Case Study: Effects of a Media Campaign on Breastfeeding Behaviours in Sindh Province, Pakistan

Young-Mi Kim, EdD, Senior Research and Evaluation Associate, Jhpiego, Baltimore, MD, USA

Zaeem-Ul Haq, PhD, Deputy Chief of Party, Johns Hopkins Center for Communication Programs (JHU.CCP), Islamabad, Pakistan

Jamila Soomro, MPH, Program Manager, Monitoring & Evaluation, John Snow Research & Training Institute, Inc. (JSI), Karachi, Pakistan

Zia Sultana, MA, Manager, Community Mobilization, Marie Stopes Society, Karachi, Pakistan

Azeema Faizunnisa, PhD, Assistant Professor, COMSATS Institute of Information Technology, Islamabad, Pakistan

Sohail Agha, PhD, Senior Program Officer, Bill & Melinda Gates Foundation, Seattle, WA, USA

Correspondence may be directed to:
Young-Mi Kim
E-mail: Young-Mi.Kim@jhpiego.org

Abstract

A 2013–2014 media campaign in Sindh Province, Pakistan, promoted healthy breastfeeding practices. According to data from annual household surveys, 26.7% of mothers saw one television spot and 19.4% saw another. The proportion of mothers who received breastfeeding information via television increased from 8.3% to 29.4% after the campaign ($p \leq 0.05$) and the percentage receiving information from doctors, mothers-in-law and relatives/friends nearly doubled ($p \leq 0.05$). However, no improvements in breastfeeding practices were reported. The experience in Sindh suggests that, in order to change breastfeeding practices, mass media interventions should be linked with other interventions, such as provider counseling, that involve influential family members in addition to mothers.

Introduction/Background

Mother's milk provides all essential nutrients for infant health, growth and development for up to 6 months of age (Kramer and Kakuma 2012). Early and exclusive breastfeeding reduces child morbidity and mortality and is a cornerstone of child survival strategies (Bhutta and Labbock 2011). However, in Pakistan, only 18% of newborns are breastfed within 1 hour after birth, and 58% within the first 24 hours; only 24.1% of infants 4–5 months old are exclusively breastfed (National Institute of Population Studies and ICF International 2013). Rates of early and exclusive breastfeeding have remained virtually unchanged in Pakistan for two decades despite breastfeeding promotion programs (Hanif 2011).

Widely accepted beliefs and customs contribute to unhealthy breastfeeding practices in Pakistan. Some mothers provide prelacteal feeds (such as honey, water and juice) to the newborn, delay initiation of breastfeeding and discard colostrum (Badruddin et al. 1997; Khadduri et al. 2008), increasing the risk of infection and malnutrition and reducing the likelihood of successful and exclusive breastfeeding. Pakistani mothers commonly believe that prelacteal feeds clear the stomach of meconium and reduce colic; prelacteals are usually administered by a respected family elder because they are thought to imbue the baby with the traits of the person feeding them (Asim et al. 2014; Fikree et al. 2005; Khadduri et al. 2008; Laroia and Sharma 2006). Mothers-in-law may advise delaying the first feeding due to perceptions that colostrum is harmful or that the mother has insufficient milk (Gul et al. 2014). Discarding colostrum as "stale" or "poisonous" is an ancient custom across South Asia (Asim et al. 2014; Fikree et al. 2005; Khadduri et al. 2008; Laroia and Sharma 2006).

Most interventions to promote positive breastfeeding practices in developing countries have been delivered by health workers using interpersonal communication (Dyson et al. 2005; Lassi et al. 2010; Lewin et al. 2010), but recent reviews have highlighted the need for different approaches (Baker et al. 2013). Some researchers, citing the impact of media campaigns on HIV/AIDS, family planning and vaccination programs, have posited that behaviour change communication strategies implemented through mass media alone may improve breastfeeding practices (Hornik 2002). Despite theoretical transferability (or plausibility) of this approach, a recent *Lancet* review article concluded that evidence of effectiveness of mass media campaigns was much weaker for

breastfeeding than other health goals (Wakefield et al. 2010). This case study describes the lessons learned from implementation of a mass media campaign to encourage breastfeeding in Sindh Province, Pakistan, and explores the barriers that may have limited its success.

Intervention

In 2013, the United States Agency for International Development's Maternal and Child Health program in Sindh Province implemented a first-ever media campaign to promote breastfeeding. Sindh has the second largest population of Pakistan's four provinces and high rates of neonatal and infant mortality: 54 per 1,000 live births and 74 per 1,000 live births, respectively (National Institute of Population Studies and ICF International 2013). Television was selected as the main media channel because a 2013 survey found that 55% of women in Sindh watched television weekly, while far fewer listened to the radio or read newspapers (Agha and Williams 2013).

The mass media campaign was implemented in three phases. A 45-second television spot promoting early initiation of breastfeeding and giving colostrum to the newborn (TV Spot 1) was aired 3,538 times during Phase 1 (July–August 2013). A 43-second television spot emphasizing the importance of exclusive breastfeeding for the first 6 months (TV Spot 2) aired 4,337 times during Phase 2 (November 2013–January 2014). Both spots were aired an additional 11,097 times during Phase 3 (March–April 2014). TV spots were broadcast on national news and drama channels in prime time, in both the national and local languages. Mothers were the primary audience, but secondary audiences included husbands and mothers-in-law, and the spots highlighted the role of family elders as well as parents. Radio spots, newspaper advertisements and announcements on local cable TV channels reinforced the messages of the TV spots throughout the campaign. Health education on breastfeeding by healthcare providers was also part of the program's behaviour change strategy, but this component was not rolled out until after the media campaign.

Methodology/Change Process/Results

This case study draws on data from two rounds of the annual Maternal and Child Health Program Indicator Survey in Sindh Province (Agha and Williams 2013) to assess the reach and effects of the media campaign. The first survey was conducted in June–July 2013, prior to and early in Phase 1 of the campaign. The second was conducted in June–July 2014, 1–2 months after Phase 3 had concluded. A multi-stage sampling scheme was used to select survey respondents among women aged 15–49 who had a live birth in the last two years (n = 4,000 in 2013; n = 6,200 in 2014). The sample was designed to be representative of all districts of Sindh and used probability proportional to size sampling to select urban and rural areas in each district. In each area, households were randomly selected to participate.

The survey instrument was based on the Demographic and Health Survey instrument (National Institute of Population Studies and Macro International 2008) and the Knowledge, Practice and Coverage Survey instrument developed by the Johns Hopkins University/Child Survival Support Program and revised by the Maternal and Child Health Integrated Program (Agha and Williams 2013; MCHIP 2015). Information was collected on women's socio-demographic characteristics, health service use and sources of breastfeeding information. Four outcome variables were constructed from survey data: whether the woman breastfed within the first hour after birth, whether she breastfed within 24 hours after birth, whether colostrum was fed to the newborn and whether exclusive breastfeeding was practiced during the first three days of life. The instrument was translated into Urdu and Sindhi and pilot tested to ensure its precision.

Respecting the gender and cultural norms of Pakistan, female interviewers contacted study participants at home and conducted

face-to-face interviews in Urdu or Sindhi. Interviewers were cognizant of local cultural norms and had prior experience as data collectors. They and their supervisors were trained to ensure data quality. Interviewers obtained oral consent from participants prior to the interview and ensured their privacy during the conversation. The Institutional Review Board of the Johns Hopkins Bloomberg School of Public Health and the National Bioethics Committee of Pakistan approved the study.

The data analysis for this case study was restricted to respondents who reported having had a live birth in the last 12 months, because they were more likely to accurately recall newborn feeding events. Bivariate data analysis was conducted with STATA. Confidence intervals were computed, and a *p*-value of ≤ 0.05 was used to determine the statistical significance of changes between the two survey rounds.

A total of 2,115 women responding to the 2013 survey reported a live birth in the last 12 months; 3,203 women did so in the 2014 survey. There were no significant differences between surveys in women's socio-demographic characteristics (data not shown). The sample was evenly distributed across wealth quintiles in both years. Approximately half of respondents lived in rural areas (50.1% in 2013 and 48.3% in 2014), had no education (55.9% and 52.6%), were age 25–34 (53.4% and 55.2%) and had three or more children (50.4% and 52.3%). Most respondents had delivered in a health facility (67.5% and 71.2%) and had made at least four antenatal care visits (54% and 55.7%).

More respondents in both surveys reported receiving breastfeeding information from

Table 1. Exposure to breastfeeding information in the past 12 months during first and second round surveys

Information source	First round survey: 2013 (*n* = 2,115)		Second round survey: 2014 (*n* = 3,203)	
	%	95% CI	%	95% CI
Mass media				
Television*	8.3	6.68–10.17	29.5	26.89–32.20
Radio*	0.7	0.38–1.29	2.3	1.55–3.55
Print media*	0.6	0.29–1.19	2.5	1.68–3.64
Other outreach intervention				
Health education/awareness session*	0.4	0.22–0.87	1.8	1.03–3.27
Telephone helpline	0.8	0.46–1.37	1.6	0.85–2.91
Health workers				
Doctor*	18.6	15.91–21.72	42.3	39.41–45.23
Nurse/midwife*	6.2	4.84–7.93	12.9	11.12–14.82
Lady Health Worker (LHW)*	8.6	7.13–10.25	21.4	18.92–24.04
Lady Health Visitor*	3.6	2.71–4.78	8.1	6.70–9.77
Outreach Worker (non-LHW)*	1.5	1.02–2.33	3.4	2.18–5.13
Dai/TBA	9.8	8.03–11.87	13.4	11.72–15.31
Homeopath	1.2	0.69–1.93	1.9	1.19–3.09
Hakeem (herbal medicine practitioner/traditional healer)	0.9	0.55–1.55	1.6	0.78–3.20
Family/Friends				
Mother-in-law*	18.2	15.67–21.08	32.5	30.11–34.96
Other relative or friend*	22.7	19.55–26.21	44.3	41.31–47.31

* Statistically significant difference between 2013 and 2014 data ($p \leq 0.05$)
Dai = untrained traditional birth attendant; TBA = traditional birth attendant

television than any other media channel (Table 1). The proportion who received information from television increased significantly from 8.3% in 2013 to 29.5% in 2014. More respondents saw TV Spot 1 (26.7%) than TV Spot 2 (19.4%) (data not shown). Breastfeeding information received from radio and print materials increased significantly, but less than 3% of mothers reported receiving breastfeeding information from these sources.

In both surveys, mothers were more likely to receive breastfeeding information from doctors, mothers-in-law and other relatives/friends than from television. There were significant increases in the proportion of mothers who learned about breastfeeding from formal healthcare workers, mothers-in-law and other relatives or friends. Information from doctors more than doubled and information from mothers-in-law and other relatives and friends almost doubled.

There was, however, no significant change in the proportion of mothers who engaged in desirable breastfeeding practices after the campaign (Table 2).

Discussion

Up to one-quarter of mothers surveyed saw each television spot, which is notable in Pakistan where many programs compete for audience share. Shifts in television viewership may have limited the reach of the campaign. The spots were aired on public as well as private cable television channels; public channels are losing viewership to cable channels in Pakistan as literacy and income increase (Yusuf 2013).

Mothers were significantly more likely to report learning about breastfeeding from health workers and family and friends after the campaign. Evidence from other studies shows that mass media campaigns have stimulated interpersonal communication on other health topics (Rogers 1995). Still, these survey data are insufficient to prove that the campaign prompted the increase in breastfeeding advice offered by health workers, family and friends (notably, these were secondary audiences for the TV spots).

Breastfeeding practices in Sindh did not improve over the campaign despite increased exposure to breastfeeding information. The limited reach of the campaign certainly contributed to the lack of impact. In addition, the brevity of the TV spots—43 to 45 seconds—reduced the opportunity to enhance knowledge, change attitudes and influence behaviours compared with longer (but more costly) dramas or talk shows. The evaluation window may have been too short; it is unreasonable to expect a mass media campaign to induce a complex behaviour change in just one year. However, the experience in Sindh also casts doubt on whether mass media alone can alter breastfeeding practices. While mass media effectively broadcasts information, interpersonal communication with health workers or family has greater persuasive power to influence behaviour (Maibach et al. 2007; Rogers 1995).

Mass media may be particularly ineffective in changing breastfeeding practices. Wakefield et al. (2010) have theorized that habitual, ongoing behaviours like breastfeeding are less amenable

Table 2. Reported changes in breastfeeding practices among women who gave birth within the 12 months prior to the survey

	First round survey: 2013 (*n* = 2,115)		Second round survey: 2014 (*n* = 3,203)	
Breastfeeding practice	%	95% CI	%	95% CI
Breastfed immediately after delivery	50.2	46.84–53.48	49.0	46.23–51.86
Breastfed in first 24 hours	88.0	86.11–89.57	84.7	82.94–86.30
Gave colostrum	74.0	71.26–76.64	77.2	75.04–79.17
Exclusive breast feeding for first three days after birth	44.2	40.75–47.70	46.1	43.53–48.60

Comparisons of 2014 with 2013 data were statistically non-significant for all behavioural outcome variables.

to change through mass media than one-time or episodic behaviours like vaccination. However, the breastfeeding practices promoted by the campaign and assessed here were mostly episodic in nature, including early initiation of breastfeeding and giving colostrum.

Breastfeeding also differs from behaviours that have been successfully promoted by mass media because breastfeeding is powerfully influenced by cultural factors (Daglas et al. 2005; Laroia and Sharma 2006). Mothers face stiff barriers to adopting improved behaviours, including deep-rooted cultural beliefs surrounding infant feeding, low maternal literacy rates, mothers' lack of decision-making power and powerful influences of elders and healthcare providers (Ayaz and Saleem 2010; Khadduri et al. 2008; Rahman et al. 2012; Wakefield et al. 2010). Appropriate counseling by providers that involves influential family members as well as mothers may be more effective than mass media in diminishing these cultural barriers (Monterrosa et al. 2013; Naugle and Hornik 2014; Sanghvi et al. 2013).

Limitations

The cross-sectional survey data used in this case study were not specifically designed to assess the effect of a mass media campaign. It is possible that the TV spots prompted the increase in breastfeeding information observed, but causation cannot be attributed. Multiple organizations in Sindh were conducting activities to promote breastfeeding at the time of the media campaign; these efforts may explain all or part of the increase in exposure to breastfeeding information. In addition, information on outcomes was limited to early breastfeeding practices; there was no information on exclusive breastfeeding at 4–6 months, which may be a better indicator of ongoing behavioural change.

Conclusions

This case study suggests that the mass media campaign increased mothers' exposure to information about breastfeeding but did not change breastfeeding practices. The restricted reach of the campaign likely limited its impact. However, the experience in Sindh suggests that while mass media interventions may not directly impact breastfeeding behaviour, they may be very effective in improving access to information and, potentially, influencing social norms. Mass media campaigns to promote breastfeeding may be more effective if they are linked with counseling by health providers, mobilization of community leaders as change agents, and involvement of influential household members and others who act as gatekeepers of cultural beliefs.

Acknowledgements

We thank Rachel Haws, Jhpiego consultant, for her help in editing this article. This publication was made possible through support provided by the US Agency for International Development (USAID), under the terms of Associate Cooperative Agreement No. AID-391-LA-13-00001; Maternal, Newborn and Child Health Services Project. The opinions expressed herein are those of the authors and do not necessarily reflect the views of USAID.

References

Agha, S. and E. Williams. 2013. *Maternal and Child Health Program Indicator Survey 2013, Sindh Province*. MNCH Services Component, USAID/Pakistan MCH Program. Karachi, Pakistan: Jhpiego. Retrieved August 27, 2015. <http://www.mchip.net/sites/default/files/MCH%20Program%20Indicator%20Survey%20Report%202013%20Sindh%20Province.pdf>.

Asim, M., N. Malik, A. Tabassum, M. Haider and H.N. Anwar. 2014. "Perception and Practices of Mothers about Feeding Practices of Newborn Babies in Faisalabad, Pakistan." *Mediterranean Journal of Social Sciences* 5(4): 662-8.

Ayaz, A. and S. Saleem. 2010. "Neonatal Mortality and Prevalence of Practices for Newborn Care in a Squatter Settlement of Karachi, Pakistan: A Cross-Sectional Study." *PLoS One* 5(11): e13783. doi: 10.1371/journal.pone.0013783.

Badruddin, S.H., S.N. Inam, S. Ramzanali and K. Hendricks. 1997. "Constraints to Adoption of Appropriate Breast Feeding Practices in a Squatter Settlement in Karachi, Pakistan." *Journal of the Pakistan Medical Association* 47(2): 63-8.

Baker, J., T. Sanghvi, N. Hajeebhoy, L. Martin and K. Lapping. 2013. "Using an Evidence-Based Approach to Design Large-Scale Programs to Improve Infant and Young Child Feeding." *Food and Nutrition Bulletin* 34(3 Suppl): S146-55.

Bhutta, Z.A. and M. Labbok. 2011. "Scaling Up Breastfeeding in Developing Countries." *Lancet* 378(9789): 378-80. doi: 10.1016/S0140-6736(11)60897-0.

Daglas, M., E. Antoniou, G. Pitselis, G. Iatrakis, G. Kourounis and G. Creatsas. 2005. "Factors Influencing the Initiation and Progress of Breastfeeding in Greece." *Clinical and Experimental Obstetrics & Gynecology* 32(3): 189-92.

Dyson, L., F.M. McCormick and M.J. Renfrew. 2005. "Interventions for Promoting the Initiation of Breastfeeding." *Cochrane Database of Systematic Reviews* 2005(2): CD001688. doi: 10.1002/14651858.CD001688.pub2.

Fikree, F.F., T.S. Ali, J.M. Durocher and M.H. Rahbar. 2005. "Newborn Care Practices in Low Socioeconomic Settlements of Karachi, Pakistan." *Social Science and Medicine* 60(5): 911-21. doi: 10.1016/j.socscimed.2004.06.034.

Gul, S., R. Khalil, M.T. Yousafzai and F. Shoukat. 2014. "Newborn Care Knowledge and Practices among Mothers Attending Pediatric Outpatient Clinic of a Hospital in Karachi, Pakistan." *International Journal of Health Sciences* 8(2): 167-75.

Hanif, H.M. 2011. "Trends in Breastfeeding and Complementary Feeding Practices in Pakistan, 1990-2007." *International Breastfeeding Journal* 6: 15. doi: 10.1186/1746-4358-6-15.

Hornik, R.C. 2002. *Public Health Communication: Evidence for Behavior Change*. Mahweh, NJ: Lawrence Erlbaum Associates.

Khadduri, R., D.R. Marsh, B. Rasmussen, A. Bari, R. Nazir and G.L. Darmstadt. 2008. "Household Knowledge and Practices of Newborn and Maternal Health in Haripur District, Pakistan." *Journal of Perinatology* 28(3): 182-7. doi: 10.1038/sj.jp.7211903.

Kramer, M.S. and R. Kakuma. 2012. "Optimal Duration of Exclusive Breastfeeding." *Cochrane Database of Systematic Reviews* 2012(8): CD003517. doi: 10.1002/14651858.CD003517.pub2.

Laroia, N. and D. Sharma. 2006. "The Religious and Cultural Bases for Breastfeeding Practices among the Hindus." *Breastfeeding Medicine* 1(2): 94-8. doi: 10.1089/bfm.2006.1.94.

Lassi, Z.S., B.A. Haider and Z.A. Bhutta. 2010. "Community-Based Intervention Packages for Reducing Maternal and Neonatal Morbidity and Mortality and Improving Neonatal Outcomes." *Cochrane Database of Systematic Reviews* 2010(11): CD007754. doi: 10.1002/14651858.CD007754.pub2.

Lewin, S., S. Munabi-Babigumira, C. Glenton, K. Daniels, X. Bosch-Capblanch, B.E. van Wyk et al. 2010. "Lay Health Workers in Primary and Community Health Care for Maternal and Child Health and the Management of Infectious Diseases." *Cochrane Database of Systematic Reviews* 2010(3): CD004015. doi: 10.1002/14651858.CD004015.pub3.

Maibach, E.W., L.C. Abroms and M. Marosits. 2007. "Communication and Marketing as Tools to Cultivate the Public's Health: A Proposed "People And Places" Framework." *BMC Public Health* 7: 88.

Maternal and Child Health Integrated Program (MCHIP). 2015. *Tools: Project Monitoring & Evaluation (M & E)*. Retrieved August 27, 2015. <http://www.mchipngo.net/controllers/link.cfc?method=tools_mande>.

Monterrosa, E.C., E.A. Frongillo, T. Gonzalez de Cossio, A. Bonvecchio, M.A. Villanueva, J.F. Thrasher and J.A. Rivera. 2013. "Scripted Messages Delivered by Nurses and Radio Changed Beliefs, Attitudes, Intentions, and Behaviors Regarding Infant and Young Child Feeding in Mexico." *Journal of Nutrition* 143(6): 915-22. doi: 10.3945/jn.112.169235.

National Institute of Population Studies (NIPS) [Pakistan] and ICF International. 2013. *Pakistan Demographic and Health Survey 2012-13*. Islamabad, Pakistan, and Calverton, Maryland, USA: NIPS and ICF International.

National Institute of Population Studies (NIPS) [Pakistan] and Macro International Inc. 2008. *Pakistan Demographic and Health Survey 2006-07*. Islamabad, Pakistan: National Institute of Population Studies and Macro International Inc.

Naugle, D.A. and R.C. Hornik. 2014. "Systematic Review of the Effectiveness of Mass Media Interventions for Child Survival in Low- and Middle-Income Countries." *Journal of Health Communication* 19(Suppl 1): 190-215. doi: 10.1080/10810730.2014.918217.

Rahman, A., Z. Haq, S. Sikander, I. Ahmad, M. Ahmad and A. Hafeez. 2012. "Using Cognitive-Behavioural Techniques to Improve Exclusive Breastfeeding in a Low-Literacy Disadvantaged Population." *Maternal & Child Nutrition* 8(1): 57-71. doi: 10.1111/j.1740-8709.2011.00362.x.

Rogers E. 1995. *Diffusion of Innovations*. New York, NY: The Free Press.

Sanghvi, T., A. Jimerson, N. Hajeebhoy, M. Zewale and G.H. Nguyen. 2013 "Tailoring Communication Strategies to Improve Infant and Young Child Feeding Practices in Different Country Settings." *Food and Nutrition Bulletin* 34(3 Suppl): S169-80 .

Wakefield, M.A., B. Loken and R.C. Hornik. 2010. "Use of Mass Media Campaigns to Change Health Behaviour." *Lancet* 376(9748): 1261-71. doi: 10.1016/S0140-6736(10)60809-4.

Yusuf H. 2013. *Mapping Digital Media: Pakistan. Country Report*. London: Open Society Foundations. Retrieved August 27, 2015. <https://www.opensocietyfoundations.org/reports/mapping-digital-media-pakistan>.