SHAKEN BABY SYNDROME PREVENTION: IMPLEMENTATION OF AN
INDIVIDUALIZED, PATIENT-CENTERED EDUCATION PROGRAM

by

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As members of the DNP Project Committee, we certify that we have read the DNP Project prepared by Alexandra Dimitra Schutt entitled Shaken Baby Syndrome Prevention: Implementation of an Individualized, Patient-Centered Education Program and recommend that it be accepted as fulfilling the DNP Project requirement for the Degree of Doctor of Nursing Practice.

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SIGNED: Alexandra Dimitra Schutt
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DEDICATIONS

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ABSTRACT

Background: Child maltreatment is a serious health concern in the United States (U.S.) affecting as many as one in four children throughout their lifetime (Finkelhor, Turner, Ormond, & Hamby, 2013). In 2013, a reported 678,932 victims of child maltreatment were reported to Child Protective Services (CPS), and of those cases 1,520 were fatal (CDC, 2015a). Out of all the various types of child maltreatment, Shaken Baby Syndrome (SBS) is the leading cause of child abuse deaths in the U.S. despite numerous initiatives to decrease the morbidity and mortality of SBS (CDC, n.d.). While current research has focused on validating the effectiveness of educational interventions, very few studies have analyzed the efficacy of developing individualized, patient-centered action plans. Such data would be beneficial to assess the usefulness of action plans in preparing caregivers for coping with an inconsolable infant at home.

Purpose: To enhance caregiver knowledge about SBS and to provide parents with the skills and resources necessary to cope effectively and efficiently at home when unable to console their infant.

Methods: This study utilized a quasi-experimental pre-test/post-test design. Participants were recruited from the Franciscan Women’s Health Associates located at St. Joseph Medical Center in Tacoma, Washington and were members of the Centering prenatal groups. The entirety of the study was completed during these Centering groups including the pre-test, intervention, action plan, and post-test. Data was analyzed through the utilization of descriptive statistics as well as a paired t test to assess statistical significance of the results.

Results: Overall, results revealed that participant (n=26) knowledge significantly improved after the educational intervention (p=0.000) with a mean score of 87.56% on the pre-test and a mean...
score of 95.38% on the post-test. In addition, a majority of participants (57.5%) found both the action plan and the education to be extremely useful and helpful.

Discussion: The results of this study were consistent with current evidence indicating that education on SBS, the dangers of shaking, and healthy coping mechanisms significantly impacts caregiver knowledge, behaviors, and perception. In addition, a majority of participants viewed the action plans favorably identifying that they would be beneficial if they felt frustrated. Future research is warranted to gather more information on the long-term outcomes of educational interventions as well as individualized action plans.
CHAPTER I: INTRODUCTION

Background

Child maltreatment is a serious health concern in the United States (U.S.) affecting as many as one in four children throughout their lifetime (Finkelhor, Turner, Ormond, & Hamby, 2013). In 2013 alone, a reported 678,932 victims of child maltreatment were reported to Child Protective Services (CPS), and of those cases 1,520 were fatal (CDC, 2015a). Physical abuse, sexual abuse, emotional abuse and neglect are all forms of child maltreatment. Injury and violence prevention is one of the 26 leading health indicators established by Healthy People 2020, identifying prevention of child maltreatment deaths as one of its key objectives (Healthy People, 2015). Of all the various types of child maltreatment, Shaken Baby Syndrome (SBS) is the leading cause of child abuse deaths in the U.S. (CDC, n.d.).

SBS is defined as a form of abusive head trauma (AHT) and inflicted traumatic brain injury (ITBI) that results from violently shaking an infant (CDC, n.d.). Although a majority of cases involve infants younger than 1 year of age (with the peak incidence between 2-4 months), injuries have been reported in children up to 5-years-old (CDC, n.d.). Infants and children that fall victim to SBS suffer from both minor and fatal injuries including seizures, irritability, vomiting, inability to nurse or eat, mental retardation, cerebral palsy, severe motor dysfunction, and death (CDC, n.d.). Among the many causes of SBS, inconsolable crying is the primary trigger (CDC, n.d.). Other risk factors include: poverty and unemployment, parental history of abuse or neglect as a child, lack of social support, substance abuse, stress, being a single and/or young parent, having unrealistic expectations, and lacking knowledge in regards to normal child development and behavior (Lane, 2014). In addition, male caregivers are more frequently
identified as the perpetrators of SBS cases and have an increased likelihood of inflicting more severe injuries resulting in worse clinical outcomes (Esernio-Jenssen, Tai, & Kodsi, 2011).

Victims of child abuse may present to any number of clinical settings (e.g. primary care and emergency departments). Therefore, it is imperative that health care providers, regardless of their practice settings, are knowledgeable when it comes to correctly identifying signs of abuse and neglect. Unfortunately, several studies indicate there is a huge knowledge deficit among primary health care providers. In a study done by Menoch, Zimmerman, Garcia-Filion, and Bullock (2011), pediatric emergency medicine physicians were identified as being significantly more knowledgeable in comparison to general pediatricians and residents (p<0.001). Interestingly enough, studies indicate that victims are more likely to be misdiagnosed if they present to a primary care setting as opposed to an emergency care setting and they are more likely to have had at least one previous encounter in a health care setting where abuse was missed placing them at increased risk for subsequent abuse and delays in care (Ravichandiran, et al., 2010; Skellern, Wood, Murphy, & Crawford, 2000). In order to reduce morbidity and mortality as a result of SBS, early identification and intervention are essential.

Local Problem

Current research suggests that education informing caregivers about normal infant crying and the dangers of shaking can profoundly impact knowledge, change behavior and alter perceptions. According to the Children’s Bureau of the U.S. Department of Health and Human Services (n.d.), child maltreatment is on the rise in Washington State with a reported 7,132 child abuse cases and 27 child maltreatment related fatalities reported in 2013 alone. In comparison, in 2011 there were 6,541 child abuse cases and 20 fatalities and in 2012 there were 6,546 child
abuse cases and 21 fatalities (Children’s Bureau of the U.S. Department of Health and Human Services, n.d.). As a part of a public awareness campaign in the state of Washington, educational brochures are distributed to parents and/or guardians of newborns upon discharge from the hospital (NCSL, 2014). In addition, one of the few evidence-based practices that is currently being utilized in approximately 49 U.S. states and eight Canadian Provinces is the Period of PURPLE Crying which was developed by Ronald G. Barr, MDMC and the National Center on Shaken Baby Syndrome (NCSBS), which includes an 11-page informational booklet and a 10-minute video (NCBSB, n.d.). While several studies have been done to validate the effectiveness of the Period of PURPLE Crying materials (Barr, et al., 2009, Fujiwara, et al., 2012; Stephens, Kaltner, & Liley, 2014), few studies have been done to assess the efficacy of developing individualized, patient-centered action plans. Individualized action plans can be utilized as frameworks for handling inconsolable crying. In a study done by Goulet et al. (2009), 98% of participants found the development of an action plan was useful with nearly half of those participants reporting they remembered the steps to their action plan 6-8 weeks later.

Other interventions that have been found to be promising in preventing child maltreatment include, home visits and multicomponent programs that consist of family support, parenting skills and child care (Mikton & Butchart, 2009). In addition, recent clinical practice guidelines (CPG), recommend implementing home visitation programs comprised of a risk assessment, education, counseling, problem solving, support systems, and community resources (Moyer, 2013).
**Intended Improvement**

The purpose of this DNP project was to evaluate the effectiveness of individualized, patient centered action plans on SBS prevention within an urban obstetric clinic. Through the utilization of the Period of PURPLE Crying material and information participants were equipped with the knowledge to develop individualized action plans to best suit their needs. Outcomes that were measured include SBS knowledge, perceived ability to cope with an inconsolable infant at home, ability to identify healthy coping mechanisms and resources, and perception of the effectiveness of individualized action plans. Furthermore, the aim of this project was to modify the educational intervention to include the development of individualized action plans in an effort to enhance caregiver knowledge about SBS and to provide parents with the skills and resources necessary to cope effectively and efficiently at home when unable to console their infant. The key stakeholders involved in this process included the multidisciplinary team (e.g. nurse, doctors, midwives, administrators) as well the patients involved.

**Study Question**

In an effort to continue to spread awareness, enhance education on SBS, and educate parents on healthy coping strategies, the aim of this project was to identify whether caregivers (P) upon receiving education on SBS and developing an individualized action plan (I), in comparison to before receiving education or developing an action plan (C), feel more prepared to handle an inconsolable infant at home as a result of increased knowledge, improved coping mechanisms, awareness of various resources, and their devised action plan (O).
Framework and/or Theoretical Underpinnings

Concepts from both the Social-Ecological Model (SEM) and the Ottawa Model of Research Use (OMRU) were utilized to help guide this DNP project. With the ultimate goal of preventing violence before it occurs, the SEM framework aims to understand the multiple levels of a social system (e.g. individual, relationship, community, and societal) and how individuals and the environment interact within these social systems in an effort to explain why certain people are at an increased risk for violence (CDC, 2015b). At the individual level, characteristics include age, education, socioeconomic status, substance abuse, previous history of abuse, lack of social support, developmental delays, and poor knowledge about SBS (CDC, 2015b; Lane, 2015). Relationship characteristics, on the other hand, pertain to the family as well as the social circle and may include intimate partner violence (IPV), single parent households and unemployment (CDC, 2015b; Lane, 2014). Finally, community and society factors involve schools, workplaces, neighborhoods, and policies (CDC, 2015b; Lane 2014). By understanding the multiple levels of a social system and how people and the environment interact, one will be better able to tailor interventions to meet individual needs (refer to Appendix A).

Aside from SEM, the OMRU provides a comprehensive, interdisciplinary framework for implementing best evidence into practice (Logan & Graham, 2010). It is applicable on a variety of levels (e.g. individual vs. organization), can be utilized by any member of the multidisciplinary team (e.g. nurse, doctors, allied health), and serves several functions (e.g. assessment of barriers, interventions/strategy development, and outcome measurement) making it a suitable framework for nearly any situation (Rycroft-Malone & Bucknall, 2010). This model is composed of six elements (the innovation, potential adopters, practice environment,
interventions, adoption, and outcomes) and three steps (assess, monitor, and evaluate) backed by evidence found in literature on research utilization, the diffusion of innovations, health behavior change, and the implementation of CPG’s (Logan & Graham, 2010).

When it comes to the first step, assessment, it is imperative to assess the innovation for relative advantage, compatibility, complexity, observability, and trialability; the potential adopters for awareness, attitudes, intentions to adopt change, knowledge, skill level, and concerns; and the practice environment for rules, regulations, policies, current practice, and social/cultural factors (Logan & Graham, 2010). This process guides researchers in identifying potential barriers in order to develop strategies to overcome and address barriers that could potentially influence adoption of the innovation. Therefore, in the implementation of this program, it is of the utmost importance for researchers to not only raise awareness of the problem and provide valid research in support of the innovation, but also to develop a tool that is easy to learn, does not significantly change practice, and is easy to test (Logan & Graham, 2010). In addition, potential adopters, whom in this case include the doctors, nurses, and staff in the OB clinics, must feel empowered, informed, and involved in the process which can be accomplished via holding open forums, organizing workshops, providing educational tools, performing audits, providing feedback, and offering incentives (Logan & Graham, 1998). The strategies one chooses to promote innovation can significantly impact adoption and buy-in.

Once potential barriers have been addressed, it is time to disseminate the new practice. During the implementation phase, it is important to continuously monitor for changes that may occur throughout the process. Alterations that occur during implementation could potentially impact adoption and thus the intervention may need to be adapted and tailored to the changes as
they pertain to the innovation, potential adopters, and practice environment (Logan & Graham, 2010). In a rapidly changing healthcare system, continuous assessment and monitoring is an essential component of any innovation. Finally, the last step in the OMRU framework is evaluation of the innovation. For the purpose of this DNP project, outcome measures included the efficacy of individualized, patient-centered action plans in addition to the effectiveness of education programs on SBS knowledge, identification of healthy coping mechanisms and resources, and perceived ability to cope effectively and efficiently at home when unable to console an infant. Outcomes were assessed through pre-tests and post-tests (refer to Appendix B).

**Concepts**

**Individualized Patient-Centered Care**

Individualized, patient-centered care is a key component of this innovation and is defined as care that is respectful and responsive to individual patient values, preferences, and needs ensuring that these variables guide clinical decision making (IOM, 2001; Morgan & Yoder, 2012). It is holistic in that it recognizes and values whole persons (mind, body, and soul) and the interdependence of these parts to gain a better understanding of how an illness impacts the entire person rather than simply the physical or the psychological components alone (McEvoy & Duffy, 2008; Morgan & Yoder, 2012). In understanding how the whole person is affected, providers are better able to response to the true needs of an individual (Mead & Bower, 2000; Morgan & Yoder, 2012). In addition, patient-centered care is respectful in that it recognizes and respects the inherent value of each individual patient as active healthcare consumers supporting their strengths, abilities, and freedom to make informed decisions (Morgan & Yoder, 2012).
Finally, patient-centered care empowers patients to become active participants in their own health care (Morgan & Yoder, 2012). This is where the development of individualized action plans come in to play.

**Individualized Action Plans**

Action plans act as frameworks providing guidance to individuals on the appropriate and necessary steps one must take to achieve a goal, in this case that goal is being able to manage an inconsolable infant. The purpose of the individualized action plan was to not only involve participants in their education but to also tailor the education and resources provided to best meet participant needs. Once participants were provided with the appropriate knowledge and resources the expected outcome was that they would be able to devise their own plan of action in the event they become frustrated when unable to console their infant. This action plan can then be utilized in the future as a reminder on appropriate measures that can be taken when parents find themselves becoming frustrated.

**SBS and Child Maltreatment**

SBS and child maltreatment are essential to define, as they were the main focus of this DNP project. While child maltreatment is a broad term used to describe child abuse, in the forms of physical, sexual, and emotional abuse, and neglect, SBS represents one component of this broader concept. SBS and pediatric abusive head trauma (PAHT) are often interchanged and defined as injuries sustained to the skull or intracranial content of infants and children under the age of 5 years old as a result of blunt impact and/or violent shaking (Parks, Annest, Hill, & Karch, 2012). Although SBS pertains specifically to children under the age of one (with peak
incidences occurring between the age of 2-4 months), cases have been reported in children up to 5-years-old (CDC, n.d.).

**The Period of PURPLE Crying**

In an effort to educate and inform parents and caregivers about the dangers of shaking, the Period of PURPLE Crying, another concept worthy of defining, was developed and is currently being utilized across the nation. This program is an evidence-based infant abuse program that focuses on educating parents and caregivers about normal infant crying and the consequences of shaking (NCSBS, n.d.). As described by the acronym PURPLE, inconsolable crying can be defined as crying that peaks around 2 months of age (P), crying that is unexpected and comes and goes without any rhyme or reason (U), crying that is resistant to all soothing techniques (R), crying that makes infants look like they are in pain when they are not (P), crying that lasts up to 5 hours per day (L), and crying that typically occurs in the evening (E) (NCSBS, n.d.).

**Caregivers**

Finally, for the purpose of this proposed intervention, caregivers can be defined as whoever the child perceives as being a parental figure.
CHAPTER II: SYNTHESIS OF EVIDENCE

A literature search was conducted by searching CINAHL, PubMed, Embase, and Google Scholar for articles published in English using the search terms Shaken Baby Syndrome, abusive head trauma, traumatic brain injury, education, prevention, and knowledge to gain a better understanding of the current literature available on SBS and to identify gaps in research. This search yielded 111 results excluding those studies that did not pertain to the study purpose and those that were older than 10 years old. Of those studies, a total of 13 full text articles related to SBS prevention were evaluated (refer to Appendix C).

Infant Crying as a Trigger

Prolonged inconsolable crying is the primary trigger for SBS. Research has shown that intrusive thoughts are evoked by stressful situations, and negative thoughts (Fairbrother, Barr, Pauwels, Brant, & Green, 2015). Many new/first-time mothers experience these thoughts in relation to their new infant, especially during the postpartum period (Fairbrother et al., 2015). In a study done by Fairbrother et al. (2015), 98 first-time mothers with infants between the ages of 0-6 months old were selected and randomly assigned to listen to either infant crying or infant cooing. This study revealed that the unwanted, intrusive thoughts that the mothers experienced were triggered by prolonged infant crying, higher frustration, negative emotions, and the urge to escape the infant (Fairbrother, et al., 2015).

Knowledge Deficits among Primary Care Providers

A common theme identified among articles within this literature synthesis pertained to knowledge among various health care providers ranging from primary care to emergency department physicians. In a study done by Menoch et al. (2011), a 30-question survey was
administered to general pediatricians, emergency medicine pediatricians, and pediatric residents that covered a variety of topics to assess knowledge pertaining to general signs of abuse, dermatological complaints, radiological findings, risk factors of abuse, and mechanisms of injuries. Results indicate that there is a significant knowledge deficit among primary care pediatricians and pediatric residents in comparison to pediatric emergency department physicians (Menoch, et al., 2011). In fact, presentation to a primary care setting was associated with an increased risk for misdiagnosis of abuse victims often resulting in multiple visits to a health care setting before abuse was identified further delaying care and placing children at an increased risk for subsequent abuse (Ravichandiran, et al., 2010). On average, it has been found to take anywhere from one to 160 days to correct a misdiagnosis with the median length of time being eight days (Ravichandiran, et al., 2010). Other predictors of missed abuse, aside from presentation to a primary care setting, that were identified included male gender and extremity versus axially located fractures (Ravichandiran, et al., 2010).

**Current Practices**

Of the twelve studies, one article in particular explored and evaluated current practices on abusive head trauma prevention, education, content and format. In this study, 89 hospital maternity nurses participated in a telephone survey, 49% of which reported they provide one-on-one education at the bedside consisting of the following concepts: the dangers of shaking, methods of coping, the normalcy of crying, and the physical impact of shaking infants (Shanahan, Nocera, Zolotor, Sellers, & Runyan, 2011). In addition, the U.S. Preventive Services Task Force (USPSTF) recently updated a CPG from 2004 that pertained to abuse and neglect. The 2004 version of the CPG was much broader in that it provided recommendations on
screening for family and intimate partner violence (IPV) (Moyer, 2013). Since then, however, the CPG has been divided into two separate documents, one of which focuses on the prevention of child abuse and neglect (Moyer, 2013).

The primary objective of this CPG was to update the child abuse and neglect portion of the 2004 recommendations on screening for family and intimate partner violence (IPV) (Moyer, 2013). In addition, this CPG aims to reduce the incidence of child abuse and neglect through the implementation of multicomponent home visitation programs that offer a variety of services including but not limited to: risk assessments, education, counseling, problem solving, free transportation, childcare, and perinatal classes (Moyer, 2013). This intervention strives to provide home or community services to parents of children (newborn to 18 years of age) who are not exhibiting signs or symptoms of abuse or neglect (Moyer, 2013).

**SBS Knowledge after Formal Educational Interventions**

In seven of the studies, educational interventions were found to significantly impact knowledge and change behavior. A systematic review of 26 articles found that home visits, parent education, abusive head trauma prevention and multi-component interventions have the potential to prevent child maltreatment and reduce risk factors (Mikton & Butchart, 2009). Fujiwara (2015) analyzed dose-responses to assess whether multi-modal interventions yield greater results, while Tasar et al. (2015) further evaluated whether the timing of education influences knowledge. Results from these studies were fairly consistent. Simonnet et al. (2015) and Tasar et al. (2015) both found participant knowledge to be significantly higher post-intervention ($p \leq 0.001$) while 54.4% of participants in the Reese, Heiden, Kim, and Yang (2014) study were able to answer all knowledge questions correctly. Tasar et al. (2015) discovered that
education was most useful when given prior to birth or several days after birth rather than during the immediate postnatal period. Furthermore, in the Fujiwara (2015) study, exposure to multiple educational interventions, as opposed to one intervention or no intervention, resulted in greater knowledge attainment. Nursing knowledge also was found to be profoundly impacted by educational interventions and training (Steward, et al., 2011). Aside from knowledge attainment, study findings suggest that mothers are more likely to share this information with other caregivers, recall one or more appropriate soothing techniques, and walk away when feeling frustrated (Barr, et al., 2009; Reese, et al., 2014).

Participant Perception of Interventions

Overall, studies support that participants find educational interventions to be relevant and useful (Goulet, et al., 2009; Reese, et al., 2014; Simmonet, et al., 2015; Stewart, et al., 2011). In a study by Goulet et al. (2009), participants were provided with information cards containing material on crying, anger, and Shaken Baby Syndrome, and instructed to compose an action plan for handling inconsolable crying. Parents not only reported that the information was relevant, but that the action plans were useful. However, only 48% of participants actually remembered the steps of their action plan 6-8 weeks later (Goulet, et al., 2009). Likewise, Simmonet et al. (2015) reported that participants stated they would recommend education interventions for all new patients. The most important message that was identified among participants was learning what to do in the event that crying becomes frustrating (Stewart, et al., 2011).

Incidence of Head Injuries

Finally, in a study by Altman et al. (2011), researchers aimed to discover whether prevention programs reduce the occurrence of abusive head injury. Within the first year of
initiating an educational program, 84.5% of parents were exposed to the material followed by
88.1% within the second year, and 87.8% within three years (Altman, et al., 2011). During the
years of implementing this program head injuries decreased from 2.8 cases per year to 0.7 cases
per year which is a 75% reduction in head injuries (Altman, et al., 2011).

**Strengths/Weaknesses/Gaps**

One of the major strengths in the literature is the immense amount of research on SBS
prevention programs and the acceptance of these programs by not only patients but by nurses as
well. Another strength is the abundance of literature on how these programs impact knowledge
and change behaviors in addition to their potential to significantly reduce abuse related head
injuries. However, across all 12 studies, participants consisted of primarily women, with a couple
studies including a small portion of men which damages the generalizability of these results.
While anyone is at risk for committing child abuse, a majority of perpetrators are fathers and
male partners, emphasizing the importance of not limiting this education to women alone (CDC,
n.d.). Another weakness found among these studies was that a majority of them were conducted
at city hospitals and healthcare centers potentially excluding high risk populations such as
individuals with low socioeconomic status which threatens external validity. Failure to
incorporate high risk populations weakens results and fails to target those at highest risk for
committing child maltreatment. Finally, there is a significant gap in literature regarding
individualize, patient-centered action plans. Up until now, interventions that have been tested
have been a one-size-fits all approach failing to recognize the unique needs of every individual
and family.
CHAPTER III: METHODS

Design

This DNP project used a quasi-experimental, one group, pre-test/post-test design to compare knowledge, awareness of resources, and coping strategies among caregivers before and after developing individualized action plans and receiving education on SBS, the Period of PURPLE Crying, and various soothing and coping techniques. Quasi-experimental studies, unlike randomized controlled trials, are controlled trials without randomization (Polit & Beck, 2012). For the purpose of this project, a convenience sample was utilized to accomplish the aims of this study. Upon completing the educational portion of this program, participants were instructed to develop an individualized action plan based on their new knowledge and awareness of SBS, resources, and coping strategies. The one group, pre-test/post-test was an appropriate design for assessing how education informing caregivers about normal infant crying and the dangers of shaking influences caregiver knowledge, behavior and perceptions. Furthermore, this design allows researchers to obtain baseline data (Polit & Beck, 2012). Prior to beginning this project, approval was obtained from the Institutional Review Board (IRB) to ensure all the necessary steps and measures were taken to protect participants, minimize risk, and safeguard privacy (Polit & Beck, 2012). In addition, the chief investigator received online training for the Period of PURPLE Crying prior to educating at the Centering groups (see Appendix D).

Setting

The setting for this study was at Franciscan Women’s Health Associates located at St. Joseph Medical Center in Tacoma, Washington, which is a part of a larger organization called Catholic Health Initiatives (CHI). This setting was chosen in part due to a recently implemented
program within the clinic called Centering. As a part of this program, pregnant women are grouped based on their estimated due dates and are invited to enroll and participate in these classes. Several sessions are offered throughout the month with each group initially meeting once per month for two hour increments increasing those meetings to twice per month as they progress within their pregnancies. During these meetings one hour is devoted to meeting individually with the midwife while the second hour is dedicated to providing education in preparation for their upcoming labor and new baby. The meetings also provide parents with the opportunity to ask questions and serves as a support group as the women progress through their pregnancies together. Furthermore, a reunion session is held after the infants are born. This program acts as a means to get a group of pregnant women together that are due around the same date making it an appropriate setting for the purpose of this project. The key stakeholders involved during the implementation of this project included staff, doctors, midwives, and nurses. Resources that were essential to the success of this project were the Period of PURPLE Crying materials, education on facilitating the class on the Period of PURPLE Crying, hard copies of the pre-tests and post-tests, handouts for participants to develop their individualized action plans, and $15 Baby’s-R-Us gift cards offered as a thank you to those who participate in this project. Permission to present at these classes was obtained from the director of the Centering groups (see Appendix E).

**Participants**

Participants were recruited from two Centering groups through the utilization of convenience sampling which entails selecting the most readily available individuals to participate in the study (Polit & Beck, 2012). Criteria for inclusion in this study included: (a)
pregnant women and their partners if applicable, (b) between 6 and 9 months gestation, (c) nulliparous and multiparous women, (d) English speaking regardless of whether it was their first language or a secondary language, and (e) participants were 18 years and older. Exclusion criteria included: (a) Less than 6 months gestation, (b) non-English speaking, and (c) participants younger than 18 years of age. These criteria were chosen because this study aimed to educate pregnant women, along with their partners, in order to raise awareness and provide support prior to giving birth in an effort to prevent SBS. In addition, the aim of this study was to target women toward the end of their pregnancy so that the information is fresh as they get closer to their delivery dates. Based on the findings by Tasar et al. (2015), education is best received prior to birth or several days after and thus for the purpose of this project, the educational was provided before giving birth. Since men appear to be inadequately represented in current research, this project also aimed to include both women and their partners if applicable or available. Furthermore, it was determined that it was important to include all women regardless of whether they were first time moms or veteran moms in order to reach a broader population. To achieve the aims of this project, the goal was to recruit a minimum of 30 participants. A recruitment letter was administered during the respective Centering classes a month prior to data collection by the midwife leading the individual groups (see Appendix F).

**Data Collection**

Data was collected via a pre-test/post-test, which was administered immediately before and after the intervention (see Appendix G and H). Aside from the pre-test/post-test, participants were asked to develop an action plan outlining steps that can be taken when caring for an inconsolable infant (see Appendix I). The pre-test, post-test, and action plan were adapted and
modified with the approval of Heidi Petermeier, Progran Partner for Partners in Parenting at the University of Nevada Cooperative Extension (see Appendix J).

The pre-test consisted of questions pertaining to demographics and SBS knowledge, whereas, the post-test contained the same questions regarding SBS knowledge in addition to inquiring about participants’ perception of the usefulness of the action plans as well as whether they felt the educational class was helpful in preparing them for coping with a crying infant at home. Furthermore, the action plan, which was completed at the end of the class but prior to the post-test, serves as a guide for participants on what they can do if an infant will not stop crying, what activities they can do as a coping mechanisms to relieve stress, and who they can contact if they need to talk or need a break. All three components, the pre-test, post-test, and action plan were completed on-site during the Centering classes.

Data Analysis

For the purpose of this study, data was entered into SPSS statistical software. Both descriptive statistics and a paired t test were used to compare responses on the pre-test to those on the post-test. Descriptive statistics were used when discussing demographic data as well as in comparing knowledge based off of test scores before and after the intervention and in assessing participant perception of the usefulness of the action plan and educational intervention. The paired t test helped to further analyze whether findings on the pre-test and post-test were statistically significant. In a paired t test, certain assumptions must be met: there must be two paired measurements of the characteristic of interest (either one pre-test and one post-test measurement on the same person or one measurement on a participant and one on a matched control), the two measure must be normally distributed or there are at least 30 pairs with a
distribution that is minimally skewed, and the measurement scale must be interval or ratio
(Kellar & Kelvin, 2013).
CHAPTER IV: ETHICAL CONSIDERATIONS

Respect to Person

According to the Department of Health and Human Services (DHHS) (1979), respect for persons involves treating participants as autonomous. Dismissing one’s judgements, denying an individual from acting on those judgements, and withholding information from the subject all show a lack of respect for persons and their autonomy (DHHS, 1979). Therefore, in order to show respect to potential subjects it is essential to provide adequate information about the study to the subjects so that they can make an informed decision and let them know that participation is entirely voluntary and they may drop out at any time. This can be accomplished via informed consent (see Appendix K).

Consent is an ongoing process that continues through communication with the subject for the duration of the study (UA, n.d.). For the purpose of this project, the University of Arizona consent template was utilized and was written at an appropriate literacy level. This consent form included the appropriate information necessary to ensure participants were able to make an informed decision by providing information pertaining to the purpose of the study, discussing risks vs. benefits, and including a statement of disclosure indicating that participation is voluntary.

Beneficence

Beneficence means to do no harm in addition to maximizing possible benefits and minimizing potential harms (DHHS, 1979). Throughout this study all subjects received the same Period of PURPLE Crying information and education. In addition, all participants were given the opportunity to develop an individual action plan identifying their own strategy for dealing with
an inconsolable infant. By providing the same education and resources to all participants, treatment was not withheld from any one person. Therefore, no one was at risk for being harmed during this study.

**Justice**

Finally, justice refers to fair procedures and outcomes in the selection of research subjects (DHHS, 1979). Therefore, it is considered an injustice if potentially beneficial research is withheld from subjects who are not in the researchers favor (DHHS, 1979). In addition, it is also considered an injustice to only select undesirable persons for risky research (DHHS, 1979). For this project, the only exclusion criteria was that the subjects must be near the end of their pregnancy. A convenience sample was utilized allowing all participants in the Centering class to partake in the study regardless of age, gender, socioeconomic status, etc. In addition, if fathers chose to attend the class they were also permitted to participate in the study.

**Vulnerable Populations**

According to the DHHS (1993), pregnant woman can be considered a vulnerable population since a third party (e.g. the fetus) may be involved and affected. For research purposes, pregnant women may be involved as a subject if the purpose of the study is to meet the health needs of the mother and there is minimal risk to the fetus (DHHS, 1993). For consent, the DHHS recommends that consent be obtained from both the mother and father unless the purpose of the research is to meet the health needs of the mother, the father’s identity or whereabouts cannot be reasonably ascertained, he is not reasonably available, or the pregnancy resulted from rape (DHHS, 1993). Considering that this study involves meeting the needs of the mother (and/or father) it is not necessary to obtain consent from both parties. Since this study involves pregnant
women, the University of Arizona’s Human Subjects Protection Program (HSPP) has a separate form that was utilized to ensure all the necessary steps and measures were taken to protect this vulnerable population and minimize risks.
CHAPTER V: RESULTS

Description of Participants

The sample included participants that were recruited from two separate Centering groups that took place on September 20, 2016 and October 12, 2016. Out of a total of 28 group members, 27 consented with one dropping out yielding a total of 26 participants. Table 1 provides demographic data on the participants.

The majority of participants were women (65.4%), Caucasian (65.4%), married (65.4%), had a bachelor’s degree (46.2%), and had an average annual family income of $30,000-$60,000 (38.5%). Age was more generally distributed, with most participants falling between the ages of 18-34 years old (93.3%). For those that marked other for caregiver role, one participant identified herself as the grandmother and one participant identified herself as the aunt. For those who marked other for race, they considered themselves to be biracial with one participant identifying themselves as being Japanese and African American, two participants identifying themselves as being Caucasian and Hispanic, and one participant choosing not to disclose this information. Finally, for those who marked other for marital status, three participants reported they were engaged and one participant reported they were in a committed relationship.
**TABLE 1. Participant Demographics (n=26)**

<table>
<thead>
<tr>
<th>Demographic Data</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Caregiver Role</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother</td>
<td>17</td>
<td>65.4</td>
</tr>
<tr>
<td>Father</td>
<td>7</td>
<td>26.9</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td><strong>Age (Years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>8</td>
<td>30.8</td>
</tr>
<tr>
<td>25-29</td>
<td>9</td>
<td>35.6</td>
</tr>
<tr>
<td>30-34</td>
<td>7</td>
<td>26.9</td>
</tr>
<tr>
<td>35-39</td>
<td>1</td>
<td>3.8</td>
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<tr>
<td>40-44</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>45-49</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>50 and older</td>
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<td>0</td>
</tr>
<tr>
<td><strong>Race</strong></td>
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<td></td>
</tr>
<tr>
<td>Caucasian</td>
<td>17</td>
<td>65.4</td>
</tr>
<tr>
<td>African American</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>4</td>
<td>15.4</td>
</tr>
<tr>
<td>Native American</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>Did Not Disclose</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>Marital Status</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>17</td>
<td>65.4</td>
</tr>
<tr>
<td>Single</td>
<td>5</td>
<td>19.2</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>15.4</td>
</tr>
<tr>
<td><strong>Education</strong></td>
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<tr>
<td>Some High School</td>
<td>2</td>
<td>7.7</td>
</tr>
<tr>
<td>High School Diploma or GED</td>
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<td>15.4</td>
</tr>
<tr>
<td>Some College</td>
<td>6</td>
<td>23.1</td>
</tr>
<tr>
<td>Associates Degree</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td>Bachelors Degree</td>
<td>12</td>
<td>46.2</td>
</tr>
<tr>
<td>Graduate Degree (Masters or Doctorate)</td>
<td>1</td>
<td>3.8</td>
</tr>
<tr>
<td><strong>Average Annual Family Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than $30,000</td>
<td>4</td>
<td>15.4</td>
</tr>
<tr>
<td>$30,000-$60,000</td>
<td>10</td>
<td>38.5</td>
</tr>
<tr>
<td>$60,000-$90,000</td>
<td>7</td>
<td>26.9</td>
</tr>
<tr>
<td>Greater than $90,000</td>
<td>5</td>
<td>19.2</td>
</tr>
</tbody>
</table>
Scores on Pre-test and Post-test

The mean score on the pre-test was 87.56% with a low score of 64% and a high score of 96%. For the post-test, the average score was 95.38% with a low score of 84% and a high score of 100% (see Table 2). The average test score improved from pre-test to post-test after the educational intervention on SBS, the Period of PURPLE Crying, and coping as evidenced by an increase in the mean by 7.82% as well as an increase in the median by 6%, an increase in minimum score by 20%, and an increase in the maximum score by 4%.

TABLE 2. Descriptive Statistics of the Pre-test and Post-test

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Pre-test (%)</th>
<th>Post-test (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>87.56</td>
<td>95.38</td>
</tr>
<tr>
<td>Median</td>
<td>90.00</td>
<td>96.00</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>7.946</td>
<td>4.622</td>
</tr>
<tr>
<td>Minimum</td>
<td>64</td>
<td>84</td>
</tr>
<tr>
<td>Maximum</td>
<td>96</td>
<td>100</td>
</tr>
</tbody>
</table>
Results of Paired t Test

After using the Paired t Test to analyze the data from the sample, it can be concluded that the educational intervention significantly increased caregiver knowledge and awareness in regards to SBS, the Period of PURPLE Crying, and healthy coping mechanisms. The participant’s test scores improved by 7.82% (95% confidence interval, 4.86, 10.82; p=0.000) on the knowledge portion of the test after completing the educational program. This gain is statistically significant at p≤0.05 by the paired t test (two-tailed) (see Table 3).

TABLE 3. Results of Paired t Test and Descriptive Statistics

<table>
<thead>
<tr>
<th>Pre-test</th>
<th>Post-test</th>
<th>n</th>
<th>95% CI For Mean Difference</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>Lower</td>
<td>Upper</td>
<td></td>
</tr>
<tr>
<td>87.56</td>
<td>7.946</td>
<td>95.38</td>
<td>4.622</td>
<td>-10.825, -4.868</td>
<td>-5.426</td>
<td>25</td>
</tr>
</tbody>
</table>
Perceived Usefulness of the Action Plan and Educational Intervention

At the end of the post-test, participants were asked to rate how useful they felt the action plan would be in the future and how helpful they felt the educational intervention was on meeting the study goals of educating them on SBS and preparing them for coping with a crying infant at home. They were asked to rank these two items on a scale from one to five with one indicating they felt the action plan would not be useful and the education was not helpful, and five indicating they felt the action plan would be extremely useful and the education was extremely helpful. Overall, a majority of participants reported they felt the action plan would be extremely useful in the future (57.5%) and the education was extremely helpful (57.5%) (see Table 4). The rest of the participants rated the usefulness of the action plan a three or four (42.3%) and the education a three or four (42.3%) indicating they felt this information and program was somewhat useful and helpful.

TABLE 4. Perceived Usefulness of the Action Plan and Educational Intervention (n=26)

<table>
<thead>
<tr>
<th>Usefulness of Interventions</th>
<th>n</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Plan</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>30.8</td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>57.5</td>
</tr>
<tr>
<td>Educational Intervention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>11.5</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>30.8</td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>57.5</td>
</tr>
</tbody>
</table>
CHAPTER VI: DISCUSSION AND IMPLICATIONS

SBS is a significant health concern that can result in both life altering and life threatening injuries including seizures, mental retardation, severe motor dysfunction and death (CDC, n.d.). Inconsolable crying, which is the primary trigger of SBS, has been linked to higher frustration among caregivers as well as unwanted and intrusive thoughts, and negative emotions (Fairbrother, et al., 2015). Knowledge deficits and unrealistic expectations among caregivers in regards to normal infant development and behavior are among the many risk factors contributing to one’s own risk of falling victim to SBS (Lane, 2014). Therefore, a majority of research has revolved around educating caregivers on SBS, normal infant crying, the harms of shaking an infant, and coping mechanisms. Despite various initiatives to decrease SBS, injuries as a result of SBS continue to plague Washington State and are on the rise. Therefore the purpose of this DNP project was to enhance caregiver knowledge by providing them with the education, skills, and resources necessary to cope effectively and efficiently at home when unable to console their infant. This DNP project not only adds to current literature and evidence but it also alludes to future research implications.

Findings Related to the Research Question

Knowledge

The first part of the research question for this DNP project inquired about the impact of SBS education on knowledge. According to these results, knowledge among caregivers significantly improved (p=0.000) from an average score of 87.56% pre-test to an average score of 96% post-test. These results are fairly consistent with current literature and evidence that
suggests that education informing caregivers about normal infant crying and the dangers of shaking can profoundly impact caregiver knowledge (Fujiwara, 2015; Mikton & Butchart, 2009; Reese, et al., 2014; Simonnet, et al., 2015; Tasar, et al., 2015). However, this project did not go as far as to inquire about changes in behavior. In studies done by both Barr et al. (2009) and Fujiwara (2015), caregivers exposed to the educational intervention were more likely to report walking away when feeling frustrated. In fact, in the study done by Barr et al. (2009), 51.5% of participants exposed to the intervention reported walking away if frustrated as opposed to 38.5% of participants not exposed to the intervention. In addition, other studies found that mothers were more likely (69.9% of the time) to share the educational information with other caregivers (Reese, et al., 2014). Aside from lacking information on perceived changes in behavior, this study also did not evaluate participant recall of information. In a study done by Reese et al. (2014), 51.5% of mothers were able to recall one or more techniques to soothe infants. Finally, while the results of this study are consistent with the findings of Fujiwara (2015) in that education significantly enhanced caregiver knowledge, this study did not look at the impact of a dose response. Although the research looked at additional factors not addressed in this paper, the results of this project were consistent with their findings in regards to knowledge acquisition among participants. However, while this project investigated the short-term outcome of knowledge attainment, further inquiry should involve identifying changes in caregiver behavior as well as recall of information to determine long-term effects.

Usefulness of Action Plan and Educational Intervention

The second part of the research question for this DNP project inquired about participant perception of the educational intervention and action plan. According to these results, 57.5% of
participants found the education to be extremely helpful and 57.5% of participants found the action plan to be extremely useful. This too is consistent with current research and evidence, with a majority of participants finding the intervention and action plan relevant and useful. In addition to finding the educational intervention useful, in a study done by Simmonet et al. (2015), 100% of mothers and 98% of fathers reported they would recommend this intervention to all new parents. In addition, in a study done by Stewart et al. (2011), 93% of participants identified the most important message as being what to do in the event that crying becomes frustrating. While this too was found to be consistent with current literature, future inquiry should investigate whether caregivers utilized their action plans in the home environment when feeling frustrated.

Integration of Theoretical Framework

Nurse practitioners (NP) play an integral role in preventing SBS through not only providing anticipatory guidance and education at each well-child visit but also by identifying the individual needs of the patient as well as the family. The SEM framework, which was used to guide this project, aims to understand how individuals and the environment interact with the various components within a social system to better understand why certain individuals are at an increased risk for violence (CDC, 2015b). By understanding these various elements and how they interact, NPs will be better equipped to ensure caregivers are receiving the support and resources they need.

Through the utilization of the SEM framework, this study aims to recognize how different levels of an ecosystem or society can affect not only the infant but the caregiver as well. At the individual level, this study collected the demographics of the caregiver including age
range, level of education, and socioeconomic status. In addition, through the pre-test and post-test this study assessed caregiver knowledge. Although this project in particular did not analyze how those various factors influenced knowledge, future studies should focus on identifying whether there is a correlation between any one of these factors and knowledge.

This study further affects the individual by enhancing the relationship among the caregiver and infant through promoting a positive transition for the caregiver as they take their infant home. This is accomplished by preparing the caregiver with the necessary knowledge and skills before they encounter an issue at home once the infant is born. This study strives to be proactive rather than reactive in its intervention by targeting individuals prior to giving birth.

Furthermore, on the community level, aside from educating, this project aims to provide caregivers with appropriate resources within the community where parents can learn more about SBS, practice healthy coping strategies, and/or identify resources or support groups within their community that they can reach out to for added social support. All of these elements play an important role when it comes to SBS prevention.

**Impact on Practice**

It is clear from this DNP project that education significantly enhances caregiver knowledge, and that a majority of caregivers are in favor of the education, as well as the action plan reporting that they found both to be extremely useful and helpful. Since these findings are consistent with findings from other studies, it can be argued that all caregivers could benefit from SBS education. Given that evidence suggests that caregivers are more receptive to education prior to giving birth or several days after giving birth (Tasar, et al., 2015), the best approach to implementing this education would be to incorporate it during prenatal care, whether it be
integrated into a prenatal class or discussed during a prenatal visit with one’s midwife or obstetrician.

Literature also demonstrates that there is a lack in primary care provider knowledge when it comes to identifying signs of abuse which contributes to missed diagnoses and leads to subsequent abuse and delays in care (Menoch, et al., 2011; Ravichandiran, et al., 2010). Although being able to identify signs of abuse is important, this project shows the significance of being proactive in preventing SBS through spreading awareness and education among caregivers. Finally, although this study does not examine the correlation between risk factors (e.g. socioeconomic status, lack of social support, single parent), it is imperative that NPs are able to identify risk factors in order to determine who is at an increased risk of SBS so that they can intervene early on. In order to reduce morbidity and mortality from SBS, early prevention and intervention are essential.

**Strengths and Limitations**

**Strengths**

There are several strengths in this DNP project. One strength in using a quasi-experimental design is that it does not involve randomization (although this could be viewed as both a strength and limitation since it can also contribute to many of the threats to internal validity that will be discussed in the limitations section). Since it does not involve randomization, these types of study designs tend to be accepted among a broader group of people, which can help with generalizability in that it is less likely that certain groups of people will decline participation (Polit & Beck, 2012). Another strength is that all participants in the Centering group met the inclusion criteria and thus nobody was excluded from being able to participate in
the study. Due to all members meeting the inclusion criteria, this project was able to obtain a sample size of 26, which was a 92% participation rate among the two Centering groups. With a majority of group members participating, this also helped with generalizability, as the study was able to include a broader group of individuals with a multitude of backgrounds. In addition, this study was able to not only add to current evidence in that it was consistent with current research findings, but it was also able to identify areas of future research. Furthermore, as identified previously in the paper, while a majority of research focus on the effectiveness of educational intervention, few studies assessed the efficacy of developing individualized, patient-centered action plan. This project was able to add to what little research is available in identifying that participants found the action plans to be extremely useful although further research is still indicated.

**Limitations**

Aside from the strengths, several limitations hindered the results of this project. As identified during the synthesis of evidence, very few studies included both men and women influencing the generalizability of the results. Therefore, this project aimed to obtain a more well-rounded group of participants by limiting the exclusion criteria in hopes of yielding a broader sample. Unfortunately, despite these efforts, women were more heavily represented in this project (73.1%) in addition to Caucasians (65.4%) and married individuals (65.4%) threatening the generalizability of this study’s results to a broader population. With men being more frequently identified as being the perpetrators of SBS, the lack of male participants is a significant limitation among this study.
In addition, another limitation of this project is selection, which encompasses biases from pre-existing differences between groups (Polit & Beck, 2012). Since this project lacked randomization, the individuals being compared may not be equivalent which could influence the outcomes measured. Another limitation is history, which threatens internal validity. History refers to external events that take place concurrently that can affect the outcomes (Polit & Beck, 2012). Seeing as these participants were toward the end of their pregnancies, previous prenatal classes (depending on the content included in the classes) have the potential to influence results. For example, if certain participants attended a previous class that taught about SBS this could have influenced their pre-test scores, as they would have already had some knowledge regarding the subject. Finally, this project failed to identify how many nulliparous and multiparous women were in each group as being an experience mom may significantly influence results as they may be more knowledgeable than a first time mom in regards to SBS and what to do in the event that crying becomes frustrating.

**Dissemination/Future Implications**

**Dissemination**

The plan for future dissemination of this project and information refers back to the application of the OMRU framework. While the OMRU framework was previously discussed in the section titled “Framework and/or Theoretical Underpinnings,” the concepts were not discussed in detail on how they would be applied for future dissemination or implementation of this study. As discussed, this model is composed of six elements (the innovation, potential adopters, practice environment, interventions, adoption, and outcomes) and three steps with the first being the assessment of the first 3 elements. Part of the assessment has already been
accomplished in this paper, in that the validity of this intervention was assessed by ensuring it was backed by valid and reputable evidence in the discussion on synthesis of evidence.

Aside from assessing the validity of the proposed solution, other attributes that could potentially prevent future dissemination of this initiative include: relative advantage, compatibility, complexity, observability, and trialability (Logan & Graham, 2010). While relative advantage and trialability are not foreseen to pose a significant threat, compatibility, complexity, and observability are risks associated with the implementation of this solution. For compatibility, potential adopters may perceive this innovation as being a significant change to current practice and or norms, which may cause them to resist the change. In addition, potential adopters may view this solution as being too complex since it involves individualizing interventions to match patient needs. Finally, immediate change as a result of this solution may not be observable. In order to overcome these barriers, a user-friendly, easy-to-follow protocol will need to be developed.

In addition, it is important to identify key stakeholders and potential adopters assessing their awareness of the information, knowledge and skills, intention to adopt, and concerns (Logan & Graham, 2010). One way to address these barriers is by holding open forums not only to bring light to the significance of SBS and to provide evidence as to why a change needs to occur but also to provide individuals with an opportunity to speak up in regards to any concerns with the proposed solution. By allowing people to be involved in the decision-making it gives them a sense of autonomy and makes them feel as though their concerns are being heard. In opening up the forum to discussion, this also provides an opportunity to address these concerns and answer questions. Factors that may be of concern to adopters include: staffing (since more
staff will be needed to provide the education), time (individualizing interventions to meet patient needs may be more time consuming), money (to pay additional staff and purchase the necessary resources), and resources. Finally, it would be important to assess the environment or organizations current workload, current practice, leadership support, economic considerations, policies, and procedures. By addressing these potential barriers, one will be able to reduce resistance and increase buy-in.

Once adequate barriers have been addressed, it is time to disseminate the new practice into use. During the implementation phase, it is important to continuously monitor for changes that may occur throughout the process. Alterations that occur during implementation could potential impact adoption and thus corrections may need to be made. According to Logan and Graham (2010), interventions should be tailored to meet specific needs based on the assessment of the innovation, potential adopters, and practice environment. Therefore, if any of these variables change, the intervention may need to be adapted. Interventions are classified as: barrier management strategies, passive and active implementation strategies, and follow-up activities (Logan & Graham, 2010). It is a cycle where barriers are addressed, intervention are implemented and through follow-up activities new concerns may be identified starting the whole process all over again. Therefore, it would be important to seek feedback throughout the implementation process to identify new developing barriers or concerns so that they can be addressed and the interventions can be modified as needed. Therefore, follow-up forums and feedback would be essential.

Finally, after implementing the intervention comes evaluation, which involves assessing the innovation. One evaluation method that can be utilized is patient and staff surveys. Variables
that would be assessed include, patient and staff satisfaction, utilization of appropriate resources and support systems by patients, patient knowledge, usefulness of the information based on patient situation, and whether the process was easy-to-follow.

The OMRU framework provides a set of simple guidelines that, if followed, will help guide the dissemination of this project. By identifying and addressing barriers through the use of open forums, potential adopters may feel more inclined to accept change. Furthermore, by continuously monitoring changes throughout the process and evaluating outcomes, adaptations can be made to the innovation to meet the needs of not only the adopters, but the organization as well, making it a perfect fit. Through the utilization of this model, this educational intervention along with individualized action plan will be successfully disseminated into practice.

**Future Implications**

This DNP project did an excellent job of adding to currently existing evidence in regards to the impact of an education intervention on caregiver knowledge as well as participant acceptance and perception of the usefulness of both the education and action plan. After completion of this DNP project, however, future research would benefit in assessing the long-term outcomes as a result of the education and action plans. Further outcomes that could be measured in future studies include changes in caregiver behavior (e.g. walking away when feeling frustrated, sharing information with other caregivers), participant recall of information at various time intervals after the intervention (e.g. 2 weeks, 3 months), and caregiver self-reported utilization of the action plans in the home environment after receiving the intervention. Aside from assessing the long-term outcomes, future research should also focus on analyzing whether there is a correlation between risk factors (e.g. socioeconomic status, education, age) and
knowledge to assess whether these variables influence ones knowledge or awareness prior to the intervention. Finally, future studies should strive to include both men and women to aid in the generalizability of the results in order to reach a broader population.

**Conclusion**

In conclusion, this DNP project addresses the rise in morbidity and mortality of SBS in Washington State by assessing the impact of an educational intervention on SBS knowledge, as well as the usefulness of developing an individualized action plan. While the results of this study were consistent with current research indicating that informing caregivers about normal infant crying and the dangers of shaking can profoundly impact knowledge, there are several limitations that compromise the generalizability of these results to a broader population. While this study focuses on the short-term outcomes of the educational intervention, future research could benefit from analyzing the long-term effects of the education to further assess the efficacy of educating caregivers on SBS.
APPENDIX A:
SOCIAL-ECOLOGICAL (SEM) FRAMEWORK FOR SHAKEN BABY SYNDROME (SBS)
Adapted from the Centers for Disease Control and Prevention, 2015 (CDC, 2015b)
APPENDIX B

OTTAWA MODEL OF RESEARCH USE (OMRU) FRAMEWORK FOR SHAKEN BABY SYNDROME (SBS)
Adapted from Logan and Graham, 1988 (Rycroft-Malone & Bucknall, 2010)
APPENDIX C

EVALUATION TABLE FOR EVIDENCE
<table>
<thead>
<tr>
<th>First Author/Year</th>
<th>Study Design, Sample/Setting</th>
<th>Intervention, Control Group</th>
<th>Methods</th>
<th>Main Outcome Measures</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altman, et al., 2011</td>
<td><strong>Design:</strong> Quasi-experimental</td>
<td><strong>Intervention:</strong> Implementation of a program that teaches parents about the dangers of shaking and how to cope safely with an infants crying. <strong>Control:</strong> 5 year historical control period</td>
<td>Educational program was provided by maternity nurses which consisted of a leaflet, an 8 minute video, and a signed statement of having received the information in addition to a commitment statement. Follow-up telephone interviews were conducted as infants approached 6 months of age to assess information recall. Poisson regression analysis was used to compare frequency of shaking injuries 3 years following the program implementation with frequency during a 5 year period.</td>
<td><strong>Primary outcomes:</strong> Reduction in the occurrence of abusive head trauma</td>
<td>16 infants who were born in the region during the 8-year period were treated for injuries sustained from shaking during their first year of life. Of those 16, fourteen were born during the 5 year historical control period and 2 were born post-implementation of the educational program. 84.5% of parents were exposed to the material within the first year, 88.1% within the second year, and 87.9% within the third year. 55.6% reported that the information was helpful in stressful situations. The frequency of abusive head injuries decreased from 2.8 cases per year to 0.7 cases per year which represents a 75% reduction in abuse related head injuries.</td>
</tr>
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</table>
Barr, et al., 2009  

| **Design:** | Randomized controlled trial  |
| Sample: | Convenience; N=1,279 new mothers  |
| Setting: | Vancouver, British Columbia, Canada  |

| **Intervention:** | Period of PURPLE Crying which includes an 11-page booklet and DVD.  |
| **Control:** | Basic injury prevention materials including 2 brochures and a DVD.  |

- Two weeks after giving birth during a home visit from a nurse mothers either received materials on the Period of PURPLE Crying or the control materials.  
- Five weeks after given birth participants were asked to complete a diary highlighting their infants behavior and their behavior.  
- Three weeks later mothers were contacted to complete a telephone questionnaire to assess their knowledge about the dangers of shaking and appropriate actions to take to calm an upset child.  

| **Primary outcomes:** | To evaluate the effectiveness of the Period of PURPLE Crying educational program  |

The mean score for knowledge was greater among mothers who received the Period of PURPLE Crying material (63.8 points) as opposed to the control material (58.4%).  

The mean scores were similar among both groups for shaking knowledge and reported maternal responses to crying.  

Parents who received the Period of PURPLE Crying material were more likely to report walking away if frustrated (51.5% as opposed to 38.5%).  

Overall, the study suggests that the Period of PURPLE Crying teaches caregiver a safe and healthy way of reacting to infant crying.
| **Fairbrother, et al., 2015** | **Design:** Randomized controlled trial (RCT) | **Intervention:** 10 minutes of infant crying  
**Control:** 10 minutes of infant cooing | **Primary outcomes:** Unwanted intrusive thought about harm in response to an infant’s crying  
Predictors of unwanted intrusive thoughts. | 23.5% of participants reports thoughts of infant related harm.  
Significantly more participants in the cry condition reported thoughts of infant-related harm in comparison to participants in the coo condition (p<0.001)  
Trait anger and empathic concern were predictive of unwanted intrusive thought of infant-related harm while the other variables were not.  
Women with thought of infant-related harm in response to infant crying reported higher ratings of negative emotions.  
In addition, they also reported a stronger urge to flee the child. |
| --- | --- | --- | --- | --- |
| **Sample:** First-time moms of infants between the ages of 0-6 months old (N=98) | **Participants were randomly assigned to either listen to 10 minutes of infant crying or 10 minutes of infant cooing.**  
**Pre-tests were administered to obtain information on maternal depression, mood, empathy, and anger.**  
**Post-tests were administered after the intervention to assess infant-related harm thoughts, negative and positive emotions, and the urge to comfort and/or flee.**  
**Participants were then allowed to debrief and were given a copy of the Period of PURPLE Crying material.** | **23.5% of participants reports thoughts of infant related harm.**  
**Significantly more participants in the cry condition reported thoughts of infant-related harm in comparison to participants in the coo condition (p<0.001)**  
**Trait anger and empathic concern were predictive of unwanted intrusive thought of infant-related harm while the other variables were not.**  
**Women with thought of infant-related harm in response to infant crying reported higher ratings of negative emotions.**  
**In addition, they also reported a stronger urge to flee the child.** | --- | --- |
| **Setting:** Children’s and Women’s Hospital postpartum wards, community health centers, and community-based mother-infant drop-in centers in and around Vancouver, BC, Canada. | --- | --- | --- | --- |
| **Fujiwara, 2015** | **Design:** Cross-sectional, observational  
**Sample:** 1,594 mothers; among the three groups 96.7-99.4% were married;  
**Setting:** Kamagaya City, Chiba prefecture, suburb | **Intervention:** Educational DVD shown during prenatal class; public health pamphlet distributed at postnatal home visit; exposure to one or both interventions  
**Control:** Exposure to neither intervention | Participants divided into three groups on the basis of exposure:  
Group 1: not exposed to either intervention (n=179)  
Group 2: exposed to one intervention (DVD only [n=16] vs. home visit service only [n=790])  
Group 3: exposed to both interventions (n=331)  
Questionnaire mailed to participants prior to four month checkup and collected at four month checkup. | **Primary outcomes:** Knowledge improvement among women who received both interventions in comparison to those who received one or none  
Crying and shaking knowledge was significantly higher in women exposed to the public health practices, with a dose response relationship (p<0.001).  
Women exposed to both or either intervention were 1.79 and 1.48 times more likely to walk away during inconsolable crying.  
Women exposed to both interventions were less likely to share information with other caregivers. |
|---|---|---|---|---|
| **Goulet, et al., 2009** | **Design:** Descriptive  
**Sample:** Convenience; n=263 parents and n=69 nurses | **Intervention:** Informational cards containing information regarding crying, anger, and knowledge of abusive head trauma  
Nurses were instructed on procedures for providing parents with education on abusive head trauma. | **Primary outcomes:** To evaluate parental and nursing opinions about abusive head trauma educational practices.  
98% of parents reported that the intervention and information was relevant.  
80% of parents reported having thought about the information cards provided to... |
<table>
<thead>
<tr>
<th>Setting: Two birthing institutions in Montreal, Quebec, Canada</th>
<th><strong>Shaken Baby Syndrome.</strong></th>
<th><strong>Parents were provided information cards containing information on crying, anger, and knowledge of Shaken Baby Syndrome.</strong> They were then instructed to develop a plan for handling inconsolable crying. This plan was discussed with nursing staff and signed by parents. Follow-up telephone questionnaires were administered 6 weeks after the intervention to assess adequacy of the education.</th>
<th>them but did not take a second look at them. 98% of parents felt that developing the action plan was useful. However, only 48% reported remembering the steps to the action plan 6-8 weeks after developing the plan.</th>
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</thead>
<tbody>
<tr>
<td><strong>Menoch, et al., 2011</strong></td>
<td><strong>Design:</strong> Cross-sectional survey</td>
<td><strong>Intervention:</strong> None</td>
<td><strong>Primary outcomes:</strong> Knowledge of child abuse and neglect was significantly different across physician groups (P&lt;0.001). Pediatric emergency medicine physician scored the highest</td>
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</table>
| **Sample:** Convenience sample of pediatric | **Control:** None | A 30 question survey was administered to pediatric residents, general pediatricians, and emergency medicine pediatricians. | Knowledge of child abuse and neglect among general pediatricians, emergency medicine pediatricians.
residents, primary care pediatricians, and pediatric emergency medicine providers (n=95)

**Setting:** Urban, tertiary care facility

The institution’s child protection team developed the questions which were then pilot tested to evaluate validity.

Content covered included general signs of physical abuse and sexual abuse, dermatologic complaints, radiological findings, risk factors for abuse, suspicious historical features, mechanisms of injury, skin findings, fractures, and radiological evaluation.

(mean 76.9, SD 9.1) followed by general pediatricians (mean 66.7, SD 12.4) and pediatric residents (mean 60.4, SD 12.9) (P<0.001).

There was no significant difference across residency training years (P=0.076).

| **Mikton, et al., 2009** | **Design:** Systematic review | **Sample:** 26 reviews were included in the study which summarized a total of 298 | A literature search was conducted using the following databases: Medline, PsychINFO, Embase, CINAHL, Social Sciences Citation Index, Science Citation Index, LILACS, ERIC, | **Primary Outcomes:** To synthesis evidence from systematic and comprehensive reviews on the effectiveness of child maltreatment prevention interventions. | Home visiting, parent education, abusive head trauma prevention, and multi-component interventions were identified as being promising interventions in the prevention of child maltreatment. | Home visiting, parent education, and sexual abuse |
| publications and 85 reviews and commentaries | NCJRS, the Campbell Library, the Cochrane Library, WorldWideScience, KoreaMed, IndMED, and Google. Inclusion criteria included: evaluation of the effectiveness of universal interventions, published between January 2000 and July 2008, be systematic or comprehensive, and include at least one of the following outcomes, physical abuse, sexual abuse, neglect, or emotional abuse. The quality of the studies was evaluation with AMSTAR, a measurement tool for the assessment of multiple systematic reviews. | prevention were identified as being promising in the reduction of risk factors for child maltreatment. |
| Ravichandiran, et al., 2010 | **Design:** Retrospective cohort study  
**Sample:** 258 children with non-accidental, abuse-related fractures  
**Setting:** Large academic children’s hospital | **Intervention:** None  
**Control:** None | **Primary Outcomes:** How often abusive fractures are missed by physicians during previous examinations.  
Determination of clinical predictors that are associated with unrecognized abuse. | 20.9% of the patients with abusive fractures had at least 1 prior physician visit at which time abuse was missed.  
The median time to correct the diagnosis from the first visit was 8 days with a range of 1 day to 160 days.  
Predictors of missed abused were identified as being male gender, extremity versus axially located fractures, and presenting to primary care settings versus emergency departments.  
Presenting to a general emergency department as opposed to a pediatric emergency department was also found to be a risk factor. |
|---|---|---|---|
| Reese, et al., 2014 | **Design:** Nonexperimental, post-test-only  
**Intervention:** 10 minute, nurse delivered, in-person education on the Period of  
At the end of each in-person education session, mothers and nurses rated education | **Primary outcomes:**  
Mother’s knowledge and ability to recall soothing and coping techniques; intent to  
76% mothers rated program as useful  
Mother’s and nurse’s ratings were matched with regards to: |
Sample: 211 mothers, aged 16-41 years, 46.9% first time mothers, 74.9% reported completing some college, all received education during hospitalization; 47 nurses administered intervention

Setting: Five hospitals located around a mid-west city

PURPLE Crying; 11-page booklet; 10-minute DVD

Control group: none

session on 6-point Likert scale

Follow-up phone call 2 months post discharge to assess the mother’s: knowledge, ability to recall soothing and coping techniques, self-reported techniques used since discharge, and whether information was shared with other caregivers.

share information with other caregivers

attitudes (83.9%), knowledge of normal crying (83.4%), knowledge of dangers of shaking (81.5%), and knowledge of techniques for soothing (80%).

Nurses rated their perception of mother’s intent to share information with other caregivers higher than mother self-reported intent (69.9% of the time)

54.4% mothers answered all knowledge questions correctly.

51.5% mothers could recall one or more techniques used to soothe infants

58.8% reported using one of the learned techniques for soothing infants

Fewer mothers were able to recall (38.2%) or report trying (26.5%) one or more coping techniques.
<table>
<thead>
<tr>
<th>Shanahan, et al., 2011</th>
<th><strong>Design:</strong> Cross-sectional survey</th>
<th><strong>Intervention:</strong> Maternity ward nurses were surveyed over the phone.</th>
<th><strong>Primary outcomes:</strong> Current practices on abusive head trauma prevention, education, content and format</th>
<th>One-on-one bedside education was reported by 49% of those surveyed. Materials provided to patients include pamphlets (81.1%), DVDs (6.1%), and books (18.2%). Components of the educational programs included: the dangers of shaking (81.8%), methods of coping (81.1%), the normalcy of crying (81.1%), and the physical impact shaking has on infants (72.7%).</th>
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<tbody>
<tr>
<td><strong>Sample:</strong> Convenience; n=89 hospital maternity wards</td>
<td><strong>Control group:</strong> None</td>
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<td><strong>Setting:</strong> North Carolina</td>
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<tr>
<th>Simonnet, et al., 2014</th>
<th><strong>Design:</strong> Quasi-experimental, one-group pre-test/post-test</th>
<th><strong>Intervention:</strong> Interview and questionnaire at day 2 of life to obtain demographic data and assess pre-intervention knowledge</th>
<th><strong>Primary outcomes:</strong> Parent’s knowledge pre- and post-intervention</th>
<th>Parental knowledge was significantly higher in 4 out of 5 questions post-intervention (p&lt;0.001) 99% mothers, 100% fathers felt this intervention was useful 100% mothers, 98% fathers would recommend this for all new parents</th>
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<tr>
<td><strong>Sample:</strong> Convenience; 186 mothers, avg. age 30.9; 80 fathers, avg. age 33.5; all but 2 infants full term; French speaking</td>
<td><strong>Control group:</strong> none</td>
<td>At day 2 or 3 of life (after pre-intervention questionnaire), parents received informative talk and pamphlet from pediatrician on crying and AHT; pamphlet</td>
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<tr>
<td>Setting: Saint Maurice Maternity Hospital, France</td>
<td>pediatrician on crying and AHT</td>
<td>Six weeks post-intervention, parents received phone call with follow-up questionnaire</td>
<td>50% mothers, 64% fathers reported having used the information provided</td>
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<td><strong>Stewart, et al., 2011</strong></td>
<td>Design: Quasi-experimental, pre- and post-test/survey</td>
<td>Intervention: Period of PURPLE Crying</td>
<td>Knowledge improvement score was higher in fathers (1.58 ± 1.3) than in mothers (1.19 ± 1.15)</td>
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<td>Sample: Convenience; N= 10,000 parents</td>
<td>Control group: Subjects serve as their own control</td>
<td>Descriptive and spatial epidemiological profiles of SBS cases were created. Education was provided in 3 doses: 1) In hospital education 2) Public health home visits 3) Media campaign</td>
<td><strong>Primary outcomes:</strong> To evaluate the impact of RN and parental education</td>
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<tr>
<td>Setting: Children’s hospital in London, Ontario, Canada</td>
<td>Education consisted of Period of PURPLE Crying materials</td>
<td>Nurses demonstrated a 47% increase in their knowledge which was significantly higher than their knowledge prior to training (P&lt;0.001).</td>
<td>Of the 10,000 parents educated in the hospital, there was a 93% compliance rate. 93% of parents reported the program was useful, identifying the most important message as being what to do in the event that crying becomes frustrating. The most important factors for selecting media sites were determined to be locations of families with a new baby, high population density, and percentage of lone parents.</td>
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<td><strong>Tasar, et al., 2015</strong></td>
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<tr>
<td><strong>Design:</strong> Quasi-experimental, pre-test/post-test</td>
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<td><strong>Sample:</strong> 545 mothers having full term (≥37 weeks gestation) babies; avg. age 27.6 ± 5.5 years; 51.2% primary school graduates; all three groups similar in regards to age, education status and number of children.</td>
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<td><strong>Setting:</strong> Ministry of Health, Ankara Education and Research Hospital and Gazi University School of Medicine Hospital, Turkey</td>
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<tr>
<td><strong>Intervention:</strong> Education on SBS given at different perinatal times</td>
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<td>Women divided into the following groups:</td>
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<td>Group 1: Mothers who received education 48 hours prior to discharge (n=217)</td>
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<td>Group 2: Mothers who received education at well-child visit three to seven days post-discharge (n=235)</td>
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<td>Group 3: Mothers who received education in their third trimester at their last</td>
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<td><strong>Pre-test to obtain demographic data and pre-intervention knowledge and perceptions.</strong></td>
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<td>3 minute educational film shown to three separate groups of women at different perinatal times</td>
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<td><strong>Primary outcomes:</strong> Knowledge recall; Effectiveness of receiving education at varying perinatal times</td>
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<td><strong>Post-test to assess knowledge recall</strong></td>
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<td>Mean score for knowledge significantly increased from 5.0±2.2 pre-intervention to 6.4±1.7 (p=0.001) post-intervention.</td>
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<td>Results shows a statistically significant difference in scores based on educational background</td>
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<td>Pre-test and post-test questions regarding reasons for crying and soothing techniques were all statistically difference (p=0.001) except for when it came to “asking for help” (p=0.015)</td>
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<td>Post-test scores for group one were statistically lower than compared to groups two and three (p=0.001)</td>
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<td>antenatal visit (n=93)</td>
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</table>
APPENDIX D

CERTIFICATE OF COMPLETION OF TRAINING
Certificate of Completion

Awarded to

Alexandra Schutt

To certify the completion of

Period of PURPLE Crying Program Training for Implementation

Issued

July 26, 2016

This continuing nursing education activity was approved by the Ohio Nurses Association, an accredited approver by the American Nurses Credentialing Center’s Commission on Accreditation (OBN#00274)

Approval Valid through 7.25.2018 ONSA #15296

For further contact information:
APPENDIX E

PERMISSION LETTER
July 19, 2016

To Whom It May Concern:

Alexandra Schutt will be permitted to present her DNP project on Shaken Baby Syndrome during the Centering groups.

Jennifer Riffel, CNM, ARNP
Franciscan Midwife Director
Franciscan Women’s Health Associate - Tacoma

1608 S J 1st Floor, Tacoma, WA 98405 IMS 35-01
P 253.274.7501.
Jenniferriffel@chifranciscan.org
www.CHIfranciscan.org
APPENDIX F

RECRUITMENT LETTER
Dear Centering Participants,

Please join us at our next Centering class held (month) (day), 2016 when we will have a local Doctor of Nursing Practice (DNP) student present on Shaken Baby Syndrome (SBS) for her final thesis. Her study is aimed at enhancing caregiver knowledge about SBS and to provide parents with the skills and resources necessary to cope effectively and efficiently at home when unable to console a crying infant. This education will consist of a pre-test and post-test to assess knowledge prior to and after the education and will include a hands-on learning activity. Overall, this educational session is expected to take approximately 45-60 minutes to complete. Significant others are strongly encouraged to participate.

An Institutional Review Board responsible for human subjects’ research at The University of Arizona reviewed this research project and found it to be acceptable, according to the applicable state and federal regulations and University policies designed to protect the rights and welfare of participants in research.

If you have any questions or concerns, you may contact Alexandra Schutt at 253-973-0232 or chiarocad@email.arizona.edu.

Sincerely,

Alexandra Schutt, RN, BSN, CCRN
University of Arizona
Pediatric Nurse Practitioner Student
APPENDIX G

PRE-TEST
Shaken Baby Syndrome

PRE-TEST

Part A: Demographic Data (circle one)

1. Caregiver role
   a. Mother
   b. Father
   c. other (please specify) _____________________

2. Age (in years)
   a. 18-24
   b. 25-29
   c. 30-34
   d. 35-39
   e. 40-44
   f. 45-49
   g. 50 and older

3. Race
   a. Caucasian
   b. African American
   c. Asian/pacific islander
   d. Hispanic
   e. Native American
   f. other (please specify) _____________________

4. Marital status
   a. Married
   b. Single
   c. other (please specify) _____________________

5. Education
   a. Some high school
   b. High school diploma or GED
   c. Some college
   d. Associate degree
   e. Bachelors degree
   f. Graduate degree (masters degree/doctorate)

6. Average annual family income
   a. Less than $30,000 per year
   b. $30,000-$60,000
   c. $60,000-$90,000
   d. Greater than $90,000 per year
Part B: Pre-test

1. What does SBS stand for? ____________________________________________________

2. For the following questions circle True (T) or False (F)
   a) Mothers or female caregivers are more likely to shake a baby T F
   b) Fathers or male partners are more likely to shake a baby T F
   c) Parents are more patient with their own children T F
   d) When a baby cries a long time it is ok to shake them T F
   e) Twins have a lower incidence of being shaken T F
   f) A sick and crying baby can be very upsetting for any caregiver T F
   g) It is not normal for a baby to cry for more than two hours T F
   h) Crying is the number one trigger leading caregivers to violently shake a baby T F
   i) The only way to stop a baby from crying is to shake them T F
   j) SBS injuries usually occur in children younger than 2 years T F
   k) SBS injuries never are seen in children over 2 years T F
   l) One of the characteristic injuries of SBS is bleeding in the brain T F
   m) SBS injuries are immediately noticeable T F
   n) A baby’s brain is immature and more easily injured by shaking T F
   o) Retinal (back of the eye) bleeding in SBS is very uncommon T F
   p) All babies should be handled with care T F

3. List 4 reasons why babies cry:
   a) ______________________________________________________________________
   b) ______________________________________________________________________
4. Name 4 things a person can do to avoid shaking a baby:

a) 

b) 

c) 

d) 

APPENDIX H

POST-TEST
Shaken Baby Syndrome

POST-TEST

1. What does SBS stand for? ______________________________________________________

2. For the following questions circle True (T) or False (F)

q) Mothers or female caregivers are more likely to shake a baby T F
r) Fathers or male partners are more likely to shake a baby T F
s) Parents are more patient with their own children T F
t) When a baby cries a long time it is ok to shake them T F
u) Twins have a lower incidence of being shaken T F
v) A sick and crying baby can be very upsetting for any caregiver T F
w) It is not normal for a baby to cry for more than two hours T F
x) Crying is the number one trigger leading caregivers to violently shake a baby T F
y) The only way to stop a baby from crying is to shake them T F
z) SBS injuries usually occur in children younger than 2 years T F
aa) SBS injuries never are seen in children over 2 years T F
bb) One of the characteristic injuries of SBS is bleeding in the brain T F
cc) SBS injuries are immediately noticeable T F
dd) A baby’s brain is immature and more easily injured by shaking T F
ee) Retinal (back of the eye) bleeding in SBS is very uncommon T F
ff) All babies should be handled with care T F

3. List 4 reasons why babies cry:
4. Name 4 things a person can do to avoid shaking a baby:

e)  

f)  

g)  

h)  

5. Circle a number on the following scale to signify how useful you feel the action plan will be in the future.

Not useful  Somewhat useful  Extremely useful

1  2  3  4  5

6. Circle a number on the following scale to signify how helpful you felt this class has been in educating you on SBS and preparing you for coping with a crying infant at home.

Not helpful  Somewhat helpful  Extremely helpful

1  2  3  4  5
APPENDIX I

ACTION PLAN
PERSONAL ACTION PLAN

1. When a baby in my care can’t stop crying, I will first:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

2. Then I will:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

3. Things I can do for myself to relieve SBS stress are:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

4. If I need to talk to someone, I can call:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

5. If I need a break from caring for a crying baby, I can call:

______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________
APPENDIX J

APPROVAL LETTER TO USE TOOLS
"Handle With Care" permission

Heidi Petermeier <petermeierh@unce.unr.edu>
To: "ciarocad@email.arizona.edu" <ciarocad@email.arizona.edu>
Fri, Jun 24, 2016 at 4:00 PM

Hello Alexandra,

Thank you for your interest in our materials. Here is the "official" permission.

It is our pleasure to give you University of Nevada Cooperative Extension's written permission to adapt the format/modify written material from the "Handle with Care" (CM-08-06) curriculum for your student project at the University of Arizona.

Our suggested wording for the credit is: "Adapted with permission of University of Nevada Cooperative Extension from its publication, "Handle with Care (CM-08-06)."

Should you need anything else, please let me know. Best of luck with your project!

Heidi Petermeier

Program Officer - Partners in Parenting
University of Nevada Cooperative Extension
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Las Vegas, NV 89123
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(702) 222-3100 fax
APPENDIX K

CONSENT
The University of Arizona Consent to Participate in Research

Study Title: Shaken Baby Syndrome Prevention: Implementation of an Individualized, Patient-centered Educational Program

Principal Investigator: Alexandra Schutt

This is a consent form for research participation. It contains important information about this study and what to expect if you decide to participate. Please consider the information carefully and feel free to ask questions before making your decision whether or not to participate.

Why is this study being done?
Child maltreatment is a serious health concern within the United States (U.S.) affecting as many as one in four children throughout their lifetime. Physical abuse, sexual abuse, emotional abuse and neglect are all forms of child maltreatment with Shaken Baby Syndrome (SBS) being the leading cause of child abuse deaths in the U.S. SBS can be defined as a form of abusive head trauma (AHT) and inflicted traumatic brain injury (ITBI) that results from violently shaking an infant. Although a majority of cases involve infants younger than 1 year of age (with the peak incidence between 2-4 months), injuries have been reported in children up to 5-years-old. Infants and children that fall victim to SBS suffer from both minor and fatal injuries ranging from seizures and irritability to severe motor dysfunction and death. Among the many causes of SBS, inconsolable crying is the primary trigger.

Studies indicate that there is a significant knowledge deficit among caregivers along with primary care providers. Therefore, early identification and intervention are essential. Current research suggests that education informing caregivers about normal infant crying and the dangers of shaking can profoundly impact knowledge, change behavior and alter perceptions. The purpose of this study is to not only enhance caregiver knowledge about SBS but to also provide parents with the skills and resources necessary to cope effectively and efficiently at home when unable to console their infant.

What will happen if I take part in this study?
Should you choose to participate in this study, you will be asked to partake in a pretest and posttest to assess knowledge before and after the intervention. In between the pretest and posttest you will receive education via the Period of PURPLE Crying material on SBS. Following the posttest, participants will then be guided through developing an action plan which can be utilized as a guide for handling inconsolable crying.

How long will I be in the study?
This study will take approximately 45-60 minutes during the centering class.
How many people will take part in this study?
30 participants from the centering classes will be enrolled in this study.

Can I stop being in the study?
Your participation is voluntary. You may refuse to participate in this study. If you decide to take part in the study, you may leave the study at any time. No matter what decision you make, there will be no penalty to you and you will not lose any of your usual benefits.

What risks, side effects or discomforts can I expect from being in the study?
This study involves educating caregivers about SBS and ensure they have the necessary resources and tools needed to cope with a crying infant. This study does not involve treatment and poses minimal risk to participants.

What benefits can I expect from being in the study?
You may or may not benefit as a result of participating in this study. Benefits you may receive from this study include: enhanced knowledge about SBS, healthy coping mechanisms when feeling stressed or frustrated with an inconsolable infant at home, and knowledge pertaining to available resources. You will also be able to take the action plan home with you to serve as a reminder for the various tools and resources available to you to help you deal with a crying infant.

Will I be paid for taking part in this study?
As an expression of appreciation for participating in this study, participants will receive a $15 gift card to Baby’s R Us upon completion of the study.

What other choices do I have if I do not take part in the study?
You may choose not to participate in this study without penalty or loss of benefits to which you are otherwise entitled.

Will my study-related information be kept confidential?
Efforts will be made to keep your study-related information confidential. However, there may be circumstances where this information must be released. For example, personal information regarding your participation in this study may be disclosed if required by state law.

Also, your records may be reviewed by the following groups:
- Office for Human Research Protections or other federal, state, or international regulatory agencies
- The University of Arizona Institutional Review Board

Who can answer my questions about the study?
For questions, concerns, or complaints about the study you may contact Alexandra Schutt, RN, BSN, CCRN, at (253) 973-0232 or via email at clarocad@email.arizona.edu.

For questions about your rights as a participant in this study or to discuss other study-related concerns or complaints with someone who is not part of the research team, you may contact the Human Subjects Protection Program at 520-626-6721 or online at http://rgw.arizona.edu/compliance/human-subjects-protection-program.

An Institutional Review Board responsible for human subjects research at The University of Arizona reviewed this research project and found it to be acceptable, according to applicable state and federal regulations and University policies designed to protect the rights and welfare of participants in research.

Signing the consent form

I have read (or someone has read to me) this form, and I am aware that I am being asked to participate in a research study. I have had the opportunity to ask questions and have had them answered to my satisfaction. I voluntarily agree to participate in this study.

I am not giving up any legal rights by signing this form. I will be given a copy of this form.
REFERENCES


http://www.cdc.gov/violenceprevention/childmaltreatment/

http://www.cdc.gov/violenceprevention/overview/social-ecologicalmodel.html


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