

Protecting the Health of Indian Preschool Children: Experts Inform TV programming of *Galli Galli Sim Sim*

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Abstract

Study background: This study is part of a multi-year project monitoring the effect of *Galli Galli Sim Sim* (GGSS), the Indian production of Sesame Street, on child development and health. We aimed to identify health issues facing Indian children and offer recommendations to GGSS.

Methods: We conducted in-depth interviews with 203 experts who had experience with 3 to 7 year olds in India. An iterative process of reading, coding, and aggregating data generated broad health themes, which we translated into general and specific recommendations.

Results: Results revealed five main health issues facing Indian children, (1) Nutrition, (2) Hygiene, (3) Colds, Coughs, and Fever, (4) Diarrhea, and (5) Vaccinations. Recommendations for creating effective health messages included integrating health into multi-layered content, recognizing the diversity of the viewing audience, and distribution of GGSS through a variety of outlets.

Conclusion: Media is a potent medium to educate, model, and broadly disseminate health messages appropriate to young Indian children. Health issues were directly or indirectly related to the social determinants of health, such as poverty, poor education, inadequate health infrastructure, lack of environmental protections, and related co-morbidities. Media, particularly television, can function as an important adjunct to school- and community-based education, offering even young children powerful and influential messages.

Keywords: Healthy lifestyle; Psychosocial support systems; Educational personnel; Epidemiologists; Pediatricians

Introduction

Children's health has long been an important issue in India. With 29% of the Indian population consisting of 0 to 14 year olds, the need for health awareness, disease prevention, and intervention is imperative [1]. In 2010, 1.7 million Indian children died before the age of 5 years from pneumonia, prematurity and diarrheal diseases [2]. While mortality rates for children under 5 years has declined from 125 deaths/1000 live births in 1990 to 56 deaths/1000 live births in 2014, rates are still too high [3]. A greater investment in child health is imperative for the well-being of the under 5 population, regardless of economic status or geographic locale [4].

Since its inception and around the globe, children's television has been successfully mobilized to impact the health and well-being of young children [5-7]. A meta-analysis examining international co-productions of Sesame Street in 15 countries found that children's media exposure to the program resulted in improved knowledge, attitudinal, and behavioral outcomes [8]. For example, Tanzanian children who were exposed to educational books, radio and television improved in their health knowledge and attitudes for diseases such as malaria and HIV/AIDS [9].

This qualitative study is part of a larger multi-year, multi-method research project monitoring if and how *Galli Galli Sim Sim* (GGSS),

the Indian production of Sesame Street, affects child development and health. In this paper, we present findings from one of the project's sub-studies to inform the content of GGSS. The main purpose of this study was to examine, among Indian child development experts, potential programming content and perceptions of how media can impact children's health and well-being.

Methods

The research team consisted of the Principal Investigator and her team in the USA, and an in-country team from BMG Policy Innovations, India. Triangulation of project responsibilities and tasks was undertaken to minimize bias and maximize the integrity of the data collection, analysis and interpretation process [10].

Sample

The sampling frame comprised adults with professional or volunteer experience working with Indian children between the ages of 3 to 7 years in four cities-Ahmedabad, Delhi, Hyderabad, and Lucknow. For inclusion in the study, experts had to be employed, or have prior work experience with, or on behalf of, children between the ages of 3 to 7 years.

The in-country research team contacted child development experts in each city to inform them of the study and ask if they were interested in participating. A snowball sampling approach was employed to procure a sample of experts representing different experiences and

fields of interest. That is, early participants referred colleagues who might be interested in being interviewed. The in-country team also used their professional contacts and connections to facilitate recruitment of additional experts. Target occupations and professions included: teachers, principals/headmasters, pediatricians/primary health care clinicians, Anganwadi workers, community health workers (CHW), upper level government officials, accredited social health activists (ASHA), government health professionals, and clergy. The snowball sampling method worked especially well with those who worked in Government jobs (Anganwadi workers, ASHAs, govt. Professionals) as this type of work is near impossible to penetrate without initial references. Efforts were made to acquire the participation of experts working with children from lower income communities and slums, as this is an important target audience of *GGSS*. A commonality, though, among the recruited experts, was in-depth knowledge of young children in India. Some experts had direct and on-going personal experience with 3 to 7 year olds, while others worked indirectly through organizations and groups dedicated to child development.

Email and telephonic communication was used throughout the recruitment process. Several rounds of communication were needed to secure expert participation and scheduling of interviews. Spreadsheets were maintained to document the recruitment steps and scheduling details, i.e. date, time, location of interviews.

Procedure and Measures

Researchers conducted 203 semi-structured interviews between December 2014 and March 2015 in all four cities. In-city teams were recruited and trained for the purpose of data collection. The Research Assistants (RAs) were college students (undergraduate and graduate) who demonstrated proficiency in their local language and English language skills. All RAs participated in a mandatory 2 day training program conducted by the in-country team. Day 1 focused on theoretical understanding of the research process, including study design, instrumentation, qualitative research methods, i.e. conduct of in-depth interviews and transcription of audio recordings. Day 2 involved field work with mock interviews followed by personalized feedback. A one page Field and Process Document (summarizing the key training points) was provided to the RAs. RAs also received training on translation of interview recordings.

Development of the Interview Guide was based on input from Sesame Workshop, India and the funding agency, The Children's Investment Fund Foundation (CIFF) and subsequently pilot tested with four experts (2 teachers, one health expert from UNICEF and one school principal) for comprehension and ease of administration. Feedback from the pilot led to revisions of the Interview Guide.

Efforts were made to enhance the study rigor by maintaining separation of roles, meticulous data collection/transcription processes and independent analysis of data by the research team in the USA.

Meeting times and locations for the interviews were scheduled at the discretion of the expert and full active consent was obtained. The study protocol and instruments were approved by the Principal Investigator's home Institutional Review Board. Interviews occurred after a consent procedure was completed with each participant. Interviews were audio-recorded, lasted, on average, 45-50 minutes and were conducted in the participants' preferred language. All RA followed set procedures and a pre-determined script during the interview to ensure the integrity of the research process.

Conduct of Interviews

Interviews began with closed-ended questions about the expert's demographics and work experience. Next, researchers asked open-ended questions related to children's health. Experts were asked to focus on young children from lower socioeconomic households when answering questions such as: (a) "What are the main health issues faced by Indian children ages 3 to 7 years?" and (b) "In what ways can children's television programs, such as *Galli Galli Sim Sim*, address different health issues affecting Indian children ages 3 to 7 years?"

Analyses

Interviews were digitally recorded to ensure accuracy in documentation of participant responses, through transcription and translation into English by the RAs in each city. Language and subject matter experts from the in-country research team reviewed these transcriptions against the recordings and provided feedback regarding completeness and correctness of information, missing expressions and grammar. More than 70% of transcriptions were checked at least twice by subject matter experts.

To further ensure rigor and minimize bias, project researchers from the USA (who were not involved in conducting the interviews) reviewed transcripts, coding experts' comments for topics relevant to the health needs of young children and contextual information, i.e., health issues and concerns at home, school and other settings. This team generated broad themes based on a thorough and iterative process whereby participant responses were aggregated by health concern, and then transcripts were reread for nuanced meanings and context. A qualitative inter-rater reliability was conducted to enhance confidence in how data were categorized. Additionally, researchers tallied responses, noting most frequently mentioned topics. Team members discussed themes and converted them into general and specific recommendations for the *GGSS* production team. All recommendations were connected to the qualitative findings and met the feasibility criterion related to producing and disseminating an educational and entertaining television program.

The participation of a broad range of child development experts and stakeholder groups across 4 cities in India enhanced the breadth of data that were collected. We engaged in data triangulation by looking for outcomes that were agreed upon by all stakeholder groups [10]. Triangulation of researchers (i.e. investigator triangulation) ensured study rigor, minimized bias and maximized accuracy at all stages of the research process. Having a diverse interdisciplinary team of researchers collectively engage in the data analysis provided theory triangulation.

Results

Information about the expert sample is provided in Table 1. Across all cities, a higher proportion of participants were female. Overall, most of the respondents were between the ages of 30-39 years (31.5%), had completed some college (34.4%) or were post-graduates (38.6%). The majority had professional experience related to child development, health, and education (58.1%). Only 34% of participants reported that they had ever watched *GGSS* and 50% self-reported recognition of some of the *GGSS* characters.

Main Health Issues

Experts' perceptions of child health issues were wide-ranging and overlapping; however, five main categories emerged: (1) Nutrition; (2)

Hygiene; (3) Colds, Coughs, and Fever; (4) Diarrhea; and (5) Vaccinations (Table 2).

Social determinants of health, and lack of knowledge, were seen to broadly affect the health and well-being of children. This was articulated as follows:

“The health issue is one big issue because there are so many communicable diseases in the kind of community the kids are living

in. The parents do not know about the kind of vaccines the kids must have. There are government programs also but they are not aware of them as well. Parent’s awareness of how kid’s health is and how it should be taken care of is very poor. If the kid falls ill then he is made to stay back at home and that’s the only thing which is done. He is not taken to a doctor. Malnutrition is one big problem, then they frequently have viral fever, cold and cough and are absent from school for 15-20 days which I think does not suit their age.”

Variable	Total (N=203)		Delhi (N=53)		Lucknow (N=50)		Ahmedabad (N=50)		Hyderabad (N=50)	
	n	%	n	%	n	%	n	%	n	%
Sex (N=203)										
Female	145	71.4	33	62.3	37	74.0	33	66.0	42	84.0
Age (N=200)										
<20	2	1	1	1.9	1	2.0	0	0.0	0	0.0
20-29	49	24.5	16	30.8	14	28.0	9	18.4	10	20.4
30-39	63	31.5	13	25.0	15	30.0	17	34.7	18	36.7
40-49	44	22	11	21.2	10	20.0	13	26.5	10	20.4
50 or older	42	21	11	21.2	10	20.0	10	20.4	11	22.5
Highest Education (N=202)										
No education or less than secondary	16	7.9	3	5.7	4	8.0	5	10.0	4	8.2
Secondary	35	17.3	13	24.5	4	8.0	9	18.0	9	18.4
Some College	70	34.7	11	20.8	19	38.0	24	48.0	16	32.7
Post graduate	78	38.6	26	49.1	23	46.0	12	24.0	20	40.8
Experts' Work Related to ¹ (N=203)										
Child Education	1	0.5	0	0.0	0	0.0	1	2.0	0	0.0
Child Health/Hygiene	25	12.3	5	9.4	5	10.0	7	14.0	8	16.0
Child Safety	1	0.5	0	0.0	0	0.0	1	2.0	0	0.0
Child Education and Health	46	22.7	11	20.8	15	30.0	13	26.0	7	14.0
Child Education and Safety	6	3.0	1	1.9	1	2.0	3	6.0	1	2.0
Child Health and Safety	6	3.0	1	1.9	1	2.0	2	4.0	2	4.0
Child Education, Health, Safety	118	58.1	35	66.0	28	56.0	23	46.0	32	64.0
Expert is a Parent (N=201)										
Yes	143	71.1	33	62.3	29	59.2	40	80.0	41	82.0
Among Parents (n=143), No. of Children, Mean (SD)		2 (1.1)		2.1 (1.5)		2.1 (1.3)		2 (0.8)		1.8 (0.7)

Table 1. Characteristics of the Participating Experts.

¹ Examples of professions included in each category are: teacher (Child Education), specialist family medicine, medical officer (Child Health/Hygiene), crime reporter (Child Safety), NGO workers, Asha workers (Child Education and Health), priests, teacher at hospitals (Child Education and Safety), Asha worker, medical officer (Child Health and Safety), physicians, nurses, social workers (Child Education, Health, Safety).

Health Issue	Overall (N=203) N (%)	Delhi (N=53) N (%)	Lucknow (N=50) N (%)	Ahmedabad (N=50) N (%)	Hyderabad (N=50) N (%)
Nutrition	119 (58.9)	36 (67.9)	30 (60.0)	19 (38.0)	34 (68.0)
Hygiene	70 (34.5)	12 (22.6)	18 (36.0)	22 (44.0)	18 (36.0)
Colds, coughs, fever	57 (28.1)	9 (17.0)	12 (24.0)	26 (52.0)	10 (20.0)
Diarrhea	39 (19.5)	5 (9.8)	19 (38.8)	11 (22.0)	4 (8.0)
Vaccinations	33 (16.3)	3 (5.7)	16 (32.0)	8 (16.0)	6 (12.0)

Table 2. Major Health Issue Mentioned By Experts.

Nutrition

According to these experts, too many Indian children have poor diets. While some discussed calories, other talked about deficiencies of specific vitamins and nutrients. The following two comments underscore their concern, "... 3 to 7 years of age - the biggest problem is calorie deficiency and we have already identified the gaps and are now trying to bridge it" and "They are the victims of malnutrition, nutrition is not proper, underweight... Lack of Vitamin A is noticed in many children so they have eye problems." Other comments provide relevant context.

"Usually parents are very worried about their children and come here wondering if so and so disease has happened to their child.....These children don't like to eat natural and good food and food made at home but they will eat mud, plaster, and licking walls, paint, etc. So all these things are symptoms of deficiency in iron content."

"The main problem related to health is that they are not able to feed their children properly. They give more of junk food to them and less of dry fruits. Plus, they also don't know how many times they should feed children. They have the resources to obtain good food like milk, carrot which is rich in vitamins but they lack in knowledge. For the same amount of money they will give the child junk food items."

Experts connected children's nutritional problems to mother's pregnancies and economic problems.

"And further when they will keep having many children one after the other, so this causes a decrease in iron and all the children are born with one or the other disorders in mind and physique. Children also are deficient in calcium and iron and they also get worms in their stomach."

"...if their mother is a working lady and grandparents are taking care of the children then they generally don't eat properly. When the parents are both working, then when they feel like having one chapatti [they do], otherwise they won't. Main problems are of eyes and skin... nutrition is again the major problem."

"The biggest problem is food made outside the home...Parents have to go out for work and they cook some food in the morning and then they leave. A child cannot survive on this food for the whole day. So he obviously survives on the outside food. The problem is that the poorer a family is, more will they be spending on the outside food...This not only disturbs the child's metabolism but also gets him bad habits. Due to unhygienic conditions children catch up diarrhea, fever and other diseases."

"In lower economic section, parents generally leave their children alone [the] entire day as they have to go out for work. They hand over 10-15 rupees to their children for food or other needs. Because of such situations children regularly consume junk/street food... everyday junk food affects child's health."

Hygiene

Reflecting on young children's health issues, experts frequently mentioned hygiene. One expert noted that "They have mostly skin related issues because they have issues of hygiene mostly. Worm infestation is also common due to unclean nature." While another said "Everything depends on maintaining hygiene and cleanliness so that their children don't suffer from diarrhea." The following quotes are indicative of the range of responses.

"I can tell that teaching them to clean their private parts after urination or teaching them how to have them clean themselves [after potty]. Cleanliness and hygiene is a big issue and addressing this would be a big achievement. As a mother even cleaning your nails, brushing twice or bathing twice are some of the things which are needed to be taught. This has to be done practically...the child imitates or emulates whatever is done by parents."

"When they play in mud, it enters their nails and they eat without washing their hands, then they get affected by that. These small ailments happen very commonly. When children do defecation near to the house, flies settle on that and they carry germs and when they settle on food..."

"Most of the children don't wash their hands, only when their parents tell them to wash. When they pick up and eat something like chips or snacks that is the time they don't wash their hands they just go and pick it up there they end up having diarrhea and infections. The education for the child is to wash hands after eating, after visiting the toilet, after touching every food, anytime they touch the food even when they are opening a chocolate, let them wash hands. That helps because most of the time, the hand washing is proper. Then even if they are playing in the mud, it is OK. They play, come, wash and eat. So we should stress hand hygiene..."

"The main issue is that it is very important to maintain personal hygiene like oral hygiene, brushing teeth properly, ears should not have much wax and if their eyesight is weak then they should be able to freely tell their parents about it. Because children do not know about it and they will be unable to understand that there is a problem at the first place... Personal hygiene is very important in that and rest there is no health related problem in children apart from it."

Colds, Coughs, and Fever

Experts talked about “frequent” or “common cough and cold”. Many described this health issue as a seasonal concern. One Anganwadi (child care and mother care center) worker remarked, “In my opinion children get sick often in monsoon during which there is excess water logging and stagnation which is a breeding ground for germs.” Another said, “Parents are not taking care of their children because of their work load, due to that children are not clean. They are facing seasonal diseases like cold, fever.” Often, experts related colds, coughs, and fevers to poor hygiene and parenting. They explained,

“Yes I talk to them and tell them that in this changing weather when it is still cold sometimes, they should make their children wear warm clothes and drink boiled water so that they don’t suffer from cough and cold.”

“Yes we discuss health related topics, but most importantly we discuss the preventive measures and precautions they have to take in order to prevent ill health, we tell them to stay away from few places, such as getting drenched in rain which might lead to fever, and also to avoid playing in mud as they might get various infectious disease.”

Diarrhea

Experts spoke specifically about diarrhea and the environmental conditions associated with this illness. Experts noted that, “Diarrheal diseases are very common, due to pollution of noise, air and water.” And, “When they pick up and eat something like chips or snacks, that is the time they don’t wash their hands. They just go and pick it up there and they end up having diarrhea and infections.”

Vaccinations

Few experts mentioned vaccinations as a stand-alone health issue. Yet, one expert did suggest that “The main health issue is dealing with vaccination at that age, not only should they learn but parents should also learn through those programs, the types of vaccinations that need to be taken care [of]. “Several, however, discussed myths including how immunization may be a harbinger of diseases.

“Timely vaccination and nutrition are main problems. If this is taken care of, they won’t get any diseases. Some children who don’t take polio drops, they get deformed. Nowadays there are so many programs running to take care of these diseases.”

“[Think of] all the childhood diseases, all those covered under routine immunization. And the routine immunization is not getting completed. It is about 50+% happening, a lot of children are being left behind. Some have measles and then there is a great probability that they’ll have pneumonia next, and all these diseases which come under routine immunization are preventable.”

Recommendations for *Galli Galli Sim Sim* (GGSS)

The interviewed experts were enthusiastic about the role of media in improving children’s health. Analyses of the experts’ interviews generated general and specific suggestions for GGSS. One of the first recommendations arising from the interviews was that GGSS could be distributed through many different outlets. Experts felt the program should create content for settings other than the home, such as the Anganwadi Center, health clinic, and school. This might require shorter and more focused media pieces. For example, a loop of 3 to 5 minute health segments might be played in clinic waiting areas. It was

understood that some of these sites might lack equipment, and suggestions were made about providing TV or digital players.

Experts suggested that GGSS provide multi-layered content. In addition to producing entertaining and educational material for young children, the program should offer material for adults who work and care for children as well as family members who watch alongside the target audience. The GGSS outreach team could prepare short, simple discussion guides, so that adult co-viewers could frame conversations about content. Such material should be readily available, perhaps delivered through newspapers, but also via the Internet and mobile phone.

Experts discussed the reach of mass media and felt GGSS must recognize the diversity of its audience. In India, children face different challenges, especially related to resource disparities. In presenting health issues, various approaches to alleviating concerns should be offered. For example, if the program shows healthy eating, content should present nutritious meals prepared by the lowest income families.

Health material could be incorporated in understated as well as overt ways. Behaviors, especially dietary and hygiene should be shown as part of daily activities. If GGSS were to portray a typical morning, then characters could subtly demonstrate hand-washing before eating and sandal-wearing outside of the home.

Besides these general recommendations, experts offered specific health topics for GGSS content. As poor nutrition was frequently mentioned, experts suggested segments addressing healthy foods and eating habits. GGSS could introduce less familiar foods; characters could model great willingness to try novel and nutritious dishes. Unhealthy and low nutritious foods and beverages should be avoided in the program’s content. Furthermore, experts advised that GGSS must eschew sponsorship from food and beverage corporations, so as to prevent communicating confusing messages.

Experts felt hygiene messages must be included in the program. GGSS could include segments on hygiene, including hand-washing, wearing clean clothes and uniforms, keeping nails short, wearing sandals, bathing, and teeth brushing. Additionally, GGSS could inform audiences on appropriate actions associated with different illnesses. Story-lines might show an unwell child or character, and discuss when it is critical to visit a health provider or clinic. Experts spoke of how GGSS could familiarize audiences with health care (i.e., clinics, practitioners, immunizations) and alleviate common fears.

Finally, experts suggested that GGSS encourage participation in physical activities. GGSS could show characters playing new sports and exercising throughout the day. Live characters and Muppets™ could demonstrate yoga, which is currently being promoted by the Indian government [11], and encourage viewers to follow along.

Discussion

Experts, representing the fields of child education, health, and safety, offered insight on the health issues facing young Indian children and the ways that a television show might address these. Interviewed participants frequently mentioned five main health issues (nutrition, hygiene, colds, coughs, and fever, diarrhea, and vaccinations) and they discussed how these issues were directly or indirectly related to the social determinants of health, such as poverty, poor education, inadequate health infrastructure, lack of environmental protections, and related co-morbidities. Indeed, child undernutrition and poor

sanitation are among the priority areas for public policy related to health determinants in India [12].

Experts were optimistic and offered advice on how a children's television program could affect health and well-being. Media, particularly television, can function as an important adjunct to school- and community-based education, offering even young children powerful and influential messages [8,13]. In this study, a sample of experts articulated a comprehensive set of general recommendations to increase *GGSS*'s reach and impact. Related to the diffusion of innovation theory, many ideas addressed key communication channels and salient characteristics of the program [14]. Specific suggestions were offered about topics the program should address which resembled the main health issues facing Indian children.

Strengths, Limitations and Key Messages

Strengths of this study include the diversity of the interviewed sample. Not only did our researchers speak with experts from four different regions of the country (albeit mostly urban areas), but also the experts covered a range of experiences, from working directly with street children to making national policy decisions related to young children. The main limitations of this work relate to the nature of qualitative research. Experts offered their perceptions; for example, health concerns raised may seem prominent to this sample but may not be the most significant issues actually faced by the majority of Indian children. Lastly, these experts while well-informed about children were less knowledgeable about media production. The recommendations offered to *GGSS* may be incompatible with the effective delivery of a broadcast television program.

Key Messages

- Indian children face serious public health concerns, which are diverse but over-lapping.
- Experts who work with children can provide valuable insight on the primary health issues facing young audiences.
- The main health issues faced by Indian children are impacted by social determinants, family, and personal factors.
- Experts believe that television programs, such as *Galli Galli Sim Sim*, can reach children and their caregivers with important messages around health promotion and disease prevention.

Conclusion

Media is a potent medium to educate, model, and broadly disseminate health messages appropriate to young Indian children. Qualitative research, such as this study, offers relevant insight to inform the health content of children's television.

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