

# Narrative Review: Spiritual Aspects of Breastfeeding: A Narrative Review



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## ABSTRACT

**Context:** Although positive outcomes of breastfeeding on both mothers and infants are well documented, few studies have investigated the spiritual aspects of breastfeeding. This study conducted a narrative review of the research on spiritual and religious beliefs for breastfeeding.

**Evidence acquisition:** All papers from 2000 to 2018 about the study subject were searched in the international databases. The measured outcome included different breastfeeding behaviors in mothers with different religions.

**Results:** In this study, 69 related studies were reviewed and finally 9 articles were selected. One article was about the influence of breastfeeding on the spiritual status of mothers and 8 articles were about the effect of religious beliefs on different breastfeeding behaviors.

**Conclusion:** The results of this review showed that spirituality can influence the management of breastfeeding behavior. More attention should be paid to spirituality interventions to acknowledge the high priority in breastfeeding because it may allow public health officials to more effectively promote breastfeeding policies.

## 1. Context

The duration, frequency, and techniques of breastfeeding are under influence of many geographic, sociocultural, religious, and economic factors and various practices are seen across countries (1). However, the information about social and cultural factors such as religion is little and few studies have investigated the role of religious connections with the experience of breastfeeding (2, 3). Studies often focus on the physical needs of the infants or mothers while the spiritual

nature of unborn babies should be acknowledged during pregnancy and spiritual needs should be recognized within neonatal care as well (4, 5). Studies have shown that socioeconomic, demographic, and cultural differences in breastfeeding behaviors are very important (6-9). Recently studies have shown interest in religious and spiritual aspects of breastfeeding given the further benefits of breast milk (10).

Spiritual health is one of the characteristics of health that has been presented by the World Health Organization (WHO) as a definition of health and the spiritual element

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has a valuable role in people's achievement in all parts of life (11). Spiritual health has two dimensions of religion and existential (12). Improving in spiritual health may influence the breastfeeding self-efficacy of mothers (13).

Breastfeeding has a religious basis in different societies (14, 15). On the other hand, social and cultural factors are associated with the initiation and continuation of breastfeeding (16). Therefore breastfeeding is a complex practice not only because of its physical and biological nature but also because of its roots within society's social, spiritual, and cultural construct (17). In recent studies, breast milk has been introduced as the best love biotic besides its other values (18). The literature in the spirituality interventions is limited but evidence has demonstrated spirituality as integrative energy to promote health (19). This review aims to evaluate breastfeeding from a spiritual perspective. In this article, the research related to religious or spiritual aspects of breastfeeding was investigated from two dimensions of the effect of breastfeeding practice on the spiritual status of mothers and the influence of spirituality or religious beliefs on breastfeeding behaviors.

## 2. Evidence acquisition

The present article conducted a narrative review of the research studies about spiritual aspects of breastfeeding. This review included all articles which investigated the relationship between breastfeeding practices with the spiritual or religious status of mothers in different societies that were indexed in PubMed, Google Scholar, and Cochrane from 2000 to 2018. The keyword terms were spiritual, religious, breast milk, initiation, duration, and a combination of these with breastfeeding. All study types written in English were included. Based on the PICO (Problem/Patient/Population, Intervention/Indicator, Comparison, Outcome, and [optional] Time element or Type of Study) format the study population was nursing mothers, the intervention was breastfeeding, the comparison variable was spiritual care during breastfeeding, and the evaluated outcome was the effect of spirituality on breastfeeding behaviors. Studies on the evaluation of purely cultural or regional-based backgrounds, spiritual aspects beyond the infancy period, and non-English articles were excluded.

First, the papers were searched based on their titles. Then the abstract sections of all articles were reviewed by the neonatologist author. In the primary search, 359 articles related to religious or spiritual aspects of breastfeeding were found. After the initial screening of titles and abstracts, 69 related studies were selected which in

the second full texts review, 9 papers were finally identified matching with the review inclusion criteria.

## 3. Results

Nine articles about the spiritual and religious aspects of breastfeeding were finally reviewed. Table 1 presents the data extracted from each article per type of article, design, country of origin, year of publication, assessed outcomes, and religion. Only one article was about the influence of breastfeeding practice on the spiritual status and the 8 others were about the effect of religious or spiritual beliefs on breastfeeding. They consisted of 3 review articles (33.5%), 5 descriptive (55.5%), and one prospective cohort (11%) study. The studied population was from the USA (2 articles), the UK (1 article), Malaysia (1 article), India (1 article), Iran (1 article), and western countries (1 article). Two review articles were not from any specific country. Different outcomes and subjects were reported in the published articles in different religions. These different effects are separately discussed below.

### 3.1. Influence of breastfeeding on the spiritual status of mothers

Undoubtedly, breastfeeding is considered as a physical act. However, it may have an emotional, mental, or spiritual feature as well. Breastfeeding in Christianity has been implicated generally with regard to the Virgin Mary and her child Jesus and Mary's breast milk contained spirituality. Various Jewish religious sources also imply to breastfeeding. In the book of Genesis, successful breastfeeding has been noted as a benediction (1). In this review, only one paper was found about the subject that introduced breastfeeding as a spiritual activity. Williamson et al. in a study, based on data collection using semi-structured interview on British Muslim women showed that women from Muslim backgrounds often reflect spiritual understandings around breastfeeding behaviors and in their opinion, breastfeeding is a deeply spiritual act that through which the mother as a good Muslim can feed the baby and promote the baby's moral development according to sacred Islamic texts such as the Quran and Hadith (sayings and teachings of Prophet Mohammad).

Indeed, this spiritual attachment which is achieved through breastfeeding transmits spiritual nourishment to the infant and the act of suckling at the breast leads to the religious wellbeing of the child (3). Muslim mothers believed that breastfeeding is a sign of blessing and they will be blessed with spiritual rewards by angels as a gift of God and will have their sins forgiven during the 2 years of breastfeeding based on a Hadith from Prophet

**Table 1.** Assessment of religious beliefs on different breastfeeding outcomes

Author	Year of Publication	Place of Study	Studied Religion	Outcome	Type of Study	Results
Moran et al. (1)	2007	-	Islam	Wet nursing	Review article	Positive effect on re-lactation and induction of lactation
Bernard et al. (2)	2016	Five western countries (UK, France, Canada, Ireland, USA)	Catholic and Protestants	Initiation of breastfeeding	An ecological study by using data	Negative correlation in Catholic, r=0.3
Williamson et al. (3)	2012	The UK	Islam	Spiritual nourishment, women's psychological wellbeing	Interpretative, semi-structured interview/data collection	Positive ideographic wellbeing
Brudett et al. (10)	2012	The USA	Christianity	Breastfeeding initiation/duration, exclusive breastfeeding $\geq 6$ months	Analytic descriptive (from longitudinal birth cohort)	Church attendance increase 55% odds of breastfeeding initiation
Laroia et al. (14)	2006	India	Hinduism	Breastfeeding practice	Review (commentary) article	Breastfeeding up to 1 year or more
Shaikh et al. (15)	2006	-	Islam	Breastfeeding behavior	Review article	Breastfeeding continued for two years
Mohamad et al. (20)	2013	Malaysia	Islam	Breastfeeding and modesty	Descriptive cross-sectional	A significant role in the construction of breastfeeding but with problems in the public area
Didarloo et al. (21)	2017	Iran	Islam	Breastfeeding self-efficacy score	Descriptive-cohort correlational	P=0.01 $\beta=0.20$ r=2.54
Stroope et al. (22)	2018	The USA	Protestants/Catholic/others	Initiation/duration of breastfeeding	Longitudinal (prospective cohort study)	Beneficial and positive effects

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Mohammad (1, 23). Religious participation of women increases after childbearing; moreover, in Islamic regions breastfeeding is considered as an enshrined religious act with the ability of transmission of moral traits by breast milk as well (1, 24).

### 3.2. practice

#### Initiation and duration of breastfeeding

It has been proved that many factors are effective in starting and continuing breastfeeding (25). The decision to initiate and continue breastfeeding may be influenced by several factors such as behavioral and cultural factors (26). Guidance from the World Health Organization (WHO) suggests exclusive breastfeeding for at least 6 months as a gold standard and provision of some breast milk for the first 2 years of life. This contemporary health promotion about the superiority of breast milk is compatible and similar to Islamic teaching (3).

Breastfeeding has a religious basis in Islam according to sacred Islamic texts such as the Holy Quran and Hadith. A mother should suckle her offspring for 2 years if possible and health education based on spirituality should be given to mothers for giving breast milk for 2 years to their babies (1, 15, 19). So breastfeeding promotion programs may be better accepted in Muslim communities (15). Like the Quran, the Bible has recommended many references with regard to the optimal timing for breast milk weaning (1). However, few studies have investigated the association between maternal religious involvement and breastfeeding initiation and duration (3). Burdette et al. by using the data from a longitudinal birth cohort study revealed that frequent religious attendance in Church is associated with an increased odds of breastfeeding initiation but a weaker association with breastfeeding duration (10).

Bernard et al. carried out an ecological study to compare the rate of breastfeeding initiation between Catho-

lics and Protestants across 5 western countries of Ireland, the UK, Canada, the USA, and France. Their results showed a negative correlation ( $r=-0.30$ ) between the proportion of Catholics and the rate of breastfeeding initiation (2). Countries with breastfeeding initiation rates of less than 80% are historically Catholic (2). In a recent study, Stroope et al. assessed the relationship between religious affiliation and breastfeeding behavior in a prospective cohort study in the USA. They introduced their research as the most generalizable study of religions and breastfeeding to date.

They found that except for black Protestants, all religious groups had higher odds of breastfeeding initiation in comparison with conservative Protestants ( $OR=1.43-3.01$ ;  $P<0.1$ ). On the other hand, all groups also had a longer duration of breastfeeding than conservative Protestants except for black Protestants and Catholics. Besides the results showed that frequent religious attendance prolonged the breastfeeding duration among mothers who had first birth at a later age. The authors suggested that further research is necessary to evaluate the overall role of religious attendance in breastfeeding practice (22).

#### “Breast is best”

“Breast is best” is the message of breastfeeding advertising campaigns (3). Many religions believe in this message. Breast milk has been thought to have wonderful power that is stressed in selected quotations from the different religious texts (14). The Hindus population believes that breast and milk are a symbol of nectarine sweetness and longevity to the base of the earliest Indian literature (14). The study of Williamson et al. showed that Muslim women made reference to the “Breast is best” message as well and spoke positively about the role of breastfeeding as spiritual nourishment from mother to infant (3).

However, obsessive use of the hegemonic “breast is best” may lead to adverse or harmful effects on women who are struggling with breastfeeding (27). Muslim mothers who experience breastfeeding difficulties or unable to breastfeed may be recognized as bad mothers and be at particular risk of mental health problems. So interventions mustn't inadvertently cause these harmful effects and attention should be paid more to the knowledge and attitude of mothers about exclusive breastfeeding (3, 28).

#### Colostrum

Colostrum is the first yellowish colored milk after delivery. Beliefs about colostrum show a discrepancy in different religions and communities. Many mothers in the Hindu population believe that colostrum is harmful to the baby and discard colostrum so the infants may be fed with cow's milk, honey, or water during this period (14). Like Hindu, some Muslim communities believe that colostrum has insufficient nutritional value and newborn maybe afford water supplements or honey (15). However, this initial period is very important for the establishment of lactation. This may be a cultural practice without religious bases (15, 16). This distinction between religious beliefs and cultural practices can be used by clinicians to reinforce the above practice of avoiding such supplemented feeding during the first days of life (15).

#### Modesty navigation

Respecting the privacy of mothers during breastfeeding is important across all cultures. This concern is augmented by religious beliefs in Muslim mothers (15). In Islam, according to religious instructions, women should cover their bodies (except for the hands and face) in the presence of men who are not close family. So, Muslim women may have uncomfortable breastfeeding in public areas (20). “Modesty” signifies an important concept in Islam which is usually made simpler in western countries about how Muslim women wear (3). Due to these concerns, the Muslim mother may bottle-feed her infant with formula or expressed breast milk in public or even in neonatal intensive care unit settings in which the mother may not have a private place to breastfed (15).

Mohamad et al. carried out a study that focuses on Malay Muslim women for the understanding of modesty in Islam and how this may affect the breastfeeding practice in a public area. The study found that modesty as a religious matter has discouraged Malay women to breastfeed in public and findings of this study showed that religion plays a significant role in the structure of breastfeeding in Malay societies (20). The results of the Williamson et al. study with regard to modesty showed similar findings through British Muslim mothers. So, an understanding of this concern, its effects, and salience are necessary for health practitioners working with Muslim mothers (3).

#### Wet nursing

Wet nursing or the breastfeeding of another woman's baby occurred in all civilizations due to the death of mothers but this was not the only cause. Religious factors played a key role in this issue. Wet nursing was a

highly organized practice among certain classes of the population and wet nurses and parents were subject to their religion. One of the oldest religious stories on wet nursing is related to the Jewish religion in Exodus when Pharaoh sends a person to call for a wet nurse for baby Moses (1). Among Hindus, wet nursing has a historic document when the mother was not able to breastfeed her infant but this practice is mainly given to kings and their families. Otherwise, wet nursing was done in a special situation (14).

One type of kinship in Islamic law is defined by milk and wet nursing. Milk parents have no duty to maintain their milk babies and milk kin cannot be inherited from each other but in case a boy and a girl nursed by a common wife, they cannot marry together. Indeed, they became their milk siblings (1). This may be an important issue when forming human milk donor programs in Muslim countries. Muslim women who donate breast milk should know the identity of the baby who will be fed by their milk (15). The Prophet Mohammad instructs Muslims to avoid their babies from drinking the milk of “adulteresses” or insane and consider their milk infectious. Now the potency of human milk in the transmission of infectious diseases has been recognized (15).

Overall, the selection of wet nursing can be a key to the health of babies who cannot be breastfed by their biological mothers. This proves the preference for feeding the baby with human milk instead of animal milk.

#### Non-puerperal lactation

Non-puerperal lactation is wet nursing by a woman who has never given birth or has never been pregnant (1). An earlier account of non-puerperal lactation has been described on several occasions in Christianity (1). Therefore, induction of lactation is not a new concept and it has been described from the earliest time. Until recently, the evidence-based reports about the induction of lactation are anecdotally or scattered (1, 29). Today this concept has gained much value in the modern world in the case of adopted or surrogate mothers (29). This technique has received much attention in Islamic societies both socially and religiously because the nurture of infants with breast milk has intentionally assumed a religious role in the case of Islam. Indeed, breastfeeding without pregnancy serves a good example of the value of using contemporary scientific knowledge to elucidate the origin and evolution of an ancient religious-based myth (1).

#### Mother’s self-efficacy

Elevation of self-worth is closely related to spiritual wellbeing (30). The role of spiritual leadership is an important issue in health care contexts because it is based on confidence, carefulness, honor, and compassion (31). One of these contexts is the breastfeeding practice. Didarloo et al. in a study on 150 eligible mothers showed that the variable of the spiritual health of mothers had a statistically significant relationship with breastfeeding self-efficacy score (21). That was the first research in Iran to investigate the relationship between spiritual wellbeing and breastfeeding self-efficacy of mothers. So caregivers can focus on spiritual health to improve breastfeeding self-efficacy in mothers (21). On the other hand, close skin to skin contact between mother and infant has a crucial effect on children’s physical and mental health (32).

Lack of evidence contributed to some limitations for this review. Religious beliefs on culture or social networks were not analyzed. There are multifaceted links between races, regions, and religions that are historically interweaved. On the other hand, this study did not comprise small religious minorities.

#### 4. Conclusion

Results of our review study show that the prominence of breastfeeding goes beyond the providing of breast milk for the infant and the breastfeeding practice appeared to be necessary to the spiritual and psychological nourishment of children. A combination of religious or culturally specific rituals and spirituality with modern medicine can influence the management and shaping of breastfeeding behavior. Clinicians by respecting the different religious beliefs and by differentiating them from cultural practices can support breastfeeding as a meditative and spiritual act.

#### Ethical Considerations

##### Compliance with ethical guidelines

All ethical principles are considered in this article.

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### Conflicts of interest

The author declared no conflicts of interest.

### References

- Moran L, Gilad J. From folklore to scientific evidence: Breastfeeding and wet-nursing in Islam and the case of non-purperal lactation. *International Journal of Biomedical Science*. 2007; 3(4):251-7. [PMID] [PMCID]
- Bernard JY, Cohen E, Kramer MS. Breast feeding initiation rate across Western countries: Does religion matter? An ecological study. *BMJ Global Health*. 2016; 1(4):e000151. [DOI:10.1136/bmjgh-2016-000151] [PMID] [PMCID]
- Williamson IR, Mahomed Sacranie S. Nourishing body and spirit: Exploring British Muslim mothers' constructions and experiences of breastfeeding. *Diversity and Equality in Health and Care*. 2012; 9:113-23. <https://diversityhealthcare.imedpub.com/nourishing-body-and-spirit-exploring-british-muslim-mothers-constructions-and-experiences-of-breastfeeding.php?aid=1812>
- Hall J. Spirituality at the beginning of life. *Journal of Clinical Nursing*. 2006; 15(7):804-10. [DOI:10.1111/j.1365-2702.2006.01650.x] [PMID]
- Caldeira S, Hall J. Spiritual leadership and spiritual care in neonatology. *Journal of Nursing Management*. 2012; 20(8):1069-75. [DOI:10.1111/jonm.12034] [PMID]
- Li R, Darling N, Maurice E, Barker L, Grummer-Strawn LM. Breastfeeding rates in the United States by characteristics of the child, mother, or family: The 2002 National Immunization Survey. *Pediatrics*. 2005; 115(1):e31-7. [DOI:10.1542/peds.2004-0481]
- Kogan MD, Singh GK, Dee DL, Belanoff C, Grummer-Strawn LM. Multivariate analysis of state variation in breastfeeding rates in the United States. *American Journal of Public Health*. 2008; 98(10):1872-80. [DOI:10.2105/AJPH.2007.127118] [PMID] [PMCID]
- Chatterji P, Brooks-Gunn J. WIC participation, breastfeeding practices, and well-child care among unmarried, low-income mothers. *American Journal of Public Health*. 2004; 94(8):1324-7. [DOI:10.2105/AJPH.94.8.1324] [PMID] [PMCID]
- Gibson-Davis CM, Brooks-Gunn J. Couples' immigration status and ethnicity as determinants of breastfeeding. *American Journal of Public Health* 2006; 96(4):641-6. [DOI:10.2105/AJPH.2005.064840] [PMID] [PMCID]
- Burdette AM, Pilkauskas NV. Maternal religious involvement and breastfeeding initiation and duration. *American Journal of Public Health* 2012; 102(10):1865-8. [DOI:10.2105/AJPH.2012.300737] [PMID] [PMCID]
- World Health Organization Publication. The spiritual dimension: 1991; 9290211407 (4):Chapter 4.
- Davison SN, Jhangri GS. Existential and religious dimensions of spirituality and their relationship with health-related quality of life in chronic kidney disease. *Clinical Journal of the American Society Nephrology*. 2010; 5(11):1969-76. [DOI:10.2215/CJN.01890310] [PMID] [PMCID]
- Hasanpoor S, Bani S, Ansari S, Ebrahimi H. [Measuring breastfeeding self-efficacy among pregnant women referred to health centers of Ahvaz (Persian)]. *Nursing and Midwifery Journal*. 2010; 5(19):47-53. <https://www.magiran.com/paper/855571>
- Laroia N, Sharma D. The religious and cultural bases for breastfeeding practices among the Hindus. *Breastfeeding Medicine*. 2006; 1(2):94-8. [DOI:10.1089/bfm.2006.1.94] [PMID]
- Shaikh U, Ahmed O. Islam and infant feeding. *Breastfeeding Medicine*. 2006; 1(3):164-7. [DOI:10.1089/bfm.2006.1.164.] [PMID]
- Daglas M, Antoniou E. Cultural views and practices related to breastfeeding. *Health Science Journal*. 2012; 6(2):353-61. <https://www.hsj.gr/medicine/cultural-views-and-practices-related-to-breastfeeding.php?aid=3308>
- Britton C. Breastfeeding: A natural phenomenon or a cultural construct? In: Squire C, editor. *The Social Context of Birth*. Oxford: Radcliffe Publishing; 2009. <https://books.google.com/books?id=wqabZGfFgTwC&dq>
- Crealey MR, Ludusan E, Philip RK. Breast milk: The best love biotic. *Journal of Perinatology*. 2015; 35(8):665-6. [DOI:10.1038/jp.2015.59] [PMID]
- Mardiyono M, Songwathana P, Petpichetchian W. Spirituality intervention and outcomes: Corner stone of holistic nursing practice. *Nurse Media Journal of Nursing*. 2011; 1(1):117-27. [DOI:10.14710/nmjn.v1i1.751]
- Mohamad E, Ahmad AL, Rahim SA, Pawanteh L. Understanding religion and social expectations in contemporary Muslim society when promoting breastfeeding. *Asian Social Science*. 2013; 9(10):264-73. [DOI:10.5539/ass.v9n10p264]
- Didarloo A, Rahmatnezhad L, Sheikhi S, Khodai F. Relationship of spiritual health and perceived stress with breastfeeding self-efficacy: A survey on mothers with hospitalized neonates. *International Journal of Pediatrics*. 2017; 5(12):6179-88. [DOI:10.22038/IJP.2017.25961.2210]
- Stroope S, Rackin HM, Stroope JL, Uecker JE. Breastfeeding and the role of maternal religion: Results from a national prospective cohort study. *Annals of Behavioral Medicine*. 2018; 52(4):319-30, [DOI:10.1093/abm/kax013] [PMID]
- Eaton CLG. *The book of Hadith: Sayings of the Prophet Mohammad from the Mishkat al Masabih*. Poole: Book Foundation; 2008. <https://books.google.com/books?id=e5MkAQAAIAAJ&q>

24. Uecker JE, Mayrl D, Stroope S. Family formation and returning to institutional religion in young adulthood. *Journal for the Scientific Study of Religion*. 2016; 55(2):384-406. [DOI:10.1111/jsr.12271]
25. Nasehi MM, Farhadi R, Ghaffari V, Ghaffari-Charati M. The effect of early breastfeeding after cesarean section on the success of exclusive breastfeeding. *Healthmed*. 2012; 6(11):3597-601. [https://www.researchgate.net/publication/286495829\\_The\\_effect\\_of\\_early\\_breastfeeding\\_after\\_cesarean\\_section\\_on\\_the\\_success\\_of\\_exclusive\\_breastfeeding](https://www.researchgate.net/publication/286495829_The_effect_of_early_breastfeeding_after_cesarean_section_on_the_success_of_exclusive_breastfeeding)
26. de Argolo Cerqueira P, D A F Amorim L, de O Vieira T, S Dias J, V Brandao H, O Vieira G. Defining behavior patterns towards exclusive breastfeeding using latent class analysis. *Journal of Pediatrics Review*. 2018; 6(1):61-7. [DOI:10.5812/jpr.10575]
27. Williamson I, Leeming D, Lyttle S, Johnson S. 'It should be the most natural thing in the world': Exploring first-time mothers' breastfeeding difficulties in the UK using audio-diaries and interviews. *Maternal & Child Nutrition*. 2012; 8(4):434-47. [DOI:10.1111/j.1740-8709.2011.00328.x] [PMID] [PMCID]
28. Ahmadi Z, Gharlipour Gharghani Z, Ghazvinian L, Izadkhah F S. The reasons for formula feeding of infants under one year of age in Iran during 2011-2017. *Journal of Pediatrics Review*. 2019; 7(5):10-10. <http://jpr.mazums.ac.ir/article-1-286-fa.html>
29. Farhadi R, Philip RK. Induction of lactation in the biological mother after gestational surrogacy of twins: A novel approach and review of literature. *Breastfeeding Medicine*. 2017; 12(6):373-6. [DOI:10.1089/bfm.2016.0112] [PMID]
30. McSherry W. Making sense of nursing and health care practice. London: Jessica Kingsley Publishers; 2006. <https://books.google.com/books?id=4AApTUryKpC&dq>
31. Caldeira S, Gomes AC, Frederico M. A new paradigm in nurses management: Spirituality in the workplace. *Referencia*. 2011; 3:25-35. [DOI:10.12707/RII1066]
32. Hassani Moghadam S, Ganji J. The effect of kangaroo care on physical and mental health of infants: A review. *Journal of Pediatrics Review*. 2019; 7(5):12-12. <http://jpr.mazums.ac.ir/article-1-288-en.htm>

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# Narrative Review: Treatment of Warts in Children With Focus on Recalcitrant Warts: A Narrative Review



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## ABSTRACT

**Context:** Warts are benign cutaneous and mucosal growths caused by human papillomavirus. Warts are the most common skin diseases seen by pediatric dermatologists. Warts are often self-limited, especially in children, but some lesions are not resolved despite repeated treatments and referred to as recalcitrant warts.

**Evidence acquisition:** Electronic databases such as Google Scholar, PubMed, and Scopus were searched during 2000-2018 and a review was conducted for articles published in English on pediatric warts by focusing on recalcitrant warts.

**Results:** If warts are asymptomatic and being in a location that causes no cosmetic or other problems, observation is the ideal management course. Most parents and children prefer treatment for their warts. There are three modalities of treatment: medical, surgical, and immunotherapy.

**Conclusions:** Treatment of warts is a therapeutic challenge that depends on the patient's age and the type of warts. Despite treatment according to evidence-based guidelines, a significant proportion of warts are failed to respond. This condition is an unsolved problem in practice. The management for treating these lesions has remained unclear and a wide range of the second line of treatments has been developed.

## 1. Context

### Definition

**W**

arts are benign cutaneous and mucosal viral-induced lesions caused by Human Papillomavirus (HPV). HPV is a coiled, double-stranded DNA virus

that infects host squamous cells. Warts may be present in different forms according to epithelial surface reaction and HPV type responsible for the infection. Common warts, plantar warts, flat or plane warts, and genital warts are some of the most common types of HPV infection (1). Hands, feet, elbows, knees, and face are the most frequent sites for cutaneous warts in chil-

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dren. Although there is no clear definition for recalcitrant warts in literature, it can be defined as warts that are failed to respond to therapies after five treatments over 6 months (2).

### Epidemiology

Warts are the most common skin diseases seen by pediatric dermatologists (3). About 10% to 22% of children develop warts, with the incidence peaking during adolescence (2-6). Up to one-third of non-genital warts are converted to recalcitrant warts, especially the plantar, periungual, and subungual types (2). Warts infection is more common in girls than in boys (1). HPV 27, 57, 2, and, 1 are the most frequently detected HPV types in cutaneous warts among the general population (7). The natural progression of warts is the spontaneous disappearance of warts after two years without treatment in 40% of children (8). Approximately one-third does not resolve and become recalcitrant despite repeated treatments (9-12). Children with recalcitrant warts potentially may play the role of reservoirs for HPV transmission. Rarely, oncogenic genotypes have been linked to cases of early squamous cell carcinoma on the genitals in toddlers (13). Genital warts that develop in a child older than 3 years of age may be a red flag for sexual abuse.

### Diagnosis

The clinical appearance of common wart is hyperkeratotic flesh color papules which tend to occur on sites subject to trauma, as noted above. Warts can be tender and have a tendency for pinpoint bleeding when their surface is pared away, and this feature distinguishes warts from calluses, corns, actinic keratoses, nevi, or acrochordons. Flat warts are smooth with flat tops and can have a yellow-brown color. Warts in immunocompromised children may need to be biopsied. Intermediate warts can show the manifestation of both common warts and flat warts. Epidermodysplasia Verruciformis (EV) is a genetic dermatologic condition in which there is a mild defect of cell-mediated immunity leading to persistent HPV infection and increased lifetime risk of development of cutaneous dysplasia and malignancy (14). EV lesions develop in early childhood and continue to develop new lesions throughout life (15). No definitively effective treatment exists for EV.

In childhood, the rate of spontaneous resolution of HPV-induced warts is high, half of the primary school children will be free of warts within one year (16). One option is to observe the lesions because the majority of common warts resolve spontaneously within 2 to 3 years.

The American Academy of Dermatology lists the indications for the treatment of warts as follows: the patient's seeking for treatment, presence of symptoms such as pain, bleeding, itching and burning, disfiguring lesions, or disability due to lesions, large numbers or large-sized lesions, immunocompromised health status, patient's desire to prevent the distribution of warts to themselves or others. The number and location of warts as well as the age of the child all guide treatment choices for the management of common warts. Often, more than one round of monotherapy is necessary. If monotherapy fails, combination therapy may be effective, but usually requires several office visits, further increasing frustration on the part of children and their parents (17). For this reason, patients and their parents must be educated about the recalcitrant nature of warts and should be reassured that the appropriate measures are being taken to eliminate the lesions using methods that are least likely to cause discomfort and long-term cosmetic sequelae (17). There are different therapeutic approaches, including observation and treatments, but combination therapy can be more effective (18).

## 2. Evidence Acquisition

Performing the review, the international electronic databases such as Google Scholar, PubMed, and Scopus were searched. We conducted a review of articles published on pediatric warts during 2000-2018. The keywords included wart in children, pediatrics, recalcitrant wart, treatment of wart, and treatment of recalcitrant wart. All studies written in English about children wart were included. After removing duplication and abstracts, among 75 studies related to warts, we selected all studies about children wart by focusing on recalcitrant warts. Also, all studies either case-control, cross-sectional, clinical trials, and review articles were included. Other irrelevant articles were excluded.

## 3. Results

There are three treatment modalities: medical, surgical, and immunotherapy. Treatment of warts is a therapeutic challenge for dermatologists because no particular therapy has been proven effective at achieving complete remission in each patient (16, 18). Treatment options should be made individually according to the experience of the physician, patient preference, and the application of evidence-based medicine (19).