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Waterbirths vs. Non-Waterbirths in Labor and Delivery

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ABSTRACT

Background: Delivering in water submersion is an under-researched and controversial practice in healthcare. The trend of waterbirths has continued to increase, but there has been minimal research relating to the benefits and risks associated with this birthing technique. **Purpose:** The purpose of this review was to determine the effects of waterbirth versus non-waterbirth in childbirth and postpartum recovery. **Method:** A review of pertinent journals, studies, and literature was conducted. The primary question under consideration was: In pregnant women, what is the effect of waterbirths in delivery compared with non-waterbirths within childbirth and postpartum recovery? **Findings:** The studies showed waterbirths improved neonatal and maternal outcomes in terms of promoting physiological births, decreased neonatal intensive care unit (NICU) admissions, improved the delivery experience for women, decreased pain, enhanced comfort, and lowered the risk of tearing. **Conclusion:** Waterbirth can provide several benefits but may not be an optimal choice for all mothers.

INTRODUCTION

Waterbirths are not a common practice in hospitals. There are under-researched concerns for the neonate in waterbirths as well as possible increases in well-being for mothers after giving birth [1, 2]. Delivering in water is a controversial practice in healthcare. It is necessary to gather further data on waterbirths to determine evidence-based practice in the labor and delivery process. The main goal is to promote safety and health for the mother and newborn. The purpose of this study was to compare the effects of waterbirth versus non-waterbirth in delivery and childbirth recovery.

Background

Waterbirths are defined as, women who give birth while being immersed in water, during the expulsion, and when the baby is born underwater [1]. It was first brought to attention in 1993 and 1994 by the Department of Health and Royal College Midwives [2]. In recent years, the American Pregnancy Association has supported waterbirths with the reasoning that the baby being surrounded by amniotic fluid during the pregnancy, is a similar environment to a waterbirth [3]. It is a safe and familiar environment for the baby to enter life. The trend of waterbirths has continued to increase, but there has been minimal research conducted relating to the benefits and risks that are associated with this birthing method [3].

The method of waterbirth is a form of delivery that is presented to women in more than 100 countries, with the majority being offered in affluent countries [1]. Many women may not be educated about this option before birth as it is a recent growing phenomenon. Expecting parents need to be informed about the different birthing methods available to have the ability to choose the best method applicable to their situation [1]. Waterbirths are said to have benefits for mothers in terms of comfort, analgesics, and increased use of natural resources, but there have been concerns brought to attention regarding harmful effects on the fetus [2]. Gathering more information is pertinent to properly equip healthcare professionals, hospitals, and pregnant mothers to make evidence-based decisions about delivery options. The question for the inquiry was: In pregnant women, what is the effect of waterbirths in delivery compared with non-waterbirths within childbirth and postpartum recovery?

1. METHOD

The method of research was a literature review with multiple studies regarding waterbirth and the outcomes it has for mothers during delivery, postpartum recovery, and infants compared to traditional births. Several databases were searched resulting in 15 studies focused on waterbirths, the benefits, the risks, and comparison with standard births. Two databases were used to gather the studies, which included EBSCOhost and the cumulated index in Nursing and Allied Health Literature (CINAHL). Keywords used to find the studies were waterbirths, traditional births, postpartum, childbirth, and effects of waterbirth, recovery, and health benefits. The studies used for this review were written between 2018 and 2023. These studies were then examined to discuss waterbirths versus non-waterbirths.

In the nursing hierarchy of evidence, there are seven levels of evidence that literature can fall under [4]. The first level includes systematic reviews, meta-analyses, and synopses. Three studies were considered level-one evidence. The second level includes randomized controlled trials, no studies fell under this level. The third level includes quasi-experimental, controlled trials without randomization, and three studies were under this level. Cohort studies and case-control studies are included in the fourth level, which consists of three studies. The fifth level includes integrative reviews and meta-syntheses and includes three studies. Single descriptive studies, single qualitative studies, evidence-based practice (EBP) projects, case studies, and concept analysis are under the sixth level. Level one is considered the highest level of evidence and level seven is considered the lowest level of evidence [4]. Research on the effects of waterbirth in labor and delivery was limited due to the minimal use in hospitals.

2. REVIEW OF THE LITERATURE

This literature review determines the effects of waterbirth versus non-waterbirth relating to maternal and neonatal outcomes. Fifteen studies relating to the impact of waterbirth were collected and analyzed for this review. The following themes and opposing viewpoints were gathered in the literature review.

Promoting Physiologic Births

Five studies addressed the common theme of how waterbirths promote physiological and natural deliveries. In a secondary analysis of a prospective observation study, Carpenter et al. [5] affirmed that the definition of a normal birth and physiologic birth is without interventions such as epidural analgesia, spinal, or general anesthetic, and episiotomy. There has been an increased shared importance by organizations to promote natural births with decreased medical interventions [1]. Delivery and laboring in water reduces the usage of medical interventions, which promotes a natural delivery. In a study that sought to assess the safety of delivery in water, Peacock et al. [2] found that water immersion has been shown to decrease the rate of instrumental tool use in the delivery process. Water immersion reduced the likelihood of intervention, provided pain relief, reduced maternal anxiety, and reduced fetal malpresentation while supporting greater mobility in labor. All these factors facilitate physiological birth [5].

In an experimental study of waterbirths promoting a natural and physiologic delivery by reducing medical interventions, Hautala et al. [6] found mothers in the waterbirth group only required a quarter of the amount of pain medication required by those in the conventional birth control group. Previous studies have also conveyed that woman giving birth in water required less analgesia. This is beneficial for the mothers, and newborn infants have less analgesic exposure. Furthermore, women who delivered in water required less medication and were able to deliver more naturally, leading to nonpharmacological pain control for the mother and less exposure to analgesia for the neonate. In another study, Snapp et al. [7] confirmed that women who chose waterbirth were at a decreased risk of experiencing an episiotomy. A systematic review and meta-analysis study from the University of Illinois Hospital in perinatology revealed that compared with land birth, waterbirth was associated with lower rates of neuraxial anesthesia and lower pain scores, with improved maternal satisfaction [8]. Maternal satisfaction was higher ($p = 0.01$) and pain scores lower ($p = 0.003$) with waterbirth [8].

In summary, women delivering in waterbirth are more likely to have a physiological childbirth. In non-waterbirths at the hospital, the birth process has a higher chance of being interrupted or altered due to added medical interventions. This includes medical interventions such as instrumental tool use, pharmacological pain relief, and the procedure of episiotomies.

Neonatal Outcomes

Regarding neonatal outcomes relating to waterbirth, seven studies addressed this topic. Vidiri et al. [9] noted that concerns have been raised about possible neonatal risks, such as infection, respiratory distress, tub water aspiration, hyponatremia, seizures, cord avulsion, and mortality. Moreover, waterbirth may influence early bacterial colonization of the intestine, affecting the development of the gut microbiome, with its consequences on neonatal and thus adult life. Several studies highlighted concerns regarding neonatal risks and complications. Peacock et al. [2] expressed that some reports show concern about respiratory distress due to aspiration during waterbirth, including a higher chance of respiratory morbidity among neonates born in water. Vidiri et al. [9] identified that waterbirth should not be considered as a standard clinical practice because of the potentially serious complications for the neonate. While there are several important neonatal risks to consider, studies showed an assortment of findings.

Nonetheless, five studies concluded positive neonatal outcomes relating to decreased admission to the NICU. Aughey et al. [10] found that there was a decreased admission rate to the neonatal intensive care unit when the baby was born underwater. Snapp et al. [7] stated neonates born underwater were less likely to be transferred to a hospital after birth than neonates born on land and neonates born in water were less likely to require admission to an NICU. Neonates born underwater were less likely to experience respiratory complications than neonates born on land. [7] Furthermore, Sidebottom et al. [11] noted that water deliveries in the hospital during the second stage of labor were associated with less need for special nursery care.

There were no associations with lower Apgar scores and water deliveries [10]. A study that compared deliveries in water versus on land revealed that there were no significant differences in the first oxygen saturation levels and Apgar scores [6]. Aughey et al. [10] confirmed that there was no association between waterbirth and specific adverse outcomes for either the mother or the baby.

Cristina et al. [12] found that there was no evidence of increased adverse effects on the fetus born in water. Sidebottom et al. [11] accentuated that unfavorable outcomes for neonates such as respiratory distress, anemia, sepsis, hypoxic-ischemic encephalopathy, asphyxia, and death were neither significantly higher nor lower in the waterbirth and non-waterbirth groups. In summary,

numerous studies concluded that there were no significant differences between waterbirth and non-waterbirth for neonatal outcomes.

Positive Birthing Experience and Women Empowerment

Some studies explored whether waterbirth promotes an experience of positivity and empowerment for mothers. Feeley et al. [13] recognized that women who used warm water immersion for labor or birth describe liberating and transformative experiences of welcoming their babies into the world. They were empowered, liberated, and satisfied. Carlsson et al. [1] proposed that women laboring in water had a greater sense of control, with the freedom to focus their attention on their bodies without distractions such as medical interventions. In addition, waterbirth was found to stimulate a mind-body connection, whereby women were enabled to work with their bodies during labor leading to enhanced feelings of control, self-efficacy, and self-trust [13]. Moreover, birthing pools create a space that allows for autonomy and accommodates women's needs. Camargo et al. [14] related, that water immersion aids physiologic birth to give laboring mothers an individualized and low-tech experience that promotes physiology and relaxation, lessens pain, and increases fulfillment with their birth experience.

On the contrary, Carlsson et al. [1] addressed fears and worries related to waterbirth. They found that fears stemmed from the possibility of neonatal complications, similar to the negative outcomes expressed earlier. Carlsson et al. [1] addressed the fears of the mothers regarding risks for the neonate when born in water such as the risk of postnatal infection if women defecated while pushing. The research validated possible concerns mothers might have regarding waterbirth such as risks for the neonate and feelings of stress.

Less Pain and Increased Comfort

Three selected studies addressed this topic. Carlsson et al. [1] addressed pain control and maternal comfort. Numerous psychological and physical advantages pointed out for mothers laboring in water including buoyancy leading to more comfortable positions and the ability to move unrestrictedly. Physical benefits include smoother labor progression, more relaxation, easier dilation of the cervix, and pain control. Edward et al. [15] established that pain levels were lower in waterbirth when compared to land births. Furthermore, pain medications such as

neuraxial anesthesia were less commonly used in waterbirths. Feeley et al. [13] recommended water immersion as a standard method of pain relief during labor and delivery. Waterbirths offer analgesic properties that function as a tool for pain management that enhances both psychological coping and supports the physiological processes of labor and birth, this low-tech, low-cost option should be available for all women [13].

On the contrary, there were issues discussed involving the tub or water pool itself. Some described the tubs as uncomfortable, unsuitable, small, and tight leading to pain and limited movement decreasing the number of birthing positions. The tub was said to be slippery and hindered the women from getting a grip on the tub [1]. In the Chua et al. [16] study, healthcare professionals reported different views about waterbirths and water immersion practices; midwives were most likely to support these practices, followed by nurses and lastly, few physicians supported them. Reasons for opposing waterbirths include insufficient training and support from colleagues as well as concerns about work efficiency, waterbirth safety, and litigation issues.

Lacerations and Perineal Tears

Seven studies highlighted lacerations and perineal tears. Cristina et al. [12] explained how obstetrical anal sphincter injuries (OASI) impact women significantly short-term and/or long-term. It was found to be a common cause of incontinence and anal ailments in healthy women. No relationship between birthing positions in water and the risk of OASI was identified. The setting of a waterbirth allows women to position themselves comfortably without increasing their risk [17].

Sidebottom et al. (2020) revealed that water immersion in the second stage of labor leads to lower risks of perineal lacerations in comparison with non-waterbirth deliveries. Additionally, giving birth in water showed a decreased risk of complications regarding perineal tears, relating to increased elasticity of tissue and decreased pain [1]. Bailey et al. [18] discovered more women in the water birth group had an intact perineum after delivery. However, there were similar rates of first, second, third, and fourth-degree lacerations for both the water and land births. Overall, having a waterbirth was associated with fewer second-degree tears compared to a land birth [19]. On the contrary, Cristina et al. [12] found that women who delivered in water had higher

incidences of tears and lacerations. A hospital-based study in England determined that giving birth in the water reduced the chance of having an intact perineum [20].

Summary of Results

This literature review addresses five key themes concerning waterbirth labor and delivery. It aimed to answer the patient, intervention, comparison, outcome, and time (PICOT) question: In pregnant women, what is the effect of water births in delivery compared with non-water births within childbirth and postpartum recovery? Prominent themes identified in the literature review are found in Figure 1.

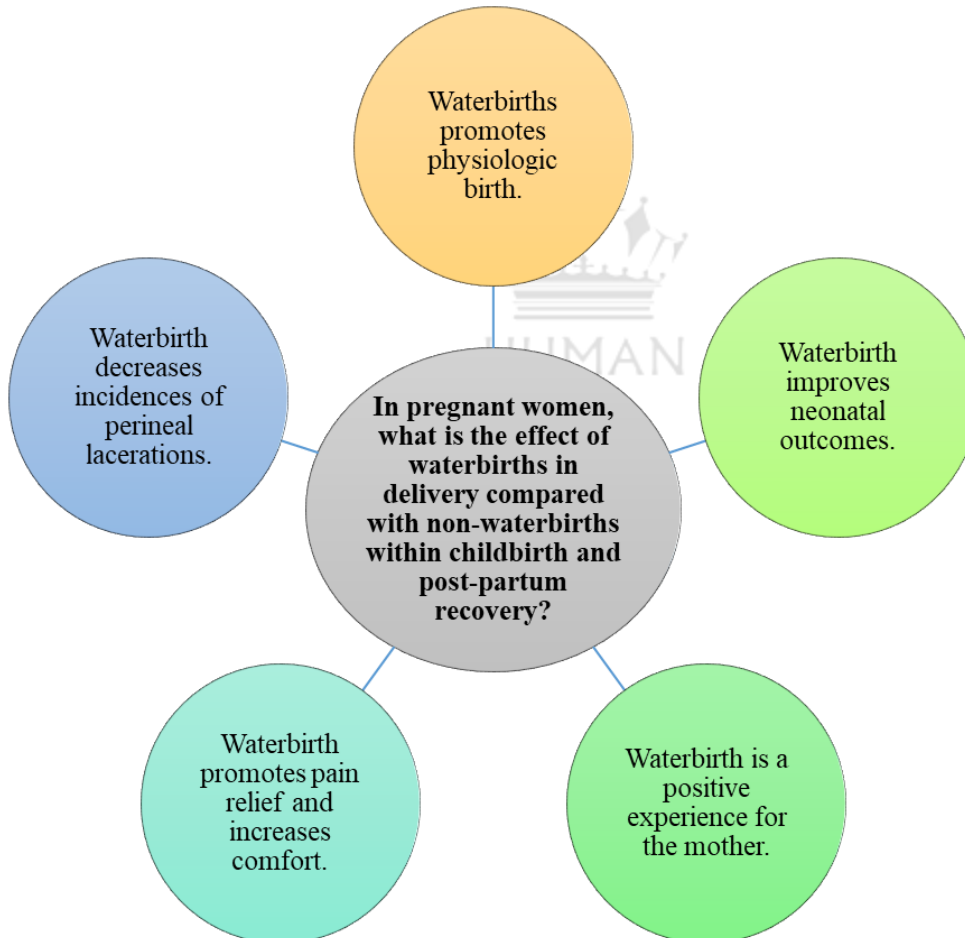


Figure No. 1: Positive Outcomes of a Waterbirth Labor and Delivery

3. DISCUSSION OF RESULTS

Five studies identified a common theme of promoting physiological births. The findings indicated that waterbirths promote a natural and physiological delivery with less medical intervention and instrumental tool use including epidurals, analgesia, spinal or general anesthetic, and episiotomies. In a study that sought to assess the safety of delivery in water, Peacock et al. [2] found that water immersion has been shown to decrease the rate of instrumental tool use in the delivery process. It also increases maternal mobility, helping promote a natural birth. Water immersion reduced the likelihood of intervention, provided pain relief, reduced maternal anxiety, and reduced fetal malpresentation while supporting greater mobility in labor. All these factors facilitate physiological birth [5].

The second theme was regarding neonatal outcomes. Seven studies supported this theme. Concerns have been brought up relating to the infant such as infection, respiratory risks, aspiration, seizures, cord evulsions, and electrolyte imbalances. Peacock et al. [2] expressed that some reports show concern about respiratory distress due to aspiration during waterbirth, including a higher chance of respiratory morbidity among neonates born in water. However, evidence supports that waterbirth decreases neonatal intensive care unit admissions. Aughey et al. [10] found that there was a decreased admission rate to the neonatal intensive care unit when the baby was born underwater. Aughey et al. [10] confirmed that there was no association between waterbirth and specific adverse outcomes for either the mother or the baby. No significant evidence was found supporting adverse effects for the newborn specifically relating to waterbirths.

Women having a positive experience and feeling empowered was the third common theme identified. Three studies explored this theme. The studies revealed that the women who participated in waterbirth felt feelings of autonomy, empowerment, and satisfaction. Feeley et al. [13] recognized that women who used warm water immersion for labor and/or birth describe liberating and transformative experiences of welcoming their babies into the world. They were empowered, liberated, and satisfied. It was reported that the women described that water immersion helped them connect with their bodies to promote self-efficacy and self-control. On the other hand, it was mentioned that some women expressed fears and worries about waterbirth and possible harm to the neonate. Carlsson et al. [1] addressed fears and worries related to

waterbirth. However, this is more of a subjective theme that is vulnerable to several inconsistent and unknown variables.

The fourth theme identified is related to pain relief and comfort. Three studies explored this topic. Studies showed that waterbirth allowed women to find more comfortable positioning and freedom with movement, offered easier cervical dilation, and aided in pain control. Edward et al. [15] established that pain levels were lower in waterbirth when compared to land births. Furthermore, pain medications such as neuraxial anesthesia were less commonly used in waterbirths. Carlsson et al. [1] discovered some women found the tub used for waterbirth was uncomfortable. Some described the tubs as unsuitable, small, and tight leading to pain and limited movement decreasing the number of birthing positions. The tub was said to be slippery and hindered the women from getting a grip on the tub [1].

Lacerations and perineal tears were discussed as the fifth theme. One study found that there was no relationship between waterbirths and increasing risk of OASI. Sidebottom et al. [11] revealed that water immersion in the second stage of labor leads to lower risks of perineal lacerations in comparison with non-waterbirth deliveries. On the contrary, Cristina et al. [12] found that women who delivered in water had higher incidences of tears and lacerations. Overall, it was found that there were fewer tears with waterbirth in comparison to land delivery. The review revealed that waterbirths improved neonatal and maternal outcomes in terms of promoting physiological births, decreased NICU admissions, improved the delivery experience for women, decreased pain, enhanced comfort, and lowered the risk of tearing. Although, waterbirth can offer several benefits, it may not be an optimal choice for all mothers because of potential negative outcomes (see Figure 2).

Strengths of the Study

The strengths of this literature review consisted of the analysis of peer-reviewed studies written in English. These studies included systematic reviews, meta-analyses, retrospective studies, secondary analyses, cohort studies, qualitative analyses, concept analyses, and a narrative review. All studies used were relevant and recent as they were published after 2018. In addition, every article analyzed kept waterbirths as the central theme of research, which provided relevant

data to support the PICOT question. Throughout this study, pertinent themes were identified and discussed as well as opposing viewpoints.

Weaknesses of the Study

In the review process, the number of studies chosen for the final literature review may be a weakness. A stronger analysis would include more studies. There is also a lack of conclusive and evidence-based findings on the effects of waterbirth, leading to a lack of concrete conclusions and findings. Another weakness is that research groups could be more biased than others regarding topics relating to waterbirths. Bias evidence can lead information in one direction guided by opinions rather than evidence-based facts and practice. Many conclusions regarding the topic of waterbirth are inconclusive and therefore, further research must be conducted to make evidence-based decisions on its benefits and risks.



Mother Potential positive outcomes for the mother

- Waterbirths offer analgesic properties enhancing comfort
- Lowered risk of episiotomy
- Decreased use of instruments for delivery
- Empowered, liberated, satisfied, and promotes autonomy
- Stimulates body-mind connection
- Sense of control, self-efficacy, and self-trust
- Physiological relaxation, lessens pain, increases fulfillment
- Easier dilation of the cervix
- Fewer medical interventions

Mother Potential negative outcomes for the mother

- If tub is slippery, it may hinder mother from getting a grip on the tub
- Potential lacerations and perineal tears
- Incontinence and anal ailments

Baby Potential positive outcomes for the baby

- Decreased NICU admissions
- Less likely to experience respiratory complications
- Less need for special nursery care

Baby Potential negative outcomes for the baby

- Risk of postnasal infection if mother defecated while pushing
- Concerns of infection, respiratory risks, aspiratin, seizures, and electrolyte imbalance

Caution Despite potential low-tech and low cost options, waterbirths may not suit all mothers because of their size, anatomy, other health issues, or due to complicated pregnancy.

Figure No. 2: Potential Positive and Negative Outcomes for Mother and Baby

Recommendations

Chua et al. [16] recommend evidence that suggests the need to provide waterbirth training for healthcare professionals, equip healthcare facilities with necessary waterbirth-related infrastructure, and develop appropriate waterbirth policies/guidelines. Healthcare professionals could also consider providing antenatal waterbirth education to women and obtain women's feedback to improve current policies/guidelines. Future research should explore the views of different types of healthcare professionals from more diverse cultures [16].

From the themes identified in the analysis, it is necessary to have more studies and research completed on the effects of waterbirths versus land births. More specifically, future studies should focus on the effects of waterbirths on newborns. Neonatal outcomes were found to be a main concern when deciding if waterbirths are safe, however, the studies reported nonsignificant findings. More studies are recommended to determine the risks of perineal tears and lacerations when compared with land births. Individualized birthing pools are recommended for best results. Adding grip pads for feet and grip handles for the laboring woman while pushing may aid in comfort and efficiency. Having small, medium, and generous-sized birthing pools to accommodate all women could also aid in comfort, and efficiency, and allow more women the opportunity to experience a waterbirth.

As waterbirths become more popular and accessible, obstetrical doctors and nurses should receive updated training on waterbirths. Waterbirths may not suit all women due to their size, anatomy, other health issues, or due to complicated pregnancy. Because of this, policies should be put in place for mothers' eligibility for waterbirths. Guidelines should be put in place for the expected steps in a water birth along with unexpected events and steps for how to respond. For example, measuring blood loss during and after labor may be more complicated in a tub and guidelines can help nurses navigate this. The results of this study pointed to waterbirths being beneficial. Hospitals interested in implementing waterbirths and increasing their accessibility should bring these findings and other data to hospital directors and boards. Lastly, it is recommended that pregnant women interested in waterbirth should talk to their doctor, conduct research, and find fitting resources for a safe and individualized birthing experience.

CONCLUSION





Findings indicate that waterbirths improved neonatal and maternal outcomes in terms of promoting physiological births and decreased NICU admissions. It improved the delivery experience for women, decreased pain, enhanced comfort, and lowered the risk of tearing. On the other hand, studies found concerns mothers had with waterbirth for the neonate and some women claimed waterbirth was an uncomfortable experience. In summary, waterbirth can offer several benefits but may not be an optimal choice for all mothers.

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