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Health Professionals' Attitudes and Use of Nipple Shields for Breastfeeding Women

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Abstract

Objective: No professional guidelines exist regarding nipple shield use for nursing women. This study was done to determine health professionals' most common reasons for and concerns regarding the use of nipple shields for breastfeeding women.
Methods: In June and July 2009, a web-based anonymous survey was advertised via internet listservs to physicians and other allied health professionals specializing in breastfeeding management. Subjects were asked about their most common reasons for using nipple shields, their most common concerns about nipple shield use, and what they typically hear from breastfeeding women who have used nipple shields.
Results: Four hundred ninety participants completed the survey, with 92% having used nipple shields in their practices. Ninety-five percent of respondents who were board-certified lactation consultants used shields versus 80% of those not board-certified, although those using nipple shields used them in the same manner. The most common reason to use nipple shields among all respondents was to help the <35-week infant latch and nurse. Thirty-eight percent of respondents used nipple shields in infants >35 weeks of gestation and <3 days of age. Respondents rated "lack of follow-up by those introducing the nipple shield" as their greatest concern about nipple shields. The maternal response most frequently expressed about nipple shields was that "they are helpful."
Conclusions: Nipple shield recommendation is very common among health professionals who work with nursing women, although many concerns regarding their safety exist. Guidelines should be developed to ensure that nipple shields are used in an evidence-based and safe manner.

Background

The use of nipple shields (NSs) is a controversial issue among health professionals. The device has traditionally been used to aid nursing infants at the breast or to provide mothers with some relief for sore or injured nipples. Early versions of the shield date back to the 1500s.[1] As the shield has progressed through original styles formed from lead or wax[1] to the silicone model widely available today, concerns and opinions about its use have also evolved. NSs have alternately been extolled for their role in overcoming breastfeeding difficulties[2,3] and maligned for citations of reduced milk supply leading to undernourished infants[4] as well as shield addiction.[5]

Despite the fact that NSs have been used by breastfeeding women for centuries, professional guidelines for their use have never been developed. The reasons for NS use most frequently cited are difficulty with latch relating to either nipple anatomy or suboptimal infant suckling causing maternal nipple soreness.[2,3,6,7] Other reasons for NS use include infant sleepiness, breast engorgement and prematurity.[6,8,9] Although the literature provides some insight into the use of NSs in recent years, its current use is not documented in the literature. This survey was composed and implemented with the goal of clarifying the situations in which knowledgeable health professionals believe use of a NS is appropriate. Additional objectives included exposing concerns that health professionals have about the use of NSs and the sentiments that mothers have commonly communicated regarding their use of NSs.

Methods

This study was approved by the Health Sciences Institutional Review Board, University of Wisconsin School of Medicine and Public Health, Madison, WI. The survey was composed based on literature review and the authors' experience with NSs. Prior to launching the survey, 15 health

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professionals including physicians, nurses, and midwives were asked to comment freely on the survey. The survey was then revised based on this feedback.

Health professionals who work with breastfeeding mothers and babies were contacted by email via listservs. These listservs included Lactnet and forums for the Academy of Breastfeeding Medicine, the Madison Breastfeeding Promotion Network, and the Wisconsin Association of Lactation Consultants. At least two Lactnet members sent the survey link to other listservs whose members were health professionals working with breastfeeding dyads. A minimum of 3,800 members belonged to the listservs where the survey was advertised. The survey was available online for a period of 3 weeks (June 10, 2009–July 2, 2009). Participation was entirely voluntary and anonymous. The participants' consent to be interviewed was implied by their completion of the survey.

The survey included questions regarding demographics, including age, gender, occupation, specialty, board certification, and country of residence. The survey was designed to collect detailed descriptive data from respondents who work with breastfeeding mothers in diverse settings. The data obtained from the survey were based on subjective recall of the health professionals' experiences with nipple shields. The objectives of the survey were:

1. to identify the most common reasons health professionals recommend NSs to mothers
2. to determine the most common concerns about NS use by healthcare professionals
3. to identify the most common responses articulated by mothers to healthcare professionals regarding use of NS.

Respondents were also given the opportunity to freely comment at the end of most questions. The data were evaluated using χ^2 analysis.

Results

The survey was accessed by 520 health professionals, and 490 (94%) completed it. A vast majority of respondents (515 [99%]) were female. The largest proportion of respondents (210 [41%]) was in the 45–55-year-old age group. This was followed by those over 55 years old (142 [27%]), those 35–45 years old (120 [23%]), and those 18–35 years old (28 [9%]). Most respondents, independent of occupation and specialty, were board certified in lactation (412 [79%]). The respondents were asked to choose one category that best described their occupation such as physician, nurse, dietician, La Leche League Leader, or lactation consultant. The most prevalent occupations represented were lactation consultant (270 [52%]), followed by nurse (125 [24%]), physician (43 [8%]), and La Leche League Leader (29 [6%]). Each respondent was asked to further identify any one specialty within the occupation such as pediatrics, family medicine, neonatology, lactation, or other. The most common specialties were lactation (256 [68%]), followed by obstetrics/gynecology (53 [10%]), pediatrics (35 [7%]), and neonatology (28 [5%]). Most respondents lived in the United States (434 [84%]), but several other countries were represented, including Australia (27 [5%]), the Netherlands (17 [3%]), Canada (15 [3%]), Israel (six [1%]), and New Zealand (four [1%]).

A majority of respondents (451 [92%]) reported that they use NSs in their practice. Many of the respondents who did not use NSs expressed that they did not find NSs to be beneficial or that use was often problematic (21 [28%]). Other respondents did not use NSs because they had no opportunity to do so (17 [40%]). While 95% of those who were board certified in lactation used NSs, only 80% of respondents who were not board certified used NSs (p value $= 0.008$, odds ratio $= 4.75$). There was no significant difference between those who did and did not use NSs among the age groups. It was difficult to determine whether a difference in NS use existed among respondents from various countries as most of the non–United States groups were very small ($n < 7$).

Respondents rated situations in which they use NSs based on frequency of occurrence (Fig. 1). Respondents most commonly used NSs to help latch premature infants born less than 35 weeks of gestation. Board-certified and non–board-certified lactation consultants used NSs in a similar manner. Similarly, no significant differences were found in how

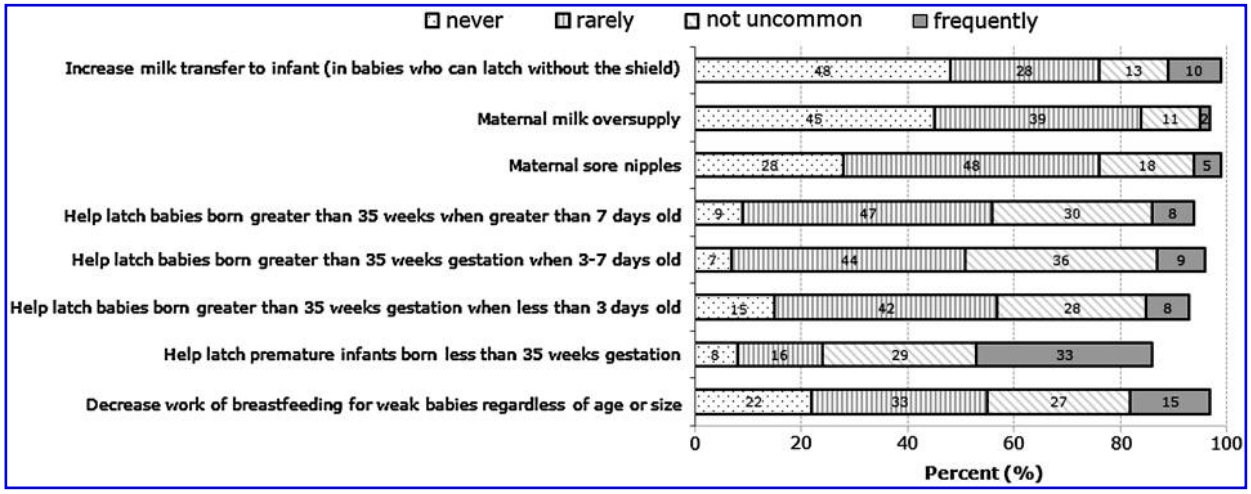

FIG. 1. Situations in which healthcare professionals use nipple shields, categorized as never, rarely, not uncommon, or frequently.

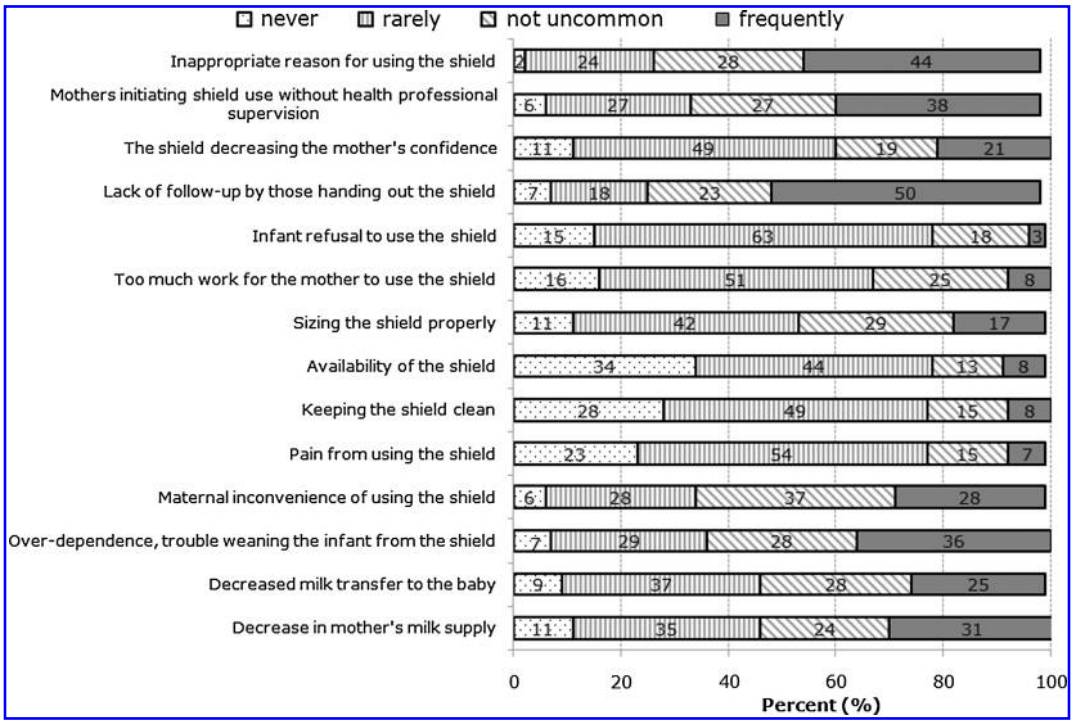

FIG. 2. Healthcare professionals' concerns about nipple shield use, categorized as never, rarely, not uncommon, or frequently.

respondents from different occupations and specialties used NSs when sample size was sufficient to make these comparisons. Respondents reported using NSs for other reasons not included on the survey. Most notably, 16% of respondents commented that they use NSs for mothers with flat or inverted nipples, and 14% reported using NSs as a way to transition an infant from bottles to the breast.

The authors had a particular interest in the use of NSs for near-term and term infants less than 1 week old. Specifically, the authors were interested in how frequently respondents used NSs to help latch babies born >35 weeks of gestation when <3 days old and when 3–7 days old. Overall, 38% (161) of respondents reported that their use of NSs for infants born at >35 weeks of gestation and <3 days old was "not uncommon" or "frequent" compared to 45% (205) who said the same regarding term infants 3–7 days old. No significant differences were found in the use of NSs in these two situations between board-certified and non–board-certified respondents. None of the 34 physicians reported using NSs "frequently" in this population. Among nurses, 13% rated their use of NSs with near-term or term babies <3 days old as "frequent," and 11% used NSs "frequently" for this population at 3–7 days old. Similarly, 8% and 9% of lactation consultants selected "frequently" for their use of NSs with infants >35 weeks of gestation at less than 3 days old and 3–7 days old, respectively.

Those taking the survey rated how frequently they experienced various concerns about NSs (Fig. 2). Respondents rated "lack of follow-up by those introducing the NS" as their greatest concern about NSs. Other greatest concerns included "inappropriate reasons for using NSs" and "maternal inconvenience of using NSs." There were no differences in these greatest concerns when respondents were grouped into those board-certified versus non–board-certified or according to occupation.

Respondents rated maternal responses to NS based on how frequently they have heard mothers express those responses (Fig. 3). According to the respondents' ratings, the maternal response most frequently expressed about NSs is that "they are helpful." Respondents indicated that mothers using NSs also commonly reported that "they cannot wait to get rid of the NS," that "the NS is convenient," and, conversely, that "the NS is inconvenient." These most frequent responses were similar between board-certified and non–board-certified respondents and among lactation consultants, nurses, and physicians.

Discussion

NS use was extremely prevalent among respondents. This pervasive use existed across all age groups and is noteworthy given negative attitudes about NS use in the early 1990s that may have influenced older clinician.[10] The differences in NS use between respondents board-certified in lactation and those not board-certified may be attributed to the possibility that board-certified specialists deal with more complex breastfeeding issues. In addition, those not board-certified may work in positions that involve less patient management and thus have less opportunity to recommend a NS.

Respondents indicated a wide range of situations for use of NSs. The fact that the responses were similar across occupations and whether board-certified or not was surprising considering no peer-reviewed policies, guidelines, or protocols exist regarding the use of NSs. This may indicate that shield use is guided by trends and/or that clinicians generally have similar outcomes with NS use.

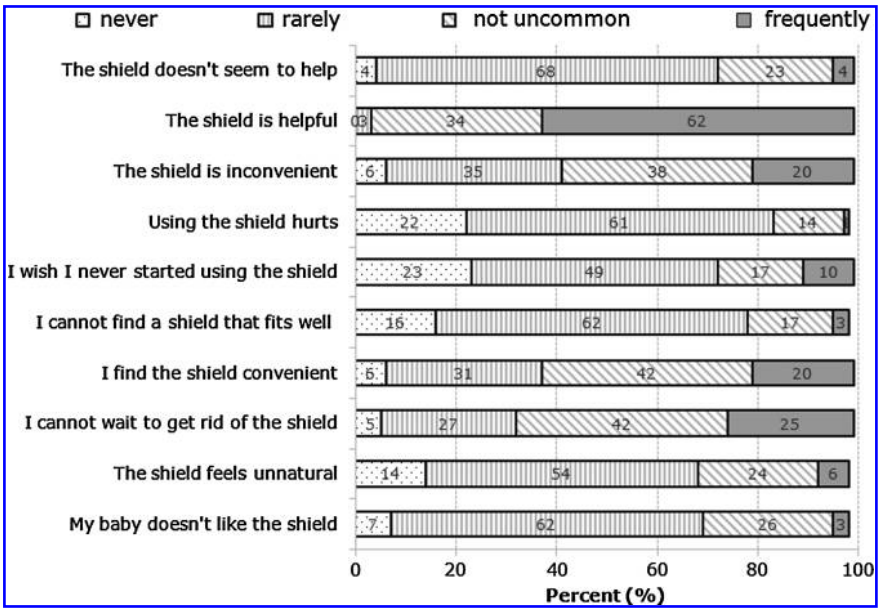

FIG. 3. Maternal opinions about nipple shields communicated to healthcare professionals, categorized as never, rarely, not uncommon, or frequently.

The top reason given by respondents for NS use was to help mothers with their infants' latching difficulties when infants were younger than 35 weeks of gestation. The evidence for use of NSs in the preterm population is primarily based on two small studies demonstrating how NSs might be helpful for premature infants who have difficulty nursing.[8,9] In neither of these two studies was NS use employed preemptively, but rather only in cases where the premature infant demonstrated several failed attempts at latching. It appears these research findings on premature infants have been generalized to include NS use for term and near-term infants early postpartum, a practice that should be scrutinized as these infants face different issues than preterm infants. Currently, there are no prospective data that NS intervention for the term and near-term infant population is safe or associated with improved quality or increased duration of breastfeeding. Use of NSs with non-preterm infants invokes the ethical question of whether it is justifiable to introduce NSs as an intervention before demonstrating lack of detrimental effects on infants and breastfeeding. NS use appears to be well established in health care and within the general public without extensive inquiry into their safety, leaving apprehensive clinicians with the task of exposing their negative effects. Until we can establish NS use with term or near-term infants as safe and effective, it may be more appropriate to attempt other methods for dealing with latch issues, such as providing the infant with expressed milk, along with skin-to-skin techniques and infant-led latch, before recommending a NS. Mothers may not be aware of these options if given an NS as a quick fix for their difficulties, a practice that was identified as a concern by many respondents to this survey.

A vast majority of respondents (73%) were concerned about lack of follow-up for dyads using NSs. Many respondents provided comments about this subject, detailing specific areas for concern such as the necessity of carefully tracking infant growth and the need for breast pumping while the NS is in use. Mothers need an ongoing relationship with a knowledgeable clinician so that they can learn methods for transitioning from the NS to the breast and be supported in their efforts to do so. It is important to educate mothers that they are unlikely to need the NS long-term and should be able to nurse without one in the future.

According to responses on this survey, mothers report mixed experiences with NSs. It is unclear whether differences in mothers' views of NSs are attributable to specific characteristics of their breastfeeding difficulties. These maternal responses, however, are observations by health professionals. A few small studies have evaluated maternal response to NS use, some prospective[7,11,12] and some retrospective.[2,3,6,13] In general, most of these studies reported positive attitudes and encouraging outcomes with NS use. One prospective study that evaluated the impact of Baby Friendly Hospital Initiative Step 9 (giving no artificial teats or pacifiers to breast feeding babies) found a higher rate of weaning among mothers who used artificial nipples including NSs compared to mothers who offered the breast exclusively.[12]

This study was limited by the possibility of survey bias. Those who were more strongly opinionated regarding NS use may have been more likely to complete it. It was further limited in that many of the groups were too small for comparison when seeking statistical significance. The survey was completed by a very homogeneous group in terms of gender and nationality as the vast majority of respondents was female and lived in the United States. Consequently, the results may not reflect typical NS use in countries outside of the United States. The survey questions may not have represented all possible scenarios pertaining to NS use, even though respondents were given the option to add their comments. It is possible that this survey missed other top reasons for NS use, such as women with flat or inverted nipples or transitioning infants away from the bottle. Because this a descriptive study of behaviors and attitudes of healthcare

providers regarding NS use, the results cannot be interpreted as guidelines for NS use. This survey study does not intend to prove what clinical scenarios are appropriate for NS use, but rather to describe current NS use in a broad categorical sense.

It is recommended that NS packaging include information for consumers about the fact that little is known about the short-term and long-term impact of NS use, particularly its effect on milk transfer to the infant and maternal milk supply. Detailed instructions should explain the need for monitoring of the mother's milk supply and infant while using the NS. Ideally the manufacturers should be recommending a health professional evaluation before using a NS, by stating this on the outside of the package.

Conclusions

The results of this study indicate that NSs are used readily for term and near-term infants in their first week of life, as well as for preterm infants, despite many concerns regarding NS safety. Guidelines for NS use that are evidence-based are needed. Prospective studies are also needed to understand the impact of NS use in the premature and term infant population on the effectiveness, safety, and duration of breastfeeding.

Acknowledgments

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Disclosure Statement

No competing financial interests exist.

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