The MMR Vaccination Project: The Use Of Quantitative Research To Increase MMR Vaccination Completion Rates

EBP Question

What is the difference between an NP discussion on MMR vaccination facts and myths pamphlet versus MMR vaccination facts and myths video, on the monthly incidence of MMR vaccination completion rates, among parents of infants, 12-15 months old, who have declined the MMR vaccination in three months?

Research Literature Support

The MMR vaccination project requires further research and evidence to validate that the pamphlet and video education interventions will impact the project's overall outcome. Multiple studies conducted have determined a positive correlation between the pamphlet and/or video education and research outcomes; however, little research has been done to validate this correlation as it relates to the MMR vaccination project. Thus, ten different research articles will be analyzed to demonstrate the impact that pamphlet and video education can have on research and how these interventions can impact monthly MMR vaccination completion rates.

In a study published by Ang, Heryani, Lau, and Lau (2018), the authors found postoperative patients are at high risk for falls; however, research demonstrates that educational videos and pamphlets on fall risk awareness decrease the incidence of falls. In a qualitative, quasi-experimental study, researchers approached eligible patients, individuals who were admitted from October 2016 to January 2017, to participate in a study to seek knowledge on how to prevent patient falls (Ang, Heryani, Lau, & Lau, 2018). Individuals who met the criteria were divided into two groups; each group possessed 101 participants. The control group received education solely from a fall prevention pamphlet, and the intervention group received an educational video in addition to the pamphlet (Ang, Heryani, Lau, & Lau, 2018). A questionnaire was administered directly after the participants received their education. Fall risk awareness demonstrated significant results based on an independent t-test (Ang, Heryani, Lau, & Lau, 2018). These results revealed that the intervention group (video and pamphlet) scored higher on fall risk awareness and had lower occurrences of falls postoperatively (Ang, Heryani, Lau, & Lau, 2018) . Thus, indicating that the combination of a pamphlet and video education has the greatest impact on positive outcomes. Although this study utilized a quasi-experimental approach which lacks randomization and generalizability, the researchers have gained new knowledge on methods to increase fall prevention awareness (Polit & Beck, 2017). This newfound knowledge can be utilized to promote positive outcomes for the MMR vaccination project by incorporating the use of both educational videos and pamphlets.

A study published by Lin et al. (2018), the authors utilized a quantitative, randomized control trial to investigate methods to improve patients' understanding of informed consent. Informed consent is legally required to perform invasive procedures and it is the physician's responsibility to obtain patient consent after discussing risks, benefits and alternative treatment options (Lin et al., 2018). Patients were eligible to participate if they were scheduled to undergo surgical debridement of injuries to the upper and lower extremities, under either general or epidural

anesthesia (Lin et al., 2018). To initiate this study, the authors created a baseline questionnaire to measure the participants' knowledge of informed consent prior to implementing the interventions. Next, the eligible participants were randomly assigned to either the video (intervention) group or the traditional informed consent (control) group (Lin et al., 2018). There were 70 participants in the intervention group and 72 in the control group. After the interventions were completed, a posttest questionnaire was given to assess understanding of informed consent. The research findings indicated that all participants gained knowledge regarding informed consent; however, the intervention group had greater understanding than those in the control group (Lin et al., 2018). Consequently, validating that video education was superior to written education. One limitation of this study is that the informed consent is specific to surgical debridement of the upper and lower extremities (Lin et al., 2018). The research results may not be generalizable because the study represents a specific surgery which does not apply to other types of surgery (Lin et al., 2018). Despite the limitations of this study, a strength of this study is the baseline measurement performed prior to the intervention which limited potential biases and reflected accurate improvements after the intervention (Lin et al., 2018). Concluding, the post intervention knowledge assessment is accurate and precise.

Guralnick et al. (2017) conducted a randomized controlled trial that assessed the impact of an educational video on CPAP use in patients greatest at risk for low CPAP adherence. Adult patients referred to the University of Chicago Sleep Disorders Center between August 2014 and April 2016 were screened for eligibility (Guralnick et al., 2017). In this study, participants were randomly assigned to enhanced video education (intervention group) or usual pamphlet education (control group) regarding OSA and CPAP therapy (Guralnick et al., 2017). To reduce biases, the sleep technologist did not answer questions nor engage in discussion regarding the pamphlet or video intervention. The pamphlet was handed to participants without discussion and the video was shown to participants without explanation. The morning after the CPAP trial, patients were given a questionnaire to assess their perception of the CPAP therapy (Guralnick et al., 2017). Guralnick and colleague's obtained findings that demonstrated no significant differences in CPAP adherence between the intervention group in the control group (Guralnick et al., 2017). One limitation of this study is that researchers cannot exclude the possibility that some patients might have viewed additional educational material prior to participating in either group. A strength of this study is the randomization that was utilized to obtain a large sample size. Although, this particular article demonstrated no difference between interventions, this validates the need for further research on pamphlet and video-based education.

Park and colleagues (2016) conducted a quantitative, randomized controlled trial from October 2014 to February 2015 to assess the quality of bowel preparation for a colonoscopy procedure. There was a total of 502 patients who were randomly separated into two groups and obtained exact preparation instructions and information on the importance of after bowel preparation. In addition, all participants received a preparation manual with clearly defined instructions. The intervention group (250 participants) received an additional educational video regarding coloscopy preparation, while the control group (252 participants) only received the instructions and preparation manual (Park et al., 2016). On the day of the procedure, participants were asked to complete a three-page multiple-choice questionnaire in Korean prior to the procedure. The questionnaire also confirmed whether a patient assigned to the video group watched the educational video prior to the procedure. The research concluded there was a significant difference between the two groups regarding quality colonoscopy preparation (Park et al., 2016). The quality of colonoscopy preparation assessed by the endoscopist utilizing the Ottawa score (Park et al., 2016). The research findings indicated that the video group demonstrated

better ratings for cleanliness, concluding that the video education was superior to the manual education. Some strengths of the study include randomization, large sample size, and an unbiased endoscopist. A limitation to this study is the specific location and language of participants, which decreases generalizability. The results from this study can encourage other researchers to utilize educational videos for the MMR vaccination project.

An article written by Wilson and colleagues closely relates to the MMR vaccination project because both studies investigate interventions that will provide individuals with the optimal education needed to ensure they are making informed decision related to treatment options. Wilson et al. (2015), published a randomized controlled trial study that examined if a cardiopulmonary resuscitation video would have greater impact on patients' knowledge and decision making than a pamphlet (usual care). The sample size for this study consisted of 208 participants that were divided equally among each group (Wilson et al., 2015). The usual care group received a 16-page pamphlet that described CPR, CPR components, as well as resuscitation preference options, such as full code, DNR (do not resuscitate), and DNI (do not intubate) (Wilson et al., 2015). The video group received in the same components as the usual care group; however, they also received in eight-minute video that demonstrated the components of CPR and resuscitation options (Wilson et al., 2015). The research findings indicated that participants who reviewed the video demonstrated statistically higher scores than those in the usual care group. For example, participants in the video group could name more than two components of CPR, properly identified the purpose of CPR, and understood more CPR terms than those in the usual are group (Wilson et al., 2015). Similar to other research, this study has strengths and limitations. Some of the strengths include a large sample size and randomization. One of the limitations include the lack of measured education level prior to initiating the intervention (Wilson et al., 2015). This article revealed positive results from the video educational; therefore, encouraging the use of video education for the MMR vaccination project.

Alghamdi and colleagues (2019) published a randomized controlled trial that examined the effect of an educational video and pamphlet on the psychological behaviors of type two diabetics initiating insulin therapy. The participants of the study were randomly selected and separated into two equal groups utilizing a computer software program, each group possessed 63 individuals (Alghamdi et al., 2019). The population for this study consisted of individuals who were a type two diabetic, had a A1C of 8 mg/dL or greater and were 30-70 years of age (Alghamdi et al., 2019). The participants were given a questionnaire to fill out before the intervention and directly after the intervention to assess the material's impact. The intervention group viewed an educational video while the control group was given a brochure. The video and pamphlet contained the same content, which included educational, behavioral, and emotional barriers to insulin therapy (Alghamdi et al., 2019). The results of the study indicated that neither single intervention had a greater impact over the other. Furthermore, the results provoked the idea that a multifaceted education approach might be more effective than a single approach. The strengths of this study include the strict inclusion criteria and randomization. The limitation is poor generalizability due to the sample being limited to a small housing clinic (Alghamdi et al., 2019). Despite the limitations, the research findings ignite the idea that education for the MMR vaccination project may need to be multifaceted.

Taddio et a. (2018) utilized a randomized controlled trial to publish an article that assessed new parents' knowledge about how to reduce infant pain during vaccinations. The study's population focused on new mothers who were rooming with their infant, and fathers could be

included but were not required (Taddio et al., 2018). The initial number of participants were 3420; however, the active number of participants dropped to 2549. These participants were randomly divided into three groups. The first group of parents received a general vaccination pamphlet, the second group receive a pain pamphlet, and the third group received a pain pamphlet and video (Taddio et al., 2018). The findings indicated that the pain pamphlet and video had the greatest impact on parents' knowledge. Two strengths of this study include randomization and decreased bias by having the participants view the education material in their own private rooms. Some limitations of this study include self-reporting, attrition of greater than 20%, and no measurement of infant pain. The results from this study enforce what previous studies have demonstrated, video and pamphlet education utilized together produces better outcomes.

According to Baquerizo Nole et al. (2015), little research has been completed to evaluate if educational interventions improves patients' knowledge regarding the etiology and therapeutic regimen of their venous leg ulcers. Baquerizo Nole and colleagues (2015) conducted a randomized controlled trial research study that enrolled 20 participants who were separated equally into two groups. The participants filled out a questionnaire prior to the intervention, directly afterwards, and four weeks later (Baquerizo Nole et al., 2015). The research study possessed an intervention group (video) and a control group (pamphlet). The findings showed that the video participants had greater knowledge immediately after the intervention and at four weeks after intervention, compared to the pamphlet participants (Baquerizo Nole et al., 2015). A strength of the study is randomization, and the small sample size is a limitation. Although the study sample size was small, the results indicate that video education is superior to pamphlet education. This information will be incorporated into the MMR vaccination project.

Hu, Li, and Chen (2018) published an article that utilized a random controlled trial to evaluate if an educational messaging video or educational messaging booklet intervention would improve varicella (VarV) vaccination rates. The sample consisted of 204 pregnant women >12 gestational weeks (Hu, Li, & Chen, 2018). Randomization was utilized to separate the participants into an intervention and a control group. The intervention group utilized the educational messaging video and the control group utilized the educational messaging booklet. Post intervention, both groups of participants were asked to complete a questionnaire, which asked about their understanding of new information and the participants intention to vaccinate their infant with the VarV. The study's findings explain that both educational interventions are beneficial; however, the video participants were more knowledgeable and more likely to vaccinate their children (Hu, Li, & Chen, 2018). Two strengths of this study include the sample size and randomization. A limitation of this study includes not obtaining participants' baseline knowledge of the VarV prior to the intervention. Another limitation is the pregnant women enrolled were limited to a specific population which indicated the results may not be generalizable (Hu, Li, & Chen, 2018). This specific article resembles the purpose of the MMR vaccination project. The limitations of this study will be close examined to better prepare the MMR vaccination project.

In a quantitative research article published by Kim et al. (2015), the authors evaluated the effectiveness of an educational warfarin video on an iPad. Forty hospitalized patients were enrolled to participate. All participants had to complete a pre and post questionnaire that assessed the participants knowledge on Warfarin. Participants watched the 12-minute educational Warfarin video on an iPad and completed the questionnaire directly after viewing the video (Kim et al. 2015). According to Kim et al. (2015), the results demonstrated a

significantly higher passing rate post-video knowledge test (90%) as opposed to the pre-video knowledge test (42.5%). One strength of the study is that baseline knowledge was tested prior to the intervention. A limitation of the study is the small sample size within a specific population that hinders the ability to generalize the results. Regardless of the study's limitation, the results still prove video education is effective. The MMR vaccination project can benefit from video education as well.

Methodology

Approach

A quantitative, nonexperimental method using a comparison design will be utilized for the MMR vaccination project. Quantitative research was selected because it focuses on measurements and numerical data (Park & Park, 2016). In quantitative research, data is collected under controlled circumstances to prevent outside variables and other biases from altering the studies outcome. In addition, utilizing a non-experimental method will allow researchers to identify if a relationship exist between variables (Rutberg & Bouikidis, 2018). Non-experimental research does not manipulate the variables, instead researchers observe the variables, collect data, and analyze the outcome (Polit & Beck, 2017). Furthermore, a comparison approach will be used to evaluate the difference between an MMR facts and myths pamphlet, and an MMR facts and myths video, on monthly MMR vaccination completion rates. A comparison approach is appropriate for the MMR vaccination project because there is an intervention group (video) and a comparison group (pamphlet). In quantitative, non-experimental research, the term 'comparison group' is utilized instead of 'control group' (Polit & Beck, 2017). Similar to other research designs, a comparison approach possesses advantages and disadvantages. Important advantages of comparison design include the lack of variable manipulation, studies are less costly, and it utilizes random sampling. The MMR vaccination project will utilize random sampling; however, it will not manipulate variables within the study. One disadvantage of comparison approach is that is does not obtain participants perspective and/or describe the phenomenon (Polit & Beck, 2017). Participants within the MMR vaccination project will not provide personal perspective regarding the research study. A comparison design is optimal for the MMR vaccination project because the purpose of the project is to compare the difference between MMR video and pamphlet education.

Sampling

The target population for the MMR vaccination project is parents of infants, 12-15 months old, who have declined the MMR vaccination. This specific population was chosen because the first MMR vaccination is administered to infants 12 to 15 months old. Nonprobability, convenience sampling is utilized in the MMR vaccination project. Convenience sampling consists of selecting conveniently available individuals who are willing to participate in a study (Polit & Beck, 2017). For the MMR the vaccination project, a convenience sample of 100 parents of infants, 12-15 months old, will be utilized for the study. The population for this study will be obtained by selecting the first 100 parents in a physician office who have declined the MMR vaccination. Assuming there is a 10% attrition, the intervention group and comparison group will each have 45 participants. When selecting a sampling method for research it is imperative to examine its advantages and disadvantages. An advantage of convenience sampling includes is the ability to obtain a large sample size quickly. The disadvantage of convenience sampling is that some participants are atypical to the population, which causes poor generalizability (Polit & Beck,

2017). Since the MMR vaccination project will use convenience sampling, similar advantages and disadvantages may occur. Through convenience sampling, a quick, large sample size can be easily obtained for the MMR vaccination project. Due to few inclusion and exclusion criteria, the atypical participants should not affect the results of the MMR vaccination project, nor its generalizability. Moving forward, the next aspect of sampling is the inclusion and exclusion criteria. Inclusion criteria for the MMR vaccination project participants include parents of infants, 12-15 months old, who have declined at the MMR vaccination. Exclusion criteria include parents of infants who have received the MMR vaccination and the parents of infants who are younger or older than 12-15 months. After defining inclusion and exclusion criteria, another key aspect of the MMR project is to protect the rights of the participants. Multiple actions will be taken to ensure participants identities are concealed. An informed consent and confidentiality form will be signed by each participant. Furthermore, anonymity is achieved by having participants fill out their questionnaire and return it without providing any personal information on the paper to ensure the participant remains anonymous (Polit & Beck, 2017).

Implementation

The MMR vaccination facts and myths video had a greater impact on monthly MMR vaccination completion rates among parents of infants, 12-15 months old, in comparison to the MMR vaccination facts and myths pamphlet. The results of the MMR vaccination project were accomplished by creating an implementation plan based on PDSA model. The PDSA model is a framework that guides quality improvement projects and encompasses four steps; plan, do, study, act (Polit & Beck, 2017). The researcher or advanced practice nurse needs to incorporate each step of the PDSA model to properly execute the research process. According to Donnelly and Kirk (2015), the first step of the PDSA model is plan. The plan assesses what the researcher is trying to achieve (Donnelly & Kirk, 2015). In the MMR vaccination project, the researcher is attempting to achieve higher monthly MMR vaccination completion rates; therefore, the plan is to seek interventions that will help the researcher accomplish those goals. The second step of the PDSA is do, which refers to initiating the intervention and documenting the participants' progress. The MMR vaccination project possessed an intervention group that received an NP discussion on a facts and myths video, and a comparison group which received an NP discussion on a facts and myths pamphlet. After receiving the intervention, all participants documented their understanding of the MMR vaccine on a questionnaire form. The next step of the PDSA model is study. Once participants return their questionnaires, the researchers can analyze the data and outcome. After analysis, the MMR vaccination project revealed that the intervention group (video) demonstrated a greater knowledge base of MMR vaccination facts, myths and purpose, than the participants in the comparison group (pamphlet).

A potential barrier to the MMR vaccination project is participants' willingness to accept the findings and vaccinate their infants. Parents who viewed the MMR vaccination facts and myths video may have gained new knowledge; however, that does not necessarily mean their perspectives have changed. Some parents might continue to decline the vaccination, while others now opt to vaccinate. One strategy to combat this barrier is to inquire about parents' beliefs, concerns, and unanswered questions regarding the MMR vaccine. Providers who engage in transparent communication with their patients increase the opportunity to build a healthy and trustworthy relationship with. Patients who trust their providers are more likely to adhere to the provider's advice. Thus, increasing the MMR vaccination completion rates. Possessing a healthy patient/provider relationship is half the battle, the other half is fostering an environment that welcomes change. Patients can sense stress and hostility among staff, which

in turn creates more stress and uneasiness for the patients. Cultivating a supportive environment that encourages the use of evidence-based practice (EBP) sets the tone for the entire practice. As a future provider, demonstrating an accepting attitude will help foster the changes that EBP generates. By displaying a positive attitude, I can encourage and support colleagues during the transition that comes along with changes. In conclusion, change is inevitable and how an individual decides to respond to that change will reflect the type of professional they become.

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