


A Comparison of Community and Clinic Baby Showers to Promote Safe Sleep for Populations at High Risk for Infant Mortality

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Abstract

Community baby showers have provided education and free portable cribs to promote safe sleep for high-risk infants. We evaluated knowledge gained at these showers and the effectiveness of holding baby showers at a primary care clinic as an alternative to traditional community venues. Participants at the community venue were more likely to exhibit risk factors associated with unsafe sleep and to report an unsafe sleep location for their infant without the provided portable crib. Following the showers, both groups showed improvement in knowledge and intentions regarding safe sleep. However, to connect with the highest risk groups, showers held at community venues appeared to be preferable to those held at high-risk clinics.

Keywords

safe sleep, infant mortality, African American, Hispanic, community baby shower

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Background

Infant mortality in the United States is consistently higher than other industrialized nations at 6.15 deaths per 1000 live births.^{1,2} The American Academy of Pediatrics (AAP) published infant sleep recommendations in 1992 in an effort to reduce infant mortality related to sudden infant death syndrome (SIDS).³ In response, the Back-to-Sleep social marketing campaign was launched in 1994 to promote infants sleeping in the supine position rather than the prone position.⁴

Following the Back-to-Sleep campaign, there was a dramatic reduction in the number of infant deaths from SIDS.⁵ However, in the United States, approximately 4000 infant deaths each year are still attributed to sleep-related deaths including SIDS and unsafe sleeping environments, such as bed sharing, bumper pads, and other unsafe objects in cribs.^{6–12} In 2011, the AAP revised its guidelines to further focus on the sleep environment in addition to supine placement.⁶

In spite of these recommendations and the social marketing campaign, infant mortality remains a problem, especially in the African American population.¹³

The gap between races has been decreasing nationally but continues to be a disparity in Kansas where the infant mortality rate is 19/1000 live births for African American infants compared to 7/1000 live births for White infants.^{14,15} In addition, the infant mortality rate in the Hispanic population is 1.4 times higher than the rate of non-Hispanic Whites.¹⁵

To reduce infant mortality, further education about safe sleep, specifically aimed at African American and low-income populations, is needed.^{16–19} The education must include information about safe sleep position as well as safe sleeping environment.⁶ Research suggests that reading materials do not influence African American

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mothers' choice in sleep position for their infants.²⁰ More effective methods in this population include advice given postnatally in the hospital by a nurse or physician and group events, including educational sessions.²¹⁻²³

Community baby showers and other group education events for pregnant women have been shown to promote self-esteem, reduce feelings of isolation, and allow learning from the experience of others.²¹ The Kansas Infant Death and SIDS (KIDS) Network, with help from the Wichita Black Nurses Association, has implemented community baby showers in an effort to decrease infant mortality.²⁴ These events are targeted at African American, Hispanic, and low-income expectant/new mothers in Wichita, KS. The main goal is to provide education on safe sleep. Participants also receive tools needed to create a safe sleep environment, including a safety-approved portable crib. It has been established that without the provided crib, most of the infants would not sleep in a safe environment.²⁴ The same study reported on maternal knowledge and intent to follow safe sleep practices after attending a community baby shower; however, the study did not assess maternal knowledge at the beginning of the shower and, therefore, had no comparison for the postintervention data.²⁴

In 2014, the community baby showers were extended and 2 new events were held at a location that housed resident and faculty clinics for the Departments of Pediatrics and Obstetrics/Gynecology. The purposes of this study were 2-fold: (a) to determine whether maternal knowledge regarding infant safe sleep practices increased following participation in these baby showers and (b) to assess effectiveness of holding baby showers at high-risk primary care clinics as an alternative to the traditional community venues.

Methods

Participants

The Community Baby Shower was advertised to pregnant women and new mothers in Wichita, KS, through fliers on cars in the parking lots of churches, at safety net clinics, at health departments, and distributed by community partners. Flier distribution was focused in African American neighborhoods in order to specifically engage this demographic. In addition, Facebook, television (Spanish only), and radio advertisements were used. The Clinic Baby Showers were advertised through fliers distributed at the clinic and discussions between health care providers and patients. Inclusion criteria for the study encompassed pregnant women and new mothers who attended any of the 3 baby showers. Women were excluded if they had attended a community baby shower within the previous year.

Instrument

Pre- and posttest data were collected through the use of 1-page surveys. The surveys were developed based on the Cribs for Kids data collection tool.²⁵ The pretest contained questions regarding maternal and paternal demographic data and 10 questions regarding knowledge and intentions for safe sleep practices. The posttest also contained these 10 questions plus additional questions regarding feedback on the event. Most participants were able to complete the surveys in less than 10 minutes.

Procedures

The study was approved by the Human Subjects Committee at University of Kansas School of Medicine–Wichita. The Community and Clinic Baby Showers provided education on a variety of topics, including breastfeeding and the importance of prenatal care. Safe Sleep education was performed through the use of the video “ABCs of Safe Sleep” (*Alone, Back, Crib*), presentations by local physicians, community program partners, and the executive director of the KIDS Network, and a demonstration of how to set up a safe sleep environment using a portable crib.

All participants who attended the baby showers were asked to complete the pretest and posttest. The pretest was distributed as participants checked in at the front desk before the baby showers started. Completed surveys were collected at the start time of the baby showers. After the video and presentations, posttests were distributed to the participants. Participants were asked to return the posttest to the check-in table when they completed it.

Participants received a safety approved portable crib²⁵ and had the opportunity to win door prizes (diapers, baby clothes, etc). At the Community Shower, booths were available for participants to learn more about community program partners and resources available in the community, such as Sedgwick County Healthy Babies, the Kansas Chapter of Count the Kicks, and local federally qualified health centers.

Analysis

Data from the surveys were collected by the KIDS Network and de-identified for analysis. Survey responses were summarized using frequencies and percentages for categorical data. Knowledge questions were coded dichotomously as correct or incorrect and reported as frequencies and percentages. Univariate comparisons between pretest and posttest responses were made using Pearson's χ^2 for categorical variables and Fisher's exact

Table 1. Demographics of Participants Attending Baby Showers by Venue.

Demographics	Community Baby Shower, n (%)	Clinic Baby Shower, n (%)	Statistic
Total participants	118	75	
Maternal race/ethnicity			$\chi^2(1) = 5.90, P = .02$
White	34 (30%)	35 (47%)	
Non-White ^a	80 (70%)	39 (53%)	
African American	24 (20%)	10 (13%)	
Hispanic	53 (45%)	25 (33%)	
Other	3 (3%)	4 (5%)	
No response	4 (3%)	1 (1%)	
Paternal race/ethnicity			$\chi^2(1) = 7.52, P = .01$
White	26 (22%)	30 (48%)	
Non-White ^a	72 (61%)	33 (44%)	
African American	30 (25%)	9 (12%)	
Hispanic	42 (36%)	20 (27%)	
Other	0 (0%)	4 (5%)	
No response ^b	20 (17%)	12 (16%)	
Marital status			$\chi^2(1) = 0.74, P = .39$
Single/separated/divorced	53 (44%)	29 (39%)	
Married/partnered	62 (53%)	44 (59%)	
No response ^b	3 (3%)	2 (3%)	
Education level			$\chi^2(4) = 7.52, P = .01$
Some high school	30 (25%)	11 (15%)	
High school graduate/GED	53 (45%)	30 (40%)	
2-Year community college	11 (9%)	15 (20%)	
4-Year college graduate	8 (7%)	12 (16%)	
Graduate school	13 (11%)	6 (8%)	
No response ^b	3 (3%)	1 (1%)	
Type of insurance			$\chi^2(2) = 11.19, P < .01$
Medicaid	55 (47%)	29 (39%)	
Private	22 (19%)	31 (41%)	
None	29 (25%)	11 (15%)	
No response ^b	12 (10%)	4 (5%)	
Age (years), mean (SD)	26.4 (7.1)	26.1 (4.9)	$t(192) = .293, P = .77$

^aDue to violation of assumptions, African American, Hispanic, and Other were combined into “non-White” for χ^2 analysis.

^bMissing data was removed from analysis.

test when expected counts in a cell were less than 5. Age was compared between groups using Student's *t* test on meeting normality assumptions. All statistical tests were 2-tailed and used $\alpha = .05$.

Results

The Community Baby Shower was attended by 122 mothers and their support people. Eighty-three (68%) were English-speaking (Table 1). Four mothers completed the pretest but had received cribs at the previous shower and their data were removed from analysis. The remaining 118 participants were included. The 2 Clinic Baby Showers were attended by a combined total of 75 English-speaking mothers and their support people.

Average age of all mothers was 26.3 (SD = 6.4) years and did not differ between events ($P = .77$). The majority of mothers at both the Community and Clinic Baby Showers were non-White, married or partnered, with educational equivalence of a high school diploma or less.

Compared to Clinic Baby Showers, mothers attending the Community Baby Shower were more likely to be non-White ($\chi^2[1] = 5.90, P = .02$), to not have private insurance ($\chi^2[2] = 11.19, P < .01$), and to have only completed some high school (vs a 2-year community college [$\chi^2(1) = 6.38, P = .01$] or 4-year degree [$\chi^2[1] = 6.30, P = .01$]). In addition, Community Baby Shower attendees were more likely to report the baby's father as non-White ($\chi^2[1] = 7.52, P = .01$).

Table 2. Knowledge and Intentions of Participants Regarding Safe Sleep by Venue.

	Community Baby Shower			Clinic Baby Shower			Comparison	
	Pretest, n (%)	Posttest, n (%)	McNemar P Value	Pretest, n (%)	Posttest, n (%)	McNemar P Value	χ^2 /Exact Pretests	χ^2 /Exact Posttests
Knowledge questions								
SIDS leading cause of death	110 (93%)	116 (98%)	$P = .07$	66 (88%)	74 (99%)	$P = .21$	$P = .21$	$P = 1.00$
ABCs of Safe Sleep	38 (32%)	105 (89%)	$P < .01$	13 (17%)	67 (89%)	$P < .01$	$P = .02$	$P = .94$
Sleeping in car seat at home	104 (88%)	116 (98%)	$P < .01$	67 (89%)	74 (99%)	$P = .04$	$P = .80$	$P = .67$
Harm of smoking in pregnancy	115 (98%)	118 (100%)	$P = .25$	74 (99%)	74 (99%)	$P = 1.00$	$P = 1.00$	$P = 1.00$
Child care provider policy	110 (93%)	116 (98%)	$P = .03$	74 (99%)	73 (97%)	$P = 1.00$	$P = .16$	$P = .53$
Intention questions								
Sleep position	91/111 (77%)	116/116 (100%)	$P < .01$	63/74 (84%)	73/74 (99%)	$P < .01$	$P = .57$	$P = .39$
Sleep location	105/114 (92%)	115/117 (98%)	$P = .04$	70/75 (93%)	75/75 (100%)	$P = .06$	$P = .75$	$P = .52$

At pretest, the only knowledge difference between groups was that attendees at Community Baby Showers were more likely to know the “ABCs of Safe Sleep” ($\chi^2[1] = 5.22$, $P = .02$; Table 2). No knowledge or intention differences between groups were observed posttest. However, Community participants ($n = 50$, 49%) were more likely than Clinic participants ($n = 22$, 31%) to report their infant would have slept in an unsafe location had the portable crib not been provided ($\chi^2[1] = 5.93$, $P = .01$).

In terms of effectiveness of the education, participants from both venues showed significant increases in knowledge of the “ABCs of Safe Sleep” and understanding that infants should not sleep in car seats at home. A significant increase was also observed in both groups for mothers who intended to place their infants supine to sleep. The Community Baby Shower participants had a significant increase in the number who intended to have their child sleep in a safe location (crib/bassinet/portable crib). The Clinic Baby Shower did not report a significant change in intention to use a safe sleep location, but all (100%) of the mothers in this group intended to use a safe sleep location at posttest.

Conclusions

Participants in the Community Baby Shower were more likely to exhibit demographic risk factors (non-White, no insurance or state insurance, lower education) and were more likely to report an unsafe sleep location for their infant without the provided portable crib. Community Baby Shower attendees were more likely to know the “ABCs of Safe Sleep” at pretest. This may be due to dissemination of information from previous shower attendees or previous exposure to the video, a copy of which is provided to all attendees and which is shown at the 2 local delivering hospitals prior to newborns being discharged. This does not necessarily

indicate a higher level of knowledge among Community Baby Shower participants regarding safe sleep, as health care providers at the clinic often discuss safe sleep²⁶ but may not utilize the terms “ABCs,” which are promoted in the video. In spite of the higher knowledge of the “ABC” acronym at pretest, fewer than 25% of Community Baby Shower attendees correctly identified “alone, back, crib.” Furthermore, showers held at an African American community venue appeared to increase our ability to connect with the highest risk groups, when compared to those held at high-risk clinics.

Both Community and Clinic Baby Showers significantly increased knowledge regarding the “ABCs of Safe Sleep” and that infants should not be allowed to sleep in car seats at home. Nonsignificant increases were seen in all other knowledge variables for the Community Baby Shower and recognition of SIDS as the leading cause of death for infants between 1 and 12 months at the Clinic Baby Shower. Two other knowledge questions showed no change or a slight decrease at the Clinic Baby Shower, but both still had >97% correctly responding at posttest.

In terms of intended behavior, more mothers planned to have their infant sleep supine in a crib, portable crib, or bassinet after receiving education and tools at the baby showers. However, a few mothers still intended to use side position or bed share in spite of the education. Future studies should identify barriers for this small subset of mothers and evaluate whether further education with consistent messages from physicians, hospitals, community programs, and other maternal and infant health promoters can adequately address these barriers.

This study is limited in that all data were based on participant self-report. In order to receive a portable crib the posttest had to be completed, and it is possible that mothers responded in a socially desirable manner in

order to receive the crib. Past pregnancies and deliveries at local hospitals (with safe sleep initiatives) were not assessed. In addition, no long-term follow-up was conducted to evaluate whether maternal intentions resulted in safe sleep behaviors or whether any negative outcomes were experienced by participants. Mothers were not randomized to locations and differences in advertising methods used for each shower and/or babies' due date in relation to when the shower was held may have led to variance between groups. Finally, pretest knowledge was high for both groups; however, infant deaths from unsafe sleep continue to occur. Future shower planners and sponsors of safe sleep initiatives might consider reaffirming existing knowledge but spending the majority of time and efforts addressing barriers to following the safe sleep recommendations.

In conclusion, regardless of location, Baby Showers appear to increase maternal knowledge and intention regarding safe sleep for their infant. However, to engage the highest risk mothers, baby showers at community venues (eg, churches) appear to be more successful than those held at high-risk clinics.

Implications for Practice

This study demonstrates that community baby showers can be an effective teaching venue whether held in community sites or high-risk health clinics. To engage the most at-risk populations, community baby showers should be held at community venues, as opposed to high-risk clinics.

Author Contributions

CAS contributed to conception and design; contributed to acquisition, analysis, and interpretation; drafted manuscript; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

CS contributed to conception and design; contributed to acquisition and interpretation; drafted manuscript; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

VL contributed to acquisition; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

SK contributed to acquisition; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

SB contributed to acquisition and interpretation; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

MD contributed to acquisition and interpretation; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

NS contributed to acquisition and interpretation; critically revised manuscript; gave final approval; agrees to be accountable for all aspects of work ensuring integrity and accuracy.

Declaration of Conflicting Interests

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