



Opioids in pregnancy and neonatal abstinence syndrome

A literature review

Ubah Sharif

Degree thesis

Degree program in nursing

DEGREE THESIS	
Department of Healthcare and Welfare	
Degree Programme:	Nursing 2013
Identification number:	18344
Author:	Ubah Sharif
Title:	Opioid in pregnancy and Neonatal abstinence syndrome
Supervisor (Arcada):	Pamela Gray
Commissioned by:	
<p>Neonatal abstinence syndrome (NAS) is a symptom of newborn babies, who are exposed to substance abuse in the utero and become physically dependent on drugs after they are delivered, infants with NAS, struggle to maintain body temperature, poor weight gain, extreme episodes of crying, hyperactivity, unpredictable motor movements and significantly reduced quality and quantity of sleep.</p> <p>The purpose and aim of this paper is to shed light on the struggles these infants go through and find resources that are available in caring for infants with NAS, and that nurses approach towards mothers should be more therapeutic and supportive rather than the parents having negative experiences during their postnatal care. The research questions in focused are;(1) What are the experiences faced by drug-dependent parents under healthcare care professionals? (2) What are the effects of NAS on infants and strategies in caring for drug dependent infants?</p> <p>Results indicate that infants with NAS face various challenges, in addition different care strategies emerge. Parents with NAS infants had negative experience from healthcare professionals such as judgment and inadequate information about their care.</p>	
Keywords:	Opioids, pregnancy, infants, utero, drugs, NAS
Number of pages:	
Language:	English
Date of acceptance:	

Table of content

1 INTRODUCTION	Error! Bookmark not defined.
2 BACKGROUND	Error! Bookmark not defined.
2.1 Types of NAS.....	Error! Bookmark not defined.
2.2 Effects on the baby.....	Error! Bookmark not defined.
2.3 Maternal substance abuse	8
3 Theoretical framework	12
4 AIMS	14
4.2 RESEARCH QUESTION	14
5 Methodology	15
5.1 Data collection	15
5.2 Data analysis	18
5.3 Ethical consideration	19
6 Results	Error! Bookmark not defined.
6.1 strategies in caring for infants	23
6.2 Experience of drug dependent parents under healthcare professionals.	Error! Bookmark not defined.
7 Discussion	26
7.1 Relating the finding to the theoretical framework	28
8 CONCLUSION	28
REFERENCE	31
Appendix	36

Tables

Table 1 Articles retrieval	16
Table 2 Articles used in the study.....	17
Table 3 Results of the research question.....	15

Appendix

Appendix1: Summary of the chosen articles.....	36
--	----

FOREWORD

I would like to express my gratitude and to ARCADA University of applied science, for giving me an opportunity to learn and have the best experience in ARCADA. I would like to thank my supervisor Pamela Gray for her guidance and patience. I am truly grateful for everything you have done for me. I would also like to thank Denise Villikka for her support and encouragement throughout this whole experience. I am very grateful. Lots of love and respect for my amazing parents, who taught me to be a better person. I would like to thank my sisters who were very supporting and my brothers. To my friends who were there with me every step of the way.

1 INTRODUCTION

Neonatal abstinence syndrome, also known as NAS, is a postnatal drug withdrawal syndrome that occurs in newborns who are exposed to opioids drugs that could be illegal or prescribed drugs while in the mother's womb. Prenatal NAS depends on the intrauterine drug exposed on the infant and the mother's drug metabolism and excretion. The symptoms of NAS also depend on several aspects including the types of drugs the mother used, how much and how long she used the drugs. These drugs cause an addiction in the mother and dependence in the infant due to the placental barrier which then leads to development of a withdrawal syndrome. The aim of this study focuses on effects on infants and strategies in caring for infants with NAS, and the experience the parents face under healthcare professionals during their hospital stay. (Medscape,2017).

Infants exposed to opioids drugs present a challenging feature, which the new mother is faced with. The baby can be unresponsive, irritable and unpredictable. Treatments require specialized neonatal care for the first 4 to 6 weeks. The nurses have the opportunity to promote the parent-infant relationship and alleviate the effects and risk factors the baby is probably going to experience. Unfortunately, this study shows that management of these babies and their parents is compromised due to the nurse's attitudes towards the parent (McCarthy et al,2017).

Nurses usually underestimate the knowledge needed to care for infants with neonatal abstinence syndrome says Murphy-Oikonen et al. 2010. He also identified nurses caring for infants with NAS, who do not feel well supported by the clinical colleagues, who had a habit of not appreciating the specific nursing challenges or the importance of actual nursing care for these infants. Murphy-Oikonen et al. 2010 advised that nurses who are involved in caring for infants with NAS must be provided with special training, which would address all aspects of nursing care, as well as providing detailed information on addiction and drug use so that the nurses can have knowledge about the condition and feel sympathy towards the mothers.

2 BACKGROUND

Neonatal abstinence syndrome (NAS) is a symptom of newborn babies, who are exposed to substance abuse in the utero and become physically dependent on the drug, and after the mother delivers the baby, the infant suffers from neonatal abstinence syndrome. Infants with NAS have multi-system dysfunction which involves the central nervous, respiratory and gastrointestinal system. NAS has been reported to occur to newborns exposed to opiates in the uterus. Amongst the infants who have NAS, 30% and 80% require treatment which can result in a prolonged hospital admission (Kassim et al, 2006).

Prescription opioids are used prenatally for the management of pain. Opioids are pain reliever drugs that are available legally by prescription, these drugs include, heroin, codeine, oxycodone(oxycotin), methadone or buprenorphine. Studies have constantly shown that opioids are most common prescribed medication and the occurrence of use is increasing among pregnant women. Opioids medications are used for many reasons when one is pregnant, such as pelvic lower back during pregnancy, other pain conditions include, joint, pain and migraine are often reported. In addition to the nonsteroidal anti/inflammatory drugs, prescription opioids are an important option for managing acute pain during pregnancy, for chronic pain, American pain society guidelines recommend counseling women about risks and benefits of chronic opioid therapy (Alwan et al, 2015).

The Finnegan scoring instrument is a tool that assess the degree of signs of present symptoms, that helps determine, (1) which neonates require pharmacologic therapy, (2) how dosing should be escalated, and (3) when weaning should occur. The traditional Finnegan scoring system consists of a 31-item scale that assesses the presence and severity of various NSA- related symptoms and is achieved every 3-4h period leading up to the assessment. This system was specifically designed for infants. (Walter et al, 2016).

2.1 Maternal substance abuse

Some women become pregnant while they physically rely on opioids for chronic pain and their doctors continues to prescribe opioids for the them in the period of the pregnancy. Although neonatal abstinence syndrome was discovered by studying infants born to mothers using illegal drugs, this study suggests that, many newborns were born to mothers who used prescribed opioids pain relievers, says Tolia et al (2015). Women who are on opioids while pregnant, might find their doctor fearful of continuing to prescribe them. Mothers who had been surveyed were quickly discharged from pain management without any treatment recommendation. This led to patients finding treatment on their own, by having an interval of illicit prescription drug use, several in desperation to avoid withdrawal symptoms and loss of their baby.

physicians should council on the need for contraception, when using opioids and replace short-acting opioids with methadone especially when pregnancy occurs, since methadone resulted a low rate of treatment for NAS of 11%. Providers should be acquainted with the use of methadone during pregnancy and have a referral mechanism in place if its required. Federal and state, who prescribe and regulate medication should assure that no pregnant woman, who is dependent on pain medications isn't refused access to get care (McCarthy et al, 2017).

The drug dependent parent's ability to care for their babies is compromised by factors associated with substance abuse, such as depression psychopathology, antisocial personality. Children are at risk of neglect and other form of problems such as maladaptive development and behavioral problems. However, the effects of prenatal exposure to maternal substance abuse on adverse birth outcomes have received much research attention. Fewer studies have been concerned with the attitudes of caregivers, specially nurses, towards drug-dependent parents during pregnancy and their impact of infant outcome (Fraser et al,2007).

2.2 Effects of NAS on the baby

Neonatal abstinence syndrome is defined as a group of behavioral and physiological signs and symptoms in newborns that are strangely similar despite clear differences. There are two major types of NAS, that are known. NAS due to prenatal or maternal use of substance in the newborn and postnatal NAS, which is discontinuation of medications such as fentanyl or morphine used for pain therapy in newborns admitted in the neonatal intensive care unit, (Medscape,2017).

Although opioid maintenance treatment during pregnancy improves infant outcomes, it does not stop the development of NAS. Every child who is exposed to opioid drugs, resides along the range of signs of withdrawal. Some infants have amiable, clinical insignificant signs, others however show more severe disease that significantly impacts growth and development without treatment. Therefore, the diagnosis of NAS is not made by the need for pharmacologic treatment, but by the basic signs of neonatal withdrawal (Kraft et al, 2016).

The main problems of infants with neonatal abstinence syndrome consist of struggling to maintain body temperature, poor weight gain, extreme episodes of crying, hyperactivity, unpredictable motor movements and significantly reduced quality and quantity of sleep, (Shaw, 1999). These symptoms place attention on competent monitoring and sensitive nursing care, to promote safe withdrawal and a positive change to the baby's life without needing any further pharmacological support (Abbertt et al, 2012).

Many infants are exposed to polydrug abuse, unfortunately, there is a scarcity of evidence from randomized studies to determine the management of these patients, in two randomized trial, phenobarbitone, rather than diazepam or paregoric was best at controlling the symptoms that the infants were exposed to. The results of another study imply that the combination of phenobarbitone with diluted solution of opium may be more effective than opium alone, because the combination lead to a shorter period of hospital stay (Kassim et al, 2006)

2.2 Nurses attitude towards drug-dependent parents

Nurses who care for infants exposed to illegal drugs before they are born, have a chance to influence the parent-infant relationship. This opportunity can occur for up to six weeks after the baby is born, depending on the treatment outcome for NAS. Specific educational programs must be introduced to improve nursing skills and therapeutic relationships in assessment and management drug related disorder. The attitude of the nurse's influences the ability to maintain therapeutic relationships that are suitable for nursing interventions and require promoting a parent-infant relationship. This opportunity can be critical, the parent infant-relationship can alleviate the effect of environmental risk factors the babies are likely to experience once discharged. However, management of drug-dependent parents and their infants may be compromised by a range of factors, such as nurses negative attitude towards mothers. This can impact adversely on quality nursing care (Fraser et al,2007).

Maternal substance use can lead to adverse neonatal outcome. The frequency of NAS is related to the increasing rates of maternal use of illicit drugs during pregnancy. Infants born to drug-dependent parents require highly specialized nursing care due to the physical and biological effects of drug exposure during pregnancy. Furthermore, nurses play an important role in making a positive environment for infants born into adversity. The infant grants an opportunity to influence the parent-infant relationship which resolves a high-risk care-giving environment into which these infants are born. This is a time when the fundamental parental commitment and the skills of parents are influenced (Fraser et al,2007).

Unfortunately, nursing staff are reported to embrace attitudes that are negative towards women who abuse drugs, and this impacted adversely on quality nursing care. Nurses have been reported to consider drug-dependent parents to be responsible for their own illness. It is important that staff show respect to the mothers and acknowledge the struggle with substance abuse, such mothers are often sensitive to the perceived judgment of staff (Kraft et al,2016).

Neonatal nurses may experience conflict in developing a relationship with drug dependent mothers, due to their regular care for infants with NAS. These conflicts lead to caregiver's lack of understanding, empathy and knowledge regarding addiction. Nurses may experience frustration and anger toward the mother whose infant is suffering because of their addictive

behaviors. The neonatal nurses, who lack sympathy towards the mother, may unintentionally contribute to not establish the mother-infant attachment. (Fraser et al,2007).

3 Theoretical Framework

A Theoretical framework is a conceptual model that has a sense of structure that guides your research base and offers support for your thesis. A good theoretical framework provides the background that supports your examination and offers the reader an understanding for your research study. The purpose is to determine that the relationships you propose are not based on your individual instincts or guesses, but rather formed from evidences obtained from authors of previous research (Statistics solution,2018).

The theory that was used in this study was the CAP control theory of drug abuse. The CAP control theory highlights the interaction of the individuals style and the emotional experience of drug use with the drugs pharmacogenetic effect. These are the basic ingredients of the cognitive affective-pharmacogenetic CAP control theory of addiction. The cognitive style of the drug abuser is viewed as the essential factor in an individual, moving from experimentation to drug abuse, (Coghlan et al. 1973, Gold & Coghlan 1976).

A primary pharmacogenic effect of heroin is anxiety reduction, the drug gives people a temporary ecstatic feeling which the person experiences, control and an increase sense of power. The drugs can do for the abuser what he believes he cannot do for him/herself. However, the drug effect is temporary, meaning that the drugs wears off and any temporary gain turns into a long-term lose. The feeling they had previously which was lack of control comes back stronger than ever. The increased sense of powerlessness with the increase drug use which leads to the person from becoming a drug user to a drug abuser. Every time a drug abuser depends on drugs to make them feel good, they are unable to cope on their own because they figured that they don't need to tolerate the problems they've been having if the drugs they used in the past was producing good feelings (Dan J et al,1980).

This theoretical framework is believed to be suitable since this paper mostly mentions the caregiver's treatment towards the mother of drug dependent infant. The mother already feels guilty concerning the damage their behavior has done on the infant, when these vulnerable mothers see the irritable child withdrawing from drugs that the mother used, the last thing they

need is a caregiver who is judgmental towards them. These mothers require an understanding and supportive environment, the attitudes of nurses caring for drug-exposed infants and their parents, is essential to the success of promoting attachment (French et al, 1998). Nurses have been reported to consider drug-dependent parents to be partly responsible for their own illness, refusing to willingly interact with these parents (Melby,1992).

This theory CAP control theory suggests that the abuse process begins with conflict as an influencing factor. People who have difficulty in meeting what is demanded of them or who expect something from them by the society or by themselves are conflicted, these conflict of stress leads to anxiety which is a general feeling, something most people experience at some degree. It is not the experience of anxiety but the belief that they are not able to change or control a certain situation and believe that they are powerless to cope with stress. One of the consequences of this is the intense feeling of low self-confidence that is well known among drug abusers (Krystal & Raskin 1970).

The realization of being pregnant and opioid dependent is arguably very stressful on mothers, it includes anxiety and guilt about possible adverse effects on the baby, confusion on what to do and pressures to just stop opioids instantly. The possibility that some of these adverse outcomes for the mother and the baby are stress related. (McCarthy et al,2017). Nurses approach towards parents of drug dependent infant is very crucial. These parents need someone to guide them and help the child cope with NAS by strengthening the mother-child relationship. The caregivers can help the mothers by encouraging them and supporting them towards the whole process and having a positive environment towards the parent.

4 AIMS

The aim of this paper is to address the experiences drug dependent mothers under the care of healthcare professionals during hospital stay. In addition, this paper focuses on the effects of NAS on infants and the kind of care strategies provided for drug-dependent infant.

4.1 RESEARCH QUESTION

1. What are the experiences faced by drug-dependent parents under healthcare care professionals?
2. What are the effects of NAS on infants and strategies in caring for drug dependent infants?

5 Methodology

The method used is a literature review which is a written summary of journal, articles books and other documents that defines previous and existing information. This study is based on qualitative study and inductive content analysis to analyze data which were found in the previous researches to examine the findings and results relating to the study. A literature review is a method used to collect data and shape your research problem when reviewing the literature which helps you understand the subject better and helps you to conceptualize your research clearly and makes it more relevant. (Kumar 2008)

5.1 Data collection

Secondary literature review was accessed from a set of databases through the Arcada University of Applied Sciences, which included SCIENCE DIRECT, and PUBMED. I also used EBSCO and SAGE but didn't find any relevant articles that answered the research question in focus. The articles that were accessed, provided the information that was relating to the search topic and helped in answering the research question. The articles chosen were pre-existing articles and the key words were, Neonatal abstinence syndrome, pregnant women, infants, mothers experience, illicit drug abuse, opioids, parent-infant relationship. The following table explains, how I did my research and the articles that were chosen.

Table 1 Articles retrieval

Data bases	Search Category	Number of Hits	Relevant Articles	Selected Articles
SCIENCE DIRECT	Neonatal abstinence syndrome.	2,501	30	2
	Opioids mothers AND babies.	2,392	45	1
	Neonatal abstinence syndrome AND Psychological difficulties.	502	18	1
	Neonatal abstinence syndrome AND the fetus.	738	28	1
	neonatal abstinence syndrome, effects on mothers and infants.			
	how can infants cope with neonatal abstinence syndrome?	428	12	1
		202	8	1
PUBMED	Neonatal abstinence syndrome and the fetus	28	15	2

During the research process, the author used science direct the most because it was giving more relevant articles that were related to the research. Science direct was used 6 times, putting different search words. The first search words that was used in Science direct, was Neonatal abstinence syndrome. The second search words that was used was Opioids mothers AND babies. The third search words were Neonatal abstinence syndrome AND psychological difficulties. The fourth search words were Neonatal abstinence syndrome AND the fetus. The fifth search word was neonatal abstinence syndrome, effects on the mothers and infants. The sixth search word was, how can infants cope with neonatal abstinence syndrome? The seventh search word was repeated in PUBMED, Neonatal abstinence syndrome and the fetus.

The selected articles were from 2006 to 2017. In these criteria, the selected articles were all in English. Articles below the year 2005 was ignored. The articles were free to access with no price on them. All the articles that were irrelevant and did not meet the requirement of the inclusion and

exclusion criteria was excluded, because not all the articles were able to answer the question that was intended for the study. The author selected 9 articles that were relevant to the research question. The selected articles are demonstrated in the table below.

Table 2 Articles used in the study

	Author	Title of articles	Journal name +Year
1	Kraft, W. A., Stover, M. W., and Davis, M. Jonathan.	Neonatal abstinence syndrome: Pharmacologic strategies for the mother and infant.	Seminars in perinatology, 2016
2	Megan W. Stover, Jonathan M. Davis.	Opioids in Pregnancy and Neonatal Abstinence Syndrome	Seminars in Perinatology, 2015
3	Macvicar S., Humphrey T, Katrina E. Forbes-Mckay.	Breastfeeding support and opiate dependence: A think aloud study	Midwifery, 2017
4	Mactier H	Neonatal and longer-term management following substance misuse in pregnancy.	Early Human Development, 2013
5	Fraser, J. A., Barnes, M., Biggs, H. C., & Kain, V. J.	Caring chaos and the vulnerable family: Experiences in caring for newborns of drug- dependent parents.	International Journal of Nursing Studies, 2007
6	McCarthy, J. J., Leamon, M. H., Finnegan, L. P., Fassbender	Opioid dependence and pregnancy: minimizing stress on the fetal brain	American Journal of Obstetrics and Gynecology, 2017
7	Abbertt H., Greenwood S.	Nursing infants with neonatal abstinence syndrome: Time to change practice?	Journal of Neonatal Nursing, 2012
8	Kassim, Z., & Greenough, A.,	Neonatal abstinence syndrome: Identification & management.	Current Pediatrics, 2006
9	Prentice Sheena	Substance misuse in pregnancy.	Obstetrics, Gynecology & Reproductive Medicine, 2010

5.2 Data analysis

Content analysis is a research method that allows the data collected in the research to be analyzed in a reliable and a systematic way. Therefore, data can be organized and categorized in order for the conducted research to be clarified. There are three approaches of content analysis that are summative, directed and conventional. There are major differences among these approaches which are coding schemes, origins of codes and threats to trustworthiness.

Conventional content analysis is when coding categories are collected directly from the text data. On the other hand, directed approach analysis begins with a theory as guidance for initial coding. A summative content analysis contains comparisons and counting of keywords and therefore followed by interpretation of the underlying context (Graneheim & Lundman 2004).

According to Polit & Beck (2006) content analysis is a process of arranging and combining narrative materials into themes and concepts. Content analysis method is classified into inductive or deductive approach. Inductive method is applied when there is not enough information about a phenomenon (Elo & Kyngäs 2007). Inductive content analysis originates the concepts from the data and therefore it is used to develop conclusions from observations (Polit & Beck 2006).

Deductive content analysis is on the other hand applied when the structure of analysis is used based on existing knowledge. Deductive approach is also used as a way of narrowing down a previous theory from general to specific. The importance of using deductive method in studies is theory testing. Both inductive and deductive approach share three main stages that are classified as preparation, organizing and reporting. When utilizing content analysis, the main feature is that the words of the text are categorized into categories (Elo & Kyngäs 2008). After reading the definition of inductive and deductive approach, the researcher decided to use inductive content analysis to examine the topic under study.

According to (Hsieh & Shannon, 2005), There are three main techniques to qualitative content approach depending in how much reasoning is involved in inductive approach. Qualitative content analysis allows the researcher to deal with units of texts to more than one theme simultaneously. This isn't the case in a quantitative content analysis since both categories and subcategories are exclusive and so a sentence or a word must always belong to one category (Graneheim & Lundman, 2004). The Author paid a lot of attention while using the content

analysis in data analysis but focusing on the research questions under investigation, “What are the experiences parents face towards the health care professionals during hospital stay”? and “the effects of NAS on infants and strategies in caring for drug dependent infants?”, by using inductive content analysis. The author had to understand the data entirely to be able to focus on the relevant elements of the content. The Author used the open coding method in organizing the articles that were relevant and so the articles represented were numbered from one to ten. The articles were repeatedly read while marking the notes.

5.3 Ethical consideration

The Finnish Advisory board on research integrity has drawn up guidelines for good science practice and procedures for conducting misbehavior and deception in science was updated in 2012. Adherence to the values of good scientific practice is mostly the responsibility of each individual researcher and the accountability is also shared by the director of the research unit and the management of the organization conducting research.

The research-ethical strategies apply when reviewing and assessing funding applications, research programs and scientific disciplines. All reviews must be handled confidentially, completely and neutrally, based on principles set for the review process. Reviewers are guilty of research misconduct if they steal research ideas from the applications. This is an act of plagiarism which is the act of representing one’s own creative work without acknowledging the author or the source.

The policy is that the Academy Board will not process a funding application if the candidate has been found guilty of research misconduct in the three years prior to the year of the call. In that case, the application will not be processed by the Academy nor will it have a funding decision.

The author followed the rules of Arcadas thesis writing guide and used the academic principles of writing scientific paper. The author was honest throughout the research process by referring to

all the articles accordingly. The author carefully examined her work and avoided plagiarism. The author used the three-main ethical principle of the Finnish Advisory board research: respecting the independence of the research subject, protecting the data and avoiding harm. (Research Ethics Academy of Finland, 2014).

6 Results

The results that found by the author are based on the findings of the chosen articles. The first and second research questions will be answered, and the outcomes of the research will be formulated in this chapter. The effects on the baby was answered in the background chapter.

Table 3: Results of the research questions.

Research question 1	Research question 2	
experiences faced by drug-dependent parents under healthcare care professionals?	effects of NAS on infants and strategies in caring for drug dependent infants?	
<ul style="list-style-type: none"> ➤ Negativity ➤ Judgmental attitudes ➤ Lack of information regarding their care ➤ Mothers who use illegal drugs during pregnancy experienced profound guilt concerning the damage their behavior has done to the infants. ➤ Nurses may experience frustration and anger toward the mother whose infant is suffering because of their addictive behaviors. The neonatal nurses, who lack sympathy towards the mother, may unintentionally contribute to not establish the mother-infant attachment. 	Pharmacological strategies	Non-pharmacological strategies
	morphine and methadone are recommended first line treatment for NAS due to their effectiveness than other drugs.	<ul style="list-style-type: none"> -Swaddling with blankets -Creating a quiet and soothing environment. -hypercaloric feeds -breastfeeding, include prolong comforting contact between the mother and the baby.
3,6,5,1 5, 9	2,4	1, 3,2,8,7

6.1 Experiences of drug-dependent parents under healthcare professionals

Opioids dependent mothers stated that they had negative experiences under healthcare professionals [3,6,5], as a result of not having received proper information regarding their care. During the experimental trial, all the participants said that no one had told them anything in relation to the decision about their care. One participant commented that lack of help and information made her feel disheartened [3].

The participants discussed a mixture of emotional and physiological factors which impacted on their self-perception of their breastfeeding ability and their support needs. These feelings were, responsibility, guilt and low self-esteem [3,6]. However, one participant claimed that her previous experience of judgmental attitudes towards her, made it difficult to accept support or establish a good relationship with the professionals [1,3,5].

Several participants displayed lack of confidence, undeserving of attention and never asked for help as they did not want to appear “demanding”. Furthermore, participants were concerned regarding the way in which they were seen, due to their history of drug dependence. These participants voiced the right to be seen and treated as an individual and not defined by circumstances. [3].

Mothers who use illegal drugs during pregnancy experienced profound guilt concerning the damage their behavior has done to the infants. When these helpless mothers are paired with the irritable babies who have withdrawal symptoms, an understanding and supportive environment is required for them. [5,9]

Treatment is improved when healthcare workers show respect and acknowledge the struggles with drug abuse. Mothers who often experience other psychiatry and psychosocial problems are often very sensitive to the perceived judgment of staff. [1,3,6].

Women who use illegal drugs during their pregnancy often feel guilty and therefore avoid antenatal care at the time when its needed [9,3,6]. To elicit a history of substance misuse requires an unprejudiced attitude. Practitioners must build a trusting and therapeutic plan to encourage the women to disclose an accurate history. [9]

Some Participants spoke of caring for infants with NAS as time consuming and difficult. The infants were described as unsettled, crying and require supported care. The time needed to care for these babies and the need to acknowledge the acuity was highlighted by several participants saying that, “the infants are very time consuming, so we need to share the work load” [3].

6.2 Strategies in caring for infants

There are long and short-term consequences due to NAS. Short-term consequences include withdrawal symptoms, which are, maintain body temperature, poor weight gain, crying, hyperactivity. Infants can cope with short-term NAS with the help of the neonatal nurses and the parent, by making a pharmacological and non-pharmacological treatment.

Long term problems of children exposed to illicit drugs in the uterus, include adverse neurodevelopmental outcomes, lower IQ scores has been reported in kids who were exposed to cocaine or methadone, other problem include, speech, cognitive disturbances in infants who were exposed to opiate, behavioral problems, which includes lower levels of learning, adapting to new situations, agitation, aggression and poor social skills. [8,4,2]. Researchers suggests that there is evidence of longer term adverse effects at the age of adolescent. The long-term effect of drug misuse is confounded by, overabundance of variables including poor parenting skills, poor nutrition and an unstable home life. In overall, children exposed to drugs are more likely to have, attention deficit disorder, disruptive behavior and the need for complete psychiatric referrals [8,2].

- **Pharmacological treatment**

Pharmacologic treatment is essential in most infants who suffer from neonatal abstinence syndrome. Several treatments approaches are used despite little evidence from controlled trials. However, morphine and methadone are recommended first line treatment for NAS due to their effectiveness than other drugs. Cochrane published in 2005 that oral morphine is the most common first-line approach. Methadone is another alternative, which has a longer half-life that needs less regular administration and titration. Infants who have seizures and other signs of NAS, are treated with IV morphine pending

exclusion of other causes. Methadone has also been used with a starting dose of 50-100 mcg/kg given 6 hours. [2,4].

- **Non-pharmacological strategies**

All infants at risk of NAS must be managed with a non-pharmacologic method that involves, creating a quiet and soothing environment with the avoidance of excessive environmental stimulus [1,3,2,8]. Frequent hypercaloric feeds are typically administered to minimize hunger and promote growth [1,2]. Maternal participation in the infant's care is an important element of nonpharmacologic management. Some authors highlight the importance of the mother's presence throughout the baby's entire stay in the hospital. The mother's presence has been found to decrease the need for treatment and increase the speed of infants recover. The benefits of constant contact between the mother and the baby rooming -in, promoted more effective mothering and development of mother and infant relationship [7,1].

Several non-pharmacological strategies have been recommended for of infants to cope with NAS, these include infant relaxation by avoiding excessive handling, positioning techniques to improve posture and movement, swaddling with blankets to provide containment of infants with increased tone, gentle awakening before performing procedures as well as giving pacifier to an infant with excessive sucking needs have been suggested to be helpful [8].

In addition to that, breastfeeding is another strategy for infants to cope with NAS. This is beneficial due to the prolonged comforting contact between the mother and the baby. Breast feeding should be encouraged among opioid-using mothers. Breast feeding also seems to contribute towards improving the recovery time of infants with NAS. The close interaction between the mother and the infant is contributory factor that promotes the infant's recovery. [4,3,7].

Women who receive more than 20mg/day of methadone were advised not to breastfeed due to their relatively low molecular weight and high lipid solubility, opioids and their metabolites are present in the breast milk with the concentration reliant on the maternal

dose and pharmacokinetics. However, several observational studies have suggested that breast feeding reduces the frequency and severity of NAS and shortens hospital stay [4].

7 Discussion

The purpose and aim of this paper is to shed light on the struggles these infants go through and find strategies that are available in caring for infants with NAS, and that nurses care towards mothers should be more therapeutic and supportive rather than the parents having negative experiences during their hospital stay.

Results indicate that infants with NAS face various challenges, in addition different care strategies emerge for infants with NAS. Drug-dependent parents had negative experience from healthcare professionals such as judgment and inadequate information about their care. The most thing that concerned the parents was the nurses lack of communication, according to Fraser et al. (2007), Mothers of drug dependent infants desired to be more involved in the child's care. However, many parents felt "out of the loop" in the involvement of their infant's care plan. Parents didn't not understand what was being done to their child. Parents felt that they did not receive any explanation of assessments making these assessments seem mysterious. The parents expressed that it is quite difficult to be involved in the caring plan for their baby and not understand what is going on.

Some mothers experienced fear about the child bonding with the nurse such as, "I don't want my child to think that the nurse is mommy or that he would have the nurse's cent rather than mine". (Cleveland & Gill, 2013). Although the aspects of care plan must be done by the neonatal nurse, there are also other tasks that the mother could help with to promote the development of attachment, that's why it is important for nurses to support in establishing their role as mothers by including them in the any task possible or educating mothers on ways they could contribute to their child's care. Knowing the difficulties, the mother and the infant born with NAS face, it is crucial to consider strategies to support families and promote improved outcomes for both mother and the baby.

Caring for NAS patients requires knowledge, empathy and understanding of the circumstances. Research indicate that nurses feel unprepared to care for these families due to the increased numbers of opiate exposed parents and infants (Fraser, Barnes, Biggs & Kain 2007., Maguire, Webb, Passmore & Cline 2012). Without the ability to understand and empathize with the drug-

addicted parents, nurses may unintentionally contribute to failure of the successful parent-infant bonding. (Fraser et al., 2007).

Factors that influence the start of NAS remain incompletely understood. The outcome typically evaluated include treatment for NAS, highest NAS score, total dose required for treatment, duration of treatment and length of hospitalization. Research indicates that, infants with withdrawal symptoms, should be managed with a non-pharmacological strategy that involves soothing, creating a quiet environment, minimizing hunger and promoting growth. Maternal involvement in the infant's care is an important component of nonpharmacologic management. However, infants with longer-term problems includes longer-term adverse effects at the age of adolescent, lower IQ, cognitive disturbances and lower level of learning (Walter,2016).

The goal of pharmacological management is to alleviate and minimize symptoms to ensure newborns can eat well and gain weight, establish normal sleep cycle and establish a successful attachment to their maternal care giver (Hudak and Tan, 2012).

7.1 Relating the finding to the theoretical framework

The theoretical view point in this study presents an understanding into the behavior of drug addict. The cognitive style of the drug abuser is viewed as the essential factor in an individual, moving from experimentation to drug abuse, (Coghlan et al. 1973, Gold and Coghlan 1976).

Although neonatal abstinence syndrome was discovered from infants born to mothers using illegal drugs, many newborns were born to mothers who used prescribed opioids pain relievers. Drug dependent pregnant women start to use opioids prescription for joint pain, pelvic pain and acute pain during pregnancy. Some of the drug dependent parents do not get opioids medication to experiment on them, rather they get it for actual pain. Since the parent experiences ecstatic feeling, control and sense of power after using the drugs, when the drug wears off they want more to get the feeling they had back. This is when it becomes a drug abuse.

The mother of the drug-dependent infant discussed a variety of emotions in the findings. The factors impacted on their self-perception of their support needs, included guilt, low self-esteem. According to (Lazarus,1976), The most effective treatment is based on learning that behavior has consequences and that one can influence their own life. The abuser must be taught other ways of responding to stress However, these alternative ways cannot be developed or practiced if the drug addict continues to use drugs. A second assumption is that the treatment must be multimodal. A complete treatment plan must assess the obvious behavior of drug taking but also the negative emotions, e.g. anxiety, an unpleasant physical feeling, for example aches and pain that accompany withdrawal and remembrance of past failures.

The individual uses the drugs to cope, which prevents him/her, from learning more adaptive coping mechanisms and becomes less tolerant of the pain of anxiety. The dependency on drugs to cope with stress therefore creates a vicious cycle which means that the more drugs that are used the more the drug addicts believe it is necessary (Dan J et al,1980).

For drug-dependent parents to learn more adaptive learning mechanism and stop the cycle of using drugs, neonatal nurse need to suggest a specific educational program that can enhance nursing skills and therapeutic relationship in assessment and management of drug dependent parents. Furthermore, nurse's attitudes towards patients influence the ability to develop a good relationship with the drug-dependent parent, Happell et al. (2002).

8 CONCLUSION

Infants suffering from withdrawal signs are very irritable and have hard time to be comforted. This can lead to nurses being unable to comfort the infant using their skills. Researchers suggested that nurses had also difficulty caring for and communicating with the mother of these infants, who were struggling with various stages of drug addiction. Neonatal nurses were angry about the parent's behaviour and the pain the drugs inflicted on the infants, this lead to nurses being judgemental towards the parents and blaming them for harming the infant.

To improve neonatal health and reduce maternal stressors, there needs to be more healthcare workers with a positive attitude towards the drug-dependent mother. There needs to be an understanding that maternal instincts can be compromised by untreated addiction. Frustration, Lecturing and moralizing only increases stress on the mother. The mother is extremely guilty and fearful for her baby, assuring the mother that she will get appropriate care, and an understanding and supportive environment can reduce maternal stress. However more studies are required to identify extent of the relationship between maternal bonding, and address how the mother-infant interaction can be successfully encouraged in these families.

This papers limitation was that some of the articles were not found in the Arcada database. There was information about the effects on infants born with Neonatal abstinence syndrome and the mothers experience under health care professionals, however, the articles are limited or some of them can not be accessed easily.

The number of infants within utero opioids exposure continues to rise, a multidisciplinary, it is recommended that, approach is needed obstetricians, paediatricians, nurse's social workers, addiction specialist, in working together to impact the public health problem that is affecting the population. This can fill the knowledge gap concerning prenatal and postnatal care of drug-dependent mothers and infants. It is recommended that future studies need to focus on the nurse's education regarding drug abuse and learn different techniques that can alleviate challenges nurses face and decrease stress. Health care professionals also need to work on the negative attitudes towards the parent and reduce maternal stress by having a positive attitude towards drug dependent mothers encouraging the parent to learn adaptive mechanism to stop the

cycle of using drugs for the sake of their babies. Furthermore, problems addressed should include what leads mothers to abuse opiates and the psychosocial effects on infants and his caregiver.

REFERENCES

Abberrtt H., Greenwood S. (2012). *Nursing infants with neonatal abstinence syndrome: Time to change practice?* Journal of Neonatal Nursing, 18, 194-197.

Alwan S., Chambers C.D., (2015). *Opioids in pregnancy and birth outcomes: A review of the literature*. Accessed: 24.12.2017. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4795985/>

American academy of pediatrics, updated December 2017, accessed 3.22.2018. <https://emedicine.medscape.com/article/978763-overview#a4>

B.Happell, B. Carta, J. Pinikahana. (2002). Nurses knowledge, attitudes and beliefs regarding substance use: A questionnaire survey. *Nursing & Health science*, 4,193-200.

Cleveland, L.M., & Gill, S.L. (2013). *“Try not to judge”*: Mothers of substance exposed infants. *The American Journal of Maternal Child Nursing*, 38(4), 200-205.

Coghlan, A.J.; Gold, S.R.; Dohrenwend, E.F.; and Zimmerman, R.S. A psychobehavioral residential drug abuse program: A new adventure in adolescent psychiatry. *International Journal of the Addictions*, 8(5):767-777, 1973.

Dan J. Lettieri, Mollie S., Helen W. Pearson. (1980). *Theories on drug abuse*. National institute on drug abuse.

Elo, S. & Kungas H. (2008) *Qualitative content analysis process*. *Journal of advanced Nursing*, 62,107-115.

Fraser, J. A., Barnes, M., Biggs, H. C., & Kain, V. J. (2007). *Caring, chaos and the vulnerable family: experiences in caring for newborns of drug-dependent parents*. *International Journal of Nursing Studies*, 44, 1363–1370.

French E.D, Pituch J. Brandt, S. Pohorecki. (1998). *Improving interactions between substance abusing mothers and their substance exposed new-borns*. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 27, 262-269.

Graneheim, U.H & Lundman B., 2004, *Qualitative Content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness*. Nursing Education Today. 24, 105-112.

Hsieh, H. F., & Shannon, S. E. (2005). *Three approaches to qualitative content analysis*. Qualitative Health Research, 1277-1288.

Hudak, M.L., & Tan, R.C. for the American Academy of Pediatrics Committee on Drug and Committee on Fetus and Newborn. (2012). Neonatal drug withdrawal. Pediatrics, 129(2), 540-560.

Kassim, Z., & Greenough, A., (2006). *Neonatal abstinence syndrome: Identification & management*, current paediatrics, 16, 172-175.

Kraft, W. A., Stover, M. W., and Davis, M. Jonathan. (2016). *Neonatal abstinence syndrome: Pharmacologic strategies for the mother and infants*. Seminars in perinatology, 40, 203-212.

Krystal, H., and Raskin, H.A. (1970). *Drug Dependence: Aspects of Ego Functions*. Detroit: Wayne State University Press, 15,381.

Kumar, R., (2008), Research methodology, a step by step guide for beginners, Second edition, Sage publication Ltd, pp. 1-332.

Mactier H. (2013). *Neonatal and longer-term management following substance misuse in pregnancy*. Early human development, 89, 887-892.

Macvicar S., Humphrey T, Katrina E. Forbes-Mckay. (2017). *Breastfeeding support and opiate dependence: A think aloud study*. Midwifery, 50, 239-245.

Maguire, D., Webb, M., Passmore, D., & Cline, G. (2012). *NICU nurses' lived experience: Caring for infants with neonatal abstinence syndrome*. Advances in Neonatal Care, 12(5), 281-285.

McCarthy, J. J., Leamon, M. H., Finnegan, L. P., Fassbender, C., (2017). *Opioids dependency and pregnancy: minimizing stress on the fetal brain*. American journal of obstetrics & gynecology. 216, 226-231.

Megan W. Stover, Jonathan M. Davis. (2015). *Opioids in Pregnancy and Neonatal Abstinence Syndrome*. *Seminars in Perinatology*, 39,561-565.

Melby V.J. (1992). Acquired immunodeficiency syndrome: *Knowledge and attitudes of nurses in Northern Ireland*. *Journal of advanced nursing*, 17, 1068-1077.

Polit D.E and Beck, C.T. (2006). *Essential of nursing research* 6th Ed. Lippincott Williams & Wilkins, Philadelphia.

Prentice Sheena, (2010). *Substance misuse in pregnancy*. *Obstetrics, Gynaecology & Reproductive Medicine*, 20, 278-283.

Research Ethics Academy of Finland, 2014. Accessed: 1.27.2018.

<http://www.aka.fi/en/funding/responsible-research/research-ethics/>

Statistics solution,2018. Accessed 12.15.2017.

<http://www.statisticssolutions.com/theoreticalframework/>

9 Appendices

Appendix 1: List of all articles used in the study

Article number	Title	Year	Method	Results
Article 1 Kraft, W. A., Stover, M. W., and Davis, M. Jonathan.	Neonatal abstinence syndrome: Pharmacologic strategies for the mother and infant.	2016	Literature Review	This review pursues to define current practices regarding the approach on the pregnant mother and neonate with prenatal opiate exposure.
Article 2 Megan W. Stover, Jonathan M. Davis	Opioids in Pregnancy and Neonatal Abstinence Syndrome	2015	Literature Review	This study reviews seeks to define current practices regarding the management of opiate dependency in pregnancy and care of the neonate with prenatal opiate exposure.
Article 3 Macvicar S., Humphrey T, Katrina E. Forbes- Mckay	Breastfeeding support and opiate dependence: A think aloud study	2017	A think aloud study	The aim was to explore the views of women with opiate dependency in a breastfeeding support intervention.
Article 4 Mactier H	Neonatal and longer-term management following substance misuse in pregnancy.	2013	Literature review	Available evidence shows that in utero exposure to opioids and other drugs misused drugs, is harmful to the fetal brain
Article 5 Fraser, J. A., Barnes, M., Biggs, H. C., & Kain, V. J.	Caring chaos and the vulnerable family: Experiences in caring for newborns of drug-dependent parents.	2007	Interpretive methods	The aim of this study was to discover neonatal nurses experience of providing care to drug-exposed new-borns.
Article 6 McCarthy, J. J., Leamon, M. H., Finnegan, L. P., Fassbender	Opioid dependence and pregnancy: minimizing stress on the fetal brain	2017	Literature review	This article explores the consequences of the stress and trying to minimize the stress on the fetal brain.

Article 7 bbertt H., Greenwood S	Nursing infants with neonatal abstinence syndrome: Time to change practice?	2012	Literature review	This article highlighted that it is time to consider a change in practice when caring for infants with NAS.
Article 8 Kassim, Z., & Greenough, A.,	Neonatal abstinence syndrome: Identification & management	2006	Literature review	The results of another study imply that the combination of phenobarbitone with diluted solution of opium may be more effective than opium alone, because the combination lead to a shorter period of hospital stay.
Article 9 Prentice Sheena	Substance misuse in pregnancy.	2010	Case study	The purpose of this study was to engage the client with multiple agencies, to help bring a degree of order and reduce the harm associated with drug abuse.

