaccinations. The reason for this choice of population is to investigate if a vaccine hesitant mother will keep or change their perspective in regard to their own child. The goal is to educate this population, decrease vaccine hesitancy, and increase vaccination rates for newborns.

Inclusion criteria, besides being woman who is pregnant and lives in Marin County, will be that the participant must be at least 18 years of age. There are no specific socioeconomic factors or demographics needed to qualify for this survey study. The participants will be recruited directly through the medical office, using written brochures that will be available in the waiting room (in English and Spanish) and word of mouth from practitioners. Written material about the aims and procedure for the study will be provided along with a phone number and email address for potential participants to use to contact the researchers. When an interested party contacts the researchers, the study will be explained and the potential participant will have full jurisdiction to accept or to decline involvement.

Procedure

The proposed study will consist of an educational intervention related to the value of vaccinations along with a before-and-after quantitative survey. Numerical values will be assigned to the survey responses using the Likert scale point system. The study will utilize an experimental approach. An experimental approach is indicated for this study, according to the presence of two interventional groups: 1) A: Those receiving follow-up face-to-face educational intervention and 2) B: Those who will receive usual care and a simple educational handout regarding vaccines.

The survey will include statements in which the participants will determine whether they strongly agree, agree, are uncertain, disagree, or strongly disagree with various viewpoints regarding vaccination hesitancy or compliance. There will be questions about vaccine compliance and vaccine hesitancy, relating to the general public and to the participants own beliefs. There will also be questions relying on the Parent Attitudes about Childhood Vaccines survey tool. Examples of questions that may be used are:

- I make it a priority to get vaccinated as soon as possible or as recommended by my healthcare provider.
- I believe vaccinations are safe and effective.

- I am constantly researching and educating myself on new vaccinations.
- I believe getting vaccinated is part of a citizen's due diligence to achieve herd immunity.
- I care that those around me are taking proper precautions in regards to getting vaccinated.
- I will delay my child's vaccination if it interferes with another priority.
- I trust the information I receive about vaccinations.
- I am comfortable approaching my child's doctor with concerns I have about vaccinations.
- I believe there are no side effects serious enough to outweigh the benefit of preventing a disease through vaccination.
- I plan to get my newborn all the recommended vaccinations immediately.

The survey will be presented to the participant immediately after the person consents.

The receptionist in the OB Office will be appointed as a research assistant, and instructed in the study procedure and consent process. After being provided the written consent form, receiving an explanation of the study, and being given the opportunity to ask questions, the participant will have time to decide whether she wants to participate, and will be able to sign the consent form in the waiting room. Participants will be provided adequate time to complete the questionnaire.

After completion of the questionnaire, the participants will be assigned alternately to either group A or group B. Group A will be the group receiving the follow-up face-to-face educational intervention program, while group B will receive the usual care provided by the Obstetrics practice, and a simple handout as their form of educational intervention .

The educational intervention, based the "Vaccines for Your Children" information provided by the Centers for Disease Control (CDC), will consist of a a small group instructional session with time for group discussion and questions and answers. Participants also will be able to take home educational materials on vaccines with the researchers' contact information, if they have additional questions. The researcher(s) will serve as the educator(s). The educational sessions will be scheduled every Monday, Wednesday, and Friday afternoon during the

three-month enrollment period. Participants will be instructed to attend an educational session within three days of their enrollment.

Ten days to two weeks after participants enroll in the study, both groups will retake the questionnaire a second time after the educational intervention has been implemented. This follow-up should be done within 14 days to limit exposure to outside influences and change of mind. Group A will take the same questionnaire right after their educational intervention program. Group B participants will return to the (doctor's office) to retake the same questionnaire.

Data Analysis

The first step of data analysis for this study is to collect the numerical data provided by the responses of the survey. The Likert scale allows this to be done simply through calculations using descriptive statistics. The mean, median, mode, standard deviation, and skewness will be determined to understand where the vaccine hesitant population viewpoints are most prominent. The second step of data analysis will occur after educational interventions have been provided to one group. The group receiving the educational interventions and the control group will then complete the same survey a second time. A t-test will be performed between the two groups to determine whether or not there are differences in vaccination views between the pre- and post-test within each group as well as differences between the intervention versus the control groups. two groups.

Conclusion

The urgency surrounding vaccine hesitancy remains at large and the search for the answer to the primary research question must still be investigated: What educational tools and promotion is most effective for nurses to use in order to convey the significance of newborn vaccinations to new parents? The literature touched upon some interventions that may be implemented but that is barely the surface of this topic as many people still remain vaccine hesitant. Research and studies

should continue to be conducted throughout the nation to achieve the best understanding behind vaccine hesitancy. The continuation of this research is essential for decreasing vaccine hesitancy and increasing vaccination rates nationwide.

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Appendix A - Literature Review Table

Author / Citation	Purpose / Objective of Study	Sample - Population of interest, sample site	Study Design	Study Methods	Major Findings	Strengths	Limitations
<p>Alfieri NL, Kusma JD, Heard-Garris N, Davis MM, Golbeck E, Barrera L, Macy ML. Parental COVID-19 vaccine hesitancy for children: vulnerability in an urban hotspot. BMC Public Health. 2021 Sep 13;21(1):1662. doi: 10.1186/s12889-021-11725-5. PMID: 34517848; PMCID: PMC8436579.</p>	<p>To compare hesitancy toward a future COVID-19 vaccine for children of various sociodemographic groups in a major metropolitan area, and to understand how parents obtain information about COVID-19</p>	<p>1425 parents of children less than 18 years of age in Chicago and Cook County, Illinois</p>	<p>Cross-sectional online survey</p>	<p>This study used logistic regression to determine the odds of parental COVID-19 vaccine hesitancy for racial/ethnic and socioeconomic groups, controlling for sociodemographic factors and the sources where parents obtain information regarding COVID-19</p>	<p>- 33% of parents reported vaccine hesitancy for their child - Vaccine hesitancy was higher among: 1) Black parents compared to White parents 2) Parents of publicly insured children compared with privately insured 3) Lower income groups</p>	<p>- Large sample of comparable ethnicities in a similar setting - Clear relationship between objective, methods, results, and analysis</p>	<p>- Some participants weren't considered for final data analysis, therefore, may indicate some skewed data or variability in results - Criteria for selection of final analysis is not disclosed</p>

Author / Citation	Purpose / Objective of Study	Sample - Population of interest, sample site	Study Design	Study Methods	Major Findings	Strengths	Limitations
<p>Cooper S, Schmidt BM, Sambala EZ, Swartz A, Colvin CJ, Leon N, Wiysonge CS. Factors that influence parents' and informal caregivers' views and practices regarding routine childhood vaccination: a qualitative evidence synthesis. Cochrane Database Syst Rev. 2021 Oct 27;10(10):CD013 265. Doi: 10.1002/1465 1858.CD013 265.pub 2. PMID: 34706066; PMCID: PMC8550333</p>	<p>To “explore” parents’ and informal caregivers’ views and practices regarding childhood vaccination, and the factors influencing acceptance, hesitancy, or nonacceptance of childhood vaccination.</p>	<p>145 studies for review and sampled 27 for analysis. Studies were conducted in various countries, including both non-rural and rural areas. It is also considered high-, middle-, and low-income setting.</p>	<p>Systemic (qualitative evidence) review and analysis</p>	<p>Qualitative methods for data collection and analysis focused on parents’ or caregivers’ views, practices, acceptance, hesitancy, or refusal of routine vaccination for children aged up to 6 years and were from any setting globally where childhood vaccination is provided</p>	<p>Four major themes that influence parents’ perspective on childhood vaccination: 1) Broader ideas and practices surrounding health and illness. 2) Vaccine ideas and practices of people they socialize with. 3) Political issues and concerns, particularly their trust (or distrust). 4) Access to / experiences of vaccination services and their healthcare.</p>	<p>- Large sample size of studies used for analysis - Comprehensive review</p>	<p>- Narrowing the complex influencing factors into 4 main themes, may corrupt the specific variables in the vaccination hesitancy perspective. - There may be variability in how each of the studies used were done.</p>

Author / Citation	Purpose / Objective of Study	Sample - Population of interest, sample site	Study Design	Study Methods	Major Findings	Strengths	Limitations
<p>Crescitelli, M. E. D., Ghirotto, L., Sisson, H., Sarli, L., Artioli, G., Bassi, M. C., Appicciutoli, G., & Hayter, M. (2019, December 12). A meta synthesis study of the key elements involved in childhood vaccine hesitancy. Public Health. https://www.sciencedirect.com/science/article/pii/S0033350619303476?casa_token=ikQQN02r17YAAAAA%3AzPviqwgGHmxeapeVVGr73IjhqyvuTfzcQK62u2eYzkLxAbpeulivTwit9NCeuPEMZEV_mUWa_0tM</p>	<p>To collect and combine data of multiple studies by analyzing the validity, adequacy, and potential applicability of the qualitative results.</p>	<p>27 studies involving a total of 1557 parents who are/were hesitant about vaccinating their child.</p>	<p>Systematic review and metasynthesis of quantitative studies</p>	<p>The preferred reporting items for systematic reviews and meta-analyses guidelines were used in the process of retrieving articles and studies</p>	<p>Five overarching categories related to vaccination hesitancy in the parents of this sample:</p> <ol style="list-style-type: none"> 1. Risk conceptualized 2. Mistrust of vaccine-related institutions, pharmaceutical companies, researchers, health workers, and information from media 3. Parental alternative health beliefs 4. Parents' information levels about vaccinations 	<p>- Use of reliable databases and guidelines to guide their search for the most appropriate and relevant study articles</p>	<p>- Response accuracy of all or any participants may be skewed</p> <p>- The use of 27 studies makes ensuring the operational definitions match challenging.</p> <p>- The variables may be inconsistent, causing a threat to validity if the same measuring methods were not used throughout all of the data.</p>

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<p>Hofstetter AM, Robinson JD, Lepere K, Cunningham M, Etsekson N, Opel DJ. Clinician-parent discussions about influenza vaccination of children and their association with vaccine acceptance. <i>Vaccine</i>. 2017 May 9;35(20):2709-2715. Doi: 10.1016/j.vaccine.2017.03.077. Epub 2017 Apr 6. PMID: 28392141; PMCID: PMC5572763.</p>	<p>To examine how clinicians communicate with parents about influenza vaccination and the effect of these communication behaviors on parental vaccine decision making.</p>	<ul style="list-style-type: none"> - Fifty visits involving 17 clinicians from 8 practices - Fifty parents over 18 years old and have child(ren) 6 to 19 months of age. 	<p>Secondary analysis of data obtained from a cross-sectional observational study</p>	<ul style="list-style-type: none"> - Health supervision visits between pediatric clinicians and English speaking parents were videotaped - A coding scheme of 10 communication behaviors was used for each visit. - Associations were examined using bivariate analysis and generalized linear mixed models. 	<ul style="list-style-type: none"> - There was a higher acceptance rate of the influenza vaccine when clinicians initiated the conversation about it - Acceptance was also higher for clinicians who pursued versus did not pursue 	<ul style="list-style-type: none"> - The study provided sufficient statistical evidence to construct a valid conclusion 	<ul style="list-style-type: none"> - The exact methods used for the 10 communication scheme were not directly disclosed

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Shen SC, Dubey V. Addressing vaccine hesitancy: Clinical guidance for primary care physicians working with parents. Can Fam Physician. 2019 Mar;65(3):175-181. PMID: 30867173; PMCID: PMC6515949	To provide primary care physicians with clinical guidance for addressing parental vaccine hesitancy.	English language articles published within 10 years of January 1, 2018 found on PubMed	Systematic Review and Meta-analysis	Comprehensive research through PubMed using terms such as “vaccine hesitancy”, “confidence”, “acceptance”, “parents”, “children”, “communication”, “counseling”, “clinical practice”	Interventions found that may aid in combating vaccine hesitancy are: 1. Start early 2. Present vaccination as the default approach 3. Be honest about side effects and reassure parents of the vaccine safety system 4. Speak about real patient stories as well as provide facts 5. Build trust 6. Address pain using evidence based information 7. Focus on protection for the child and community	- This study was very thorough in its objective, methods, results, and analysis of findings.	- Vaccine hesitancy is an emerging area of research so current literature that this study refers to is limited and may have gaps or variability - This study did not state exactly how many articles it included as information sources

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Williams, S. (2014, November 13). What are the factors that contribute to parental vaccine hesitancy and what can we do about it? Taylor & Francis. https://www.tandfonline.com/doi/full/10.4161/hv.28596	To determine the factors that contribute to parental vaccine hesitancy and how healthcare advocates can approach this.	122 parents and guardians of 2 week old infants who were screened as vaccine hesitant using PACV.	Quantitative cluster randomized trial	Vaccine hesitant parents and guardians saw an online educational video, received handouts of accurate online vaccine information and common vaccine myths for all childhood vaccines.	There was a positive change in parental vaccine hesitancy score and on-time vaccination of 2 month old childhood vaccinations after using the suggested methods of communication as stated in the study's analysis.	- Good variety of variables in terms of possible effective communication tactics	- Motivating factors of vaccine hesitancy have not been thoroughly evaluated. - The primary reason for the positive change is not direct due to the many tactics used. - There is a lack of evidence in regards to effective strategies that help increase vaccine uptake for children of vaccine hesitant parents.