



Original Research

Perceptions of rural people about childhood burns and their prevention: A basis for developing a childhood burn prevention programme in Bangladesh

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SUMMARY

Objectives: This study was conducted to gain an in-depth understanding of people's perceptions of childhood burns and their prevention in rural areas of Bangladesh.

Study design: Qualitative study.

Methods: Five focus group discussions were conducted in this study. Eight to twelve members were present in each group. Groups were composed of mothers of children under 5 years of age, adolescent male and female students in Grades IX and X, fathers and local leaders such as school teachers and religious leaders. The study was conducted in a rural community of Bangladesh in 2003.

Results: Focus group participants were aware of the devastating consequences of childhood burn injuries. They reported that younger boys and older girls are at higher risk of burn injuries. They identified home as the most common place for childhood burn injuries, and stated that occurrence was more common in winter. They held the household members or caregivers responsible because of their lack of supervision and carelessness. The focus group participants suggested that people should supervise their children more carefully, and should take initiatives to modify their homes and premises as necessary so that children would not have access to fires and heat sources. Regarding first aid, the focus group participants reported prevailing harmful practices which are likely to make injuries worse.

Conclusions: A safety education programme could be an effective intervention to improve knowledge and practices of rural people in Bangladesh with regard to prevention of burns injuries in children.

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Introduction

Burns are among the most devastating injuries in the world.¹ Globally, 238,000 people die each year due to fire-related burn injuries, and the vast majority (95%) of burns occur in low- and middle-income countries.²

Children are more vulnerable to burn injuries as their physical capacities and mental judgements are not adequate to react promptly and properly to risky environments.³ Every year in

Bangladesh, about 173,000 children suffer moderate to severe burn-related injuries and 3400 children become permanently disabled.^{4,5} This represents the third leading cause of all illnesses among children aged 1–4 years in Bangladesh.⁴ Rural children are more vulnerable to burn injuries than children living in urban areas.⁴

Children who survive massive burns are challenged by the physical and mental consequences of their injuries as they return to normal daily routines.⁶ Experiencing such injury creates excessive fear, regression, neurotic and somatic complaints,⁷ and barriers against communication that hinder social adaptation and manifestations.⁸ Acute burn care is a very costly service.⁹ In the USA, the medical cost of primary health care for one burns inpatient ranges from US\$3000 to US\$5000 per day,¹⁰ and the costs of care for burns patients are twice as high as the costs for the average patient in US

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hospitals.¹¹ In the UK, the average cost per admitted burns case is US\$3700.¹²

Burn injuries are complicated health problems in low-income countries as medical care requires specialized staff and technologies that are expensive and not always readily available.¹³ It would be more feasible to tackle this complicated health problem by preventing the occurrence of burns. The prevention of burn injuries requires the design of an effective burn prevention programme which is acceptable to people.

This study was designed to explore the perceptions of rural people about burn injuries and their prevention. The findings of this study should help in the development of an effective burn prevention programme, which will be appropriate and acceptable to the people of Bangladesh.

Methods

In order to obtain detailed information about rural people's perceptions of childhood burn injuries and their prevention, focus group discussions (FGDs) were conducted in a rural community in Bangladesh during August and September 2003. The study site included four different villages in Shibpur sub-district of Narsingdi district, which is situated about 70 km north east of Dhaka city. Focus group participants included mothers, fathers, local leaders and adolescent male and female students (Grades IX and X) (Table 1). The students were included to represent children whilst being mature enough to give their opinions about burns and their prevention. The majority of respondents were literate, except for a few mothers. Most of the respondents were Muslim, lived in rural villages, and were in the low- and middle-income group. Each group had separate discussion sessions, giving a total of five focus group discussions.

Group members were informed 2 weeks before the FGD, and reminded on the day before the meeting. Group members were selected purposively as those who had experience of a childhood burn in his/her home or who had heard of a childhood burn in the last year.

The FGDs with the mothers, fathers and local leaders were held in a residence of their choice, while the FGDs with the students were held in schools. The number of respondents in the groups ranged from eight to 12. Two trained teams, consisting of one facilitator, two note takers and one organizer, were deployed to conduct the FGDs. A week-long training programme including classroom exercises and field practice was organized and facilitated by the investigators. A series of prompts (Table 2) were finalized after field testing. Permission was sought from school teachers to include the students in the study. The objectives of the study were explained to all the participants prior to the FGDs.

Table 1
Distribution of respondents' groups by age.

Respondents	Number in each group	Age range (years)
Mothers of children under 5 years old	10	25–40
Adolescent female students (Grades IX and X)	12	15–17
Adolescent male students (Grades IX and X)	12	15–17
Fathers	8	30–50
Local leaders	11	40–60
School teachers ($n = 2$), religious leader ($n = 1$), local political leaders ($n = 2$), Chairman of the Union Council ^a ($n = 1$), members of the Union Council ($n = 3$, one female and two males, respected personality ($n = 2$))		

^a Union is the lowest administrative unit of the local government system, which is governed by the Union Council. Each Union Council is comprised of one chairman and 10 members; the chairman and members are all elected public representatives.

At the beginning of each FGD, its goal was explained and participants were assured that information would only be used for research purposes. They were asked to give informed verbal consent and were reassured that they could withdraw from the discussion at any time. In conducting the FGDs with adolescent boys and girls, consent was obtained from both school teachers and parents. This study was approved by the Ethics Committee of Institute of Mother and Child Health, Dhaka.

After welcoming everyone at the start of the session, the facilitator requested one of the participants to narrate a burn event that s/he had observed or heard about. This acted as an 'ice breaker' as well as a thought-provoking instrument for the participants. Next, the facilitator gradually introduced the series of prompts to address the desired information. Each session was audio taped with the permission of the respondents. The investigators monitored all the sessions.

Analysis of transcripts

The discussions were transcribed very carefully by two independent research assistants and compared for accuracy. The focus group moderator resolved discrepancies in content after she reviewed the tape. The transcripts were then coded independently by the two research assistants. Using content analysis, major themes were identified, coded and categorized. Validity was ensured by comparing the researchers' findings among themselves and with those of an independent investigator. No major inter-rater inconsistencies were found. After sorting and categorizing the responses, excerpts from the transcripts were chosen to illustrate the summary statements, which were also used to validate the findings. Transcription was made in Bangla and subsequently translated into English.

Results

Participants' beliefs, emotions and judgements about childhood burn injuries

In response to the question, 'What do you think about childhood burn injuries?', most of the participants felt that childhood burn injuries were a serious issue. They stated that childhood burn injuries were common in the rural community, and occurred at any time of day or night, and in many locations. The participants mentioned that in most cases, the parents or elderly household members were responsible for the occurrence of childhood burn injuries. They said that adults should be more careful with the use of open fires at home because children do not understand what may happen to them. The respondents pointed out that serious burn injuries in childhood are among the most horrifying accidents that can and do take place in their day-to-day lives. They were concerned that burn injuries are very painful, and the pain continues for a long time depending on the seriousness of the injury. One participant in the mother's group said:

"Burn is a painful and horrifying incident and children are mostly the victims. Small, lovely children suffer from painful burn injuriesfor a long time. Children should not be assigned to do any activity that might cause them burn injuries." (Rural mother)

Place of childhood burns

Participants were asked, 'Where do childhood burn injuries occur?' They answered that most childhood burn injuries occur at home in the kitchen. Other places identified were large furnaces for

Table 2
Prompts for focus group discussions.

Serial no.	Area of discussion	Prompts used
1.	Narration of a burn incident	Gender, age, place of burn inside or outside residence, time of day, season, how, why, who was supervising, activity of child prior to burn, who found child first, what was done immediately after rescuing, first aid given by whom, next healthcare provider
2.	Knowledge and perceptions about childhood burns	Who, where, when, how, why, activity prior to burn, source of burn
3.	Common practice after any burn incidence	First aid – provided by whom, any training received. Subsequent health care provided by: registered doctor, village doctor, herbal medicine practitioner, natural healer
4.	Are childhood burns preventable?	If yes, how? If no, why?
5.	Prevention measures that could be undertaken	<i>Personal or family level</i> a) Supervision of children b) Protection of children from heat sources c) Environmental modification <i>Community level</i> <i>Non-governmental organization level</i> <i>Governmental level</i>

parboiling of paddy (rice), and courtyards where fires are used to keep warm in winter. Some focus group members mentioned poor electric wiring where electricity was available.

Focus group members reported incidences of childhood burn injuries that they had seen:

“A 3-year-old boy fell into a heap of hot ashes in the courtyard of a neighbour. Fire was still burning in the coals and ashes. The uncle of the child saw him and rescued him immediately.” (Adolescent girl in Grade IX)

“Twin brothers, Jewel and Jonnie, fell into a large furnace where paddy (rice) parboiling was done. Their old grandmother saw this and called their parents. They came running and rescued the boys from the furnace but they had already got severe burn injuries.” (Adolescent boy in Grade X)

Reasons for childhood burn accidents

When asked, ‘Why do these burn accidents happen?’, the participants blamed the ignorance of parents, especially mothers and other caretakers. They stated that adults who ought to be more responsible were very careless about their children. The children are treated as if they are old enough to take care of themselves and are allowed to move freely. The adults forget that the children need to be looked after all the time. They also mentioned that the mothers are so busy with household chores that they forget to check the whereabouts of their younger children. For older children, unsafe work practices in factories were identified as a cause of burn injuries.

Risk group for childhood burn injuries

In answer to the question, ‘Who is at risks of burns?’, the respondents mentioned that children under 5 years of age were the most vulnerable group for childhood burn injuries. They also mentioned that adolescent girls were at high risk because they were involved with cooking and kitchen activities, and adolescent girls were at risk of assault with acid, which is another cause of burn injury in Bangladesh.

Time of occurrence

When asked, ‘When do burn injuries happen?’, the respondents answered that burn injuries are more common in winter because people sit beside fires to keep warm.

Immediate measures of burn injuries

The rural population have their own beliefs regarding practices that should be performed immediately after a burn injury. In answer to the question, ‘What measures are taken immediately after a burn?’, they mentioned the following first aid practices.

For cooling down, soothing the pain of burns and preventing blistering, rural people normally used raw eggs on the wound. They also used the rotten part of banana trees, soaked the wounds with water again and again, and applied ice to wounds. Pasting the area of the wound with mud, toothpaste, onion, raw potato mash, coconut oil, kerosene oil, and a mixture of limewater and coconut oil were also identified as first aid practices for burn injuries.

To avoid scarring of the wound, they used sesame oil, juice of ‘kapila’ leaves, different herbal medicines made out of leaves of herbal plants, a mixture prepared by boiling milk, sesame oil and wax together, etc. They sometimes applied heat to the burn wound in the belief of destroying the ‘poison’ (*beesh*).

Very few of the respondents mentioned using antiseptic powder or burn ointments/creams. Use of plain cold water in acid burns was mentioned by the participants, which they had learned from the mass education campaign against acid burns.

Regarding the use of health facilities, a hierarchy of responses was mentioned: (1) Kabiraj, rural practitioners and use of herbal medicines were the first choice; (2) if the victim was not cured, they were taken to a qualified doctor or private clinic if needed; and (3) in the case of an electric shock or acid burn, the victim was taken directly to hospital.

Perceptions regarding prevention

In answer to the question, ‘How can burn injuries be prevented?’, most respondents replied that constant supervision was required to prevent burn injuries among children. They mentioned that childhood burn injuries could be prevented by modifying the household environment, e.g. limiting children’s access to fire and heat sources. They suggested that children should not be assigned to do any activity that might cause a burn injury. One father described such an incident:

“A 5-year-old girl was asked by her mother to light a ‘kupi’ (an indigenous lamp) from the cooking stove. While trying to do so, her dress caught on fire and she was seriously burnt.” (Rural father)

When asked whether they were paying attention to prevention, the participants said that they were not consciously doing so. They

were not sure about being able to handle the situation themselves, saying, “*We are poor, illiterate people. How can we solve these problems?*”

Role of community in childhood burns prevention

The participants were asked, ‘What should be the role of the community in childhood burns prevention?’ They suggested that all members of the community should dispose of hot ashes away from living spaces, so that children can be kept away from these areas. Furnaces for parboiling rice or boiling cane juice should be located far away from dwellings so that children do not become victims of burn injuries by touching or getting into hot pans or cauldrons. Awareness raising campaigns can be organized using slogans urging communities to turn off burners or other kitchen stoves when they are not being used. Strong social resistance must be encouraged against throwing acid.

Government initiatives expected

During the discussion, the participants mentioned that government agencies should be engaged in awareness raising activities about prevention and management through various media. Government health workers could check homes and surroundings for risk areas for burn injuries. Electricity service providers should check electricity lines at regular intervals, and faulty lines should be fixed at once. A fire service station should be established in every union. The Government should impose strict laws on buying and selling acids, fire-crackers, etc. and execute them accordingly.

Discussion

The FGDs provided important insight into the community’s knowledge and perceptions regarding burns as a cause of mortality and morbidity among children. The FGDs also helped to collect suggestions for effective prevention. The qualitative methodology made available essential information that may not have been obtained through a quantitative approach. The open-ended process provided participant-generated rather than researcher-generated information regarding childhood burn injuries and their prevention.¹⁴

The focus group participants had a good level of understanding about childhood burns and its consequences. They also had some ideas regarding prevention. The findings of this study can be used to help design prevention programmes for childhood burn injuries. The rural people reported that children under 5 years of age were more vulnerable to burns, and that adolescent girls were a high-risk group because they were involved with cooking and other activities in the kitchen. The findings of quantitative studies in Bangladesh support the perceptions of participants in the present study.^{4,5} The focus group participants identified that lack of supervision and a hazardous environment were the main risk factors for childhood burn injuries. According to them, adult household members did not pay sufficient attention to young children, and household chores kept mothers so busy that they forgot to keep watch of their young children. Consequently, constant supervision and environmental modifications around the house were suggested as preventive approaches against childhood burns. These are consistent with the findings of other studies.^{15–17}

Interestingly, discussions revealed that although rural people had sufficient knowledge about how, where, when and why childhood burns can happen, they were not paying much attention towards prevention. Studies have found that children belonging to families that have already experienced a childhood burn injury

were at greater risk of a subsequent burn accident.¹⁸ The authors suggest that rural parents do not consider prevention to be their responsibility. Without anyone to make them aware of the situation, the rural people of Bangladesh are more likely to accept this as a way of life, leaving everything to fate or God’s will. According to their own comments, their poverty and illiteracy prevent them from thinking that they can arrange simple preventive measures themselves. Murphy (2001) reported that more than half of mothers did not believe that injury is preventable.¹⁹ It is possible that this type of belief also applies in the present situation, although such ideas were not revealed by the participants of this study.

Proper first aid has been proven to be useful in minimizing burn injuries, reducing post-burn hyperthermia, pain and morbidity.²⁰ Information given by the group discussants revealed alarming first aid practices in the rural community. People were using raw eggs, rotten banana trees, mud, lime water, coconut oil, kerosene oil, salt etc. on the wounds as first aid or treatment. Such practices are liable to make the injury more complicated, facilitating infections, prolonging the illnesses and contributing to permanent disabilities. This picture is similar to traditional first aid practices revealed in other developing countries.^{20,21} Lack of appropriate knowledge and having incorrect knowledge is the reason for such improper practices. For minor burns, use of water is recommended. Active cooling removes heat and prevents progression of the burn. This also removes noxious agents and reduces pain, and may reduce oedema by stabilising mast cells and histamine release.²² Rural respondents did not mention the use of cold water as first aid for burn injuries, except for acid burns. This could be because, in Bangladesh, the Government and a number of non-governmental organizations are working on acid burn prevention. The media is actively involved in promoting acid burn prevention programmes. Awareness of good practices for acid burn treatment might be the outcome of these programmes. This finding supports the fact that awareness programmes could contribute to positive behaviour change regarding burns prevention and first aid. Such an educational programme for burns prevention might have a significant effect on the reduction of burn morbidity, mortality and disability.^{23,24}

This is the first qualitative study related to burn injuries to be conducted in Bangladesh. The study findings will help to prepare a feasible and acceptable strategy for the development of a community-based burn prevention programme in rural Bangladesh. The study was conducted in one rural area of Bangladesh, so the findings may not reflect the perceptions of all rural populations.

Conclusion

In order to design a burns prevention programme in a rural community in Bangladesh, special attention needs to be given to how to improve existing knowledge and how to put that knowledge into practice. In this regard, education programmes can be an important initiative. Focus group participants in this study also identified awareness programmes as an approach to burns prevention. Educational programmes could bring some positive behavioural changes for rural people, such as disposing of hot ashes in a safe place and preventing children’s access to fires or heat sources. Educational programmes could help lead to better supervision by caregivers, and improved knowledge and practices regarding management of childhood burn injuries.

Ethical approval

Ethical Review Committee of Institute of Child and Mother Health, Dhaka.

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Competing interests

None declared.

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