

Exploring Barriers to Utilization of Poison Centers: A Qualitative Study of Mothers Attending an Urban Women, Infants, and Children (WIC) Clinic

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Abstract. Objective. Prior research regarding poison center utilization identified risk factors for underutilization including race/ethnicity and acculturation. The purpose of this study was to understand factors contributing to underutilization of poison centers by low-income and minority mothers.

Methods. Focus groups were conducted with women attending an urban Women, Infants and Children clinic. Transcripts were analyzed for themes and key points.

Results. Twenty-two English-speaking mothers and 21 Spanish-speaking mothers participated in 7 groups. Participants viewed poisoning as a serious problem to which all children are susceptible. English-speaking mothers had heard of the poison center but were unaware of services provided. They preferred to use the 911 system, which was viewed as immediate medical assistance and was an easy number to remember. Women questioned the credentials of the poison center staff. Spanish-speaking mothers had limited knowledge of poison centers and were concerned about language barriers.

Conclusions. To increase utilization of poison centers, educational interventions must address these specific needs and misconceptions and should be produced in Spanish and English versions. *Pediatrics* 2000;106:199–204; *poison centers, children, barriers, utilization, low-income.*

ABBREVIATION. WIC, Women, Infants, and Children (clinic).

Each year more than 1 million cases of unintentional poisoning exposures involving children are reported in the United States.¹ Poison centers provide immediate telephone advice to a caller on optimal management of any type of poisoning exposure. Because the majority of poisonings involving children can be safely managed at home, poison centers reduce health care costs for childhood poisonings by preventing unnecessary health care facility visits.^{2–4} Poison centers also reduce morbidity by expediting referral to a health care facility when necessary.⁵

Poison centers must meet certain standards to be

certified with the American Association of Poison Control Centers.⁶ Included in these standards are accessibility to callers 24 hours every day and “the ability to respond to inquiries in languages other than English as appropriate to the region.” Poison centers must also provide access for the hearing-impaired. Comprehensive poison information resources must be available at each site, and specific staffing requirements and qualifications are outlined.

Unfortunately, there are many parents who do not use poison centers for unintentional poisonings and instead take their children directly to the emergency center for evaluation. In a previous study, we found that 46% of children evaluated in an urban pediatric emergency center for unintentional poisoning were brought by a caretaker (usually the mother) who had not called the poison center first for advice.⁷ Variables associated with mothers who did not call the poison center were African-American race, Hispanic ethnicity, attending school in Mexico, Spanish language preference, age <25 years, less than high school education, and having Medicaid for the child’s health insurance. Multivariate analysis showed the most statistically significant variables to be African-American race and attending school in Mexico. Of those mothers who did not call the poison center, 68% knew about the center before the incident. Thus, for this population, having knowledge about the poison center was not a sufficient determinant of utilization.

There is a paucity of information in the literature addressing the issue of underutilization of poison centers by low-income minority groups. One study in 1992 reported results from interviews with 32 low-income, African-American women regarding use of poison prevention measures and poison center resources.⁸ Lack of awareness of the poison center, lack of access to the poison center’s number, no telephone access, and preferred reliance on trusted health care providers were cited as factors limiting poison center use.

We used focus groups, a method of qualitative research, to compare low-income English-speaking and Spanish-speaking mothers’ knowledge, attitudes, and behaviors about childhood poisonings and the poison center. The purpose of this study was to explore in depth, factors influencing underutilization of the poison center by low-income, minority mothers. We felt it was important to learn

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about mothers' understanding of poisonings and the poison center in their own words. This information would be used to enhance the development of an educational intervention for this population.

METHODS

Format

Focus groups are informal sessions involving members of the target population who discuss their thoughts and beliefs on a defined area of interest.⁹ Focus groups help identify perceptions, misconceptions, and attitudes about specific topics. This method promotes group interaction and facilitates open and spontaneous responses from participants and thus can provide richer information than that obtained by individual interviews. However, because focus groups are conducted in this informal manner without the stringencies imposed by traditional quantitative methods, results must be interpreted differently. Results are reported as general ideas and themes, which emerge from discussions. Absolute numbers or percentages are not appropriate methods of reporting results with these qualitative studies. Initially developed as a social marketing tool, focus groups are now being used in medical research to better understand health care issues.¹⁰⁻¹³

Setting

Focus group participants were recruited from an urban Women, Infants, and Children (WIC) Clinic in northeast Houston, Texas. WIC clinics provide supplemental food for low-income pregnant, postpartum, and nursing mothers and children from birth to age 5 years. At the time of this study, this WIC clinic served >200 clients per day with a racial/ethnic distribution as follows: 36% African-American, 60% Hispanic (predominantly of Mexican descent), and 4% white, non-Hispanic. We chose this setting for the study because the clinic served mothers whose demographic characteristics closely matched those of the population of interest. The study protocol was approved by the Institutional Review Board of Baylor College of Medicine and by the City of Houston Department of Health and Human Services.

Participants

Participants were a purposive sample of mothers of children <5 years old who were clients of the WIC clinic. This sampling technique is useful when the investigators want to compare and contrast subgroups.¹⁴ In this study, we were interested in comparing English-speaking and Spanish-speaking mothers. We recruited mothers from the waiting area at the clinic to participate in the focus group sessions using a script that described the research study. Interested mothers were given an appointment card and asked to return to the WIC clinic on the specified day to participate in the focus group. Participants gave oral consent to participate at the time of the session.

Approximately 60% of those who agreed to attend actually participated. All participants were provided with refreshments and given \$15 cash to compensate for their time and travel.

Focus Group Questions

We used constructs from the Health Belief Model and Social Cognitive Theory to develop the questions for the focus groups. The Health Belief Model proposes that to change or modify a behavior, individuals must believe that they are susceptible to a particular health problem and that this problem is serious. They also must believe that the benefits of making the behavior change outweigh barriers.¹⁵ In addition, an individual should feel competent to overcome perceived barriers to taking action. This concept, referred to as self-efficacy, is derived from the Social Cognitive Theory.^{16,17} Researchers now believe self-efficacy should be added to the Health Belief Model to increase the model's explanatory power.¹⁸ In this study, unintentional poisoning of a child was defined as the health problem, and calling the poison center was the desired behavior.

Mothers' attitudes and beliefs regarding unintentional childhood poisonings were explored and included perceived seriousness and susceptibility, benefits and barriers to use of the poison center, and self-efficacy issues. Questions were categorized into

3 areas: 1) poison prevention, 2) utilization of the poison center, and 3) strategies for educational interventions (Table 1). The first set of questions was designed to determine mothers' knowledge and beliefs about potential toxins and steps they took to prevent poisonings in their homes. The second group of questions explored mothers' knowledge, past experiences with and attitudes about the poison center. The last set of questions was designed to learn what mothers believed would be effective means of educating others about poison prevention and utilization of the poison center. Frequently, the moderators did not have to ask a specific question because responses spontaneously arose during discussion.

Data Collection

Sessions began with the administration of a brief questionnaire to obtain basic demographic data on the participants. Questions included the following: number of children between 6 months and 5 years old, ethnic/racial identification, last grade completed in school, and age. For Spanish speakers additional questions were: primary language spoken in the home, country of birth, country of schooling, and years in the United States. The 1-hour focus group discussions were conducted in round-table sessions and were moderated by 2 trained female researchers. Four English-speaking groups were led by 2 physician investigators (N.R.K. and J.Y.G.) and 3 Spanish-speaking groups were led by a native speaker who was a public health graduate student. Each session was audio-recorded, and the co-facilitator kept field notes of the participants' verbal and nonverbal reactions during the groups.

Data Analysis

The moderators discussed and summarized the content of each group discussion immediately after each focus group session. There were several reasons for immediate debriefing: to identify the most important themes and ideas; to determine if these differed from what was expected from the theoretical and empirical perspectives; to determine if anything should be done differently for subsequent groups; and to discuss differences from previous sessions.¹⁹ We did not find it necessary to modify the original focus group guide.

We conducted transcript-based analysis. The audiotapes were transcribed verbatim by project staff who attended the focus groups. Spanish tapes were transcribed and translated into English by the Spanish-speaking moderator. Initial review of the transcripts was conducted by the project investigators to identify general subject themes and to indicate where these themes

TABLE 1. Focus Group Questions

Poison prevention
What kinds of things can poison a child?
What happens to children who are accidentally poisoned?
How serious do you think it is if a child is poisoned?
What kind of children do you think this happens to?
Do you think this could ever happen to your child or a friend's child?
Do you know anyone that this has happened to?
What kinds of things can one do to prevent an accidental poisoning?
Poison center
Has anyone ever heard of the poison center?
What is the poison center?
When should one use the poison center?
Who can use the poison center?
How do you go about using the poison center?
Have you or anyone you know ever used the poison center?
What was your experience with the poison center?
Are there situations when you think that it might be better not to call the poison center?
Have you ever been afraid to call the poison center?
Can you think of any reasons why people might not want to call the poison center?
Education
What would be some good ways to let women/parents learn about the center?
What would make this interesting to you?

appeared in the transcripts. Consensus on a final coding scheme was reached after both investigators had read all transcripts. To increase reliability of the analysis, transcripts were manually coded by each investigator and compared. No significant differences between coding of themes were found. After analyzing the English-speaking and Spanish-speaking groups separately, the researchers identified differences and similarities between the English- and Spanish-speaking groups.

In contrast to quantitative research, validity in qualitative research is concerned with accepting participants' responses as truthful.¹⁹ Using appropriate procedures throughout data collection and analysis enhanced the validity of our results.^{9,19} The focus group approach was suitable for the research question. We conducted the groups in a manner that ensured anonymity, minimized group pressure, and encouraged honest and spontaneous discussion. Also, the group leaders were experienced and trained professionals who listened carefully to the women, sought clarification of verbal and nonverbal responses, and asked the women to verify summarizing comments.

RESULTS

Seven focus groups were conducted with 43 women (22 English-speakers from 4 groups and 21 Spanish-speakers from 3 groups). Racial/ethnic breakdown of the English-speaking mothers was 65% African-American, 20% Hispanic, and 15% white, non-Hispanic. Median age for the English-speakers was 32 years (range: 19–58) and for Spanish-speakers was 27 years (range: 20–37). Spanish-speakers were born in Mexico (67%), Central America (19%), and the United States (14%). All participants in Spanish-speaking groups spoke Spanish as the primary language in their home. Median number of years of education for English-speakers was 12 (range: 8–16) and for Spanish-speakers was 7 (range: 0–16). Spanish-speakers received their education in Mexico (55%), in Central America (20%), in the United States (15%), and both in the United States and Mexico (10%). The median number of years lived in the United States for Spanish-speakers was 10 (range: .75–28).

Seriousness and Susceptibility

Mothers consistently expressed the belief that poisoning in children is a very serious condition and can result in death. When asked to describe what happens to a child who is poisoned, they provided graphic images of children in distress: "Foaming at the mouth;" "Eyes rolling back;" "Convulsions;" "Skin turning colors;" "Choking, can't breathe."

All of the women viewed their children as susceptible because of their active and curious nature. They did not view themselves or other parents as negligent and believed that poisoning could happen to anyone: "To the best mother, even the most careful one."

When asked to identify potential toxins, the mothers listed those most frequently ingested and placed a special emphasis on household bleach: "Bleach is very harmful . . . there is no doubt." Medications were not always viewed as potential poisons: "My kids haven't got into poison. They have got into pills but haven't messed with the household cleaning stuff."

Benefits

All mothers who had called the poison center found the staff to be very helpful and reassuring: "They are nice people, real calm." Experienced mothers expressed a feeling of relief after speaking with the poison center. Preventing unnecessary trips to the emergency department and not wasting time were also seen as benefits of calling the poison center compared with going directly to the hospital.

Barriers

In contrast to seriousness and susceptibility of poisonings and benefits of calling the poison center, the English-speaking and Spanish-speaking groups differed in potential barriers to use of poison centers. English-speaking mothers said they had heard of the poison center but did not recall its functions or remember how to access it. Spanish-speaking mothers had not heard of the poison center, and they did not know what services were provided. Bilingual mothers expressed more awareness of the existence and functions of poison centers than those who spoke only Spanish. Sources of information about the poison center included self and others' experiences, television, and radio.

Because the English-speaking mothers were more familiar with poison centers, they more readily expressed perceptions about the services. These women questioned the qualifications and training of the staff, and they expressed the following concerns: calling would delay treatment because they might be put on hold or the line would be busy; the poison center might refer them to the hospital anyway; staff would be rude. Seeking care via 911 and directly from a hospital were seen as more personal and caring approaches. Mothers expressed a preference to deal with a doctor. The poison center staff members were viewed as scientists and potentially not helpful: "You say '911', I see hospitals and doctors. You say 'poison control' I imagine a building with scientists studying poison. I don't see help." Some mothers grouped the type of poison with the type of treatment center they would use: "Any kind of pills or medicine, I think that's doctor stuff. The household things would be poison control;" "I don't know why it is for medicine, you just don't think of poison control." Product labeling contributed to this perception: "Containers say 'consult physician' and to me, 911 would be the closest thing. To me, I don't see poison control as physicians."

Both groups of mothers expressed a preference for calling 911 for other reasons. A 3-digit number was easier to recall and dial than the poison center number and was more accessible in an emergency. Calling 911 was perceived as a faster way to get medical assistance. Every mother was familiar with the 911 service and stated it was better advertised than the poison center.

Inability to speak English was a recurrent concern for the Spanish-speaking mothers. They be-

lieved that no one at the poison center would speak Spanish. They also feared delay in treatment while waiting for a translator or being asked to call back later. Another cultural barrier was fear of not knowing the laws of the United States and being perceived as a negligent mother: "They may want to take the kids away from you if you were neglecting them."

Potential accusation of neglect was also an issue for the English-speaking mothers. They were afraid a poisoning incident would be considered neglect and that the poison center would report them to Child Protective Services. Inaccessibility to a telephone was mentioned by both groups as a potential barrier to calling the poison center.

Self-Efficacy

Both groups of mothers expressed low self-efficacy with regard to carrying out recommendations from the poison center: "It depends on the specific case and how capable of reacting is the person that makes the call. If the person is unable to do what they say has to be done, she will have to call 911." Panic and inability to think clearly when a child is suffering also were seen as potential barriers to following poison center's instructions: "I might not do it right . . . 911 won't panic like me . . ." Spanish-speaking mothers stated that shyness would prevent some Latina women from calling.

Preferred Methods of Learning About the Poison Center

Mothers were asked to suggest strategies for informing women about the poison center. The Spanish-speaking groups were most interested in accurate information from reliable sources. One mother stated that having the information ahead of time would prevent panic if a poisoning occurred. "Real life" scenarios showing how the poison center staff and mother would handle emergencies were suggested by all groups. Using a format similar to the "Rescue 911" television show was mentioned as an attractive approach. Television and videocassettes were the most preferred means for obtaining information and for reaching other family members. Posters and pamphlets were also mentioned as acceptable strategies and should be placed in locations frequented by mothers such as doctors' offices, pharmacies, grocery stores, laundromats, and food stamp distribution centers.

DISCUSSION

Increasing parental use of poison centers can improve medical care for children exposed to toxins in several ways: initiating treatment earlier; preventing unnecessary utilization of emergency services; preventing unnecessary treatment by parents and health care providers; and decreasing medical costs.²⁻⁵ The design of interventions to promote such behavior change should use appropriate behavioral science theories and empirical evidence to understand and then intervene on factors contributing to the behavior. Failure to do so is analogous

to proposing medical treatment before understanding the pathophysiology of the condition. This study explicated personal and environmental determinants of poison center underutilization in a high-risk population of mothers.

Theoretical constructs from the Health Belief Model and Social Cognitive Theory provided a framework for exploring these factors. Discussion from the focus groups gave valuable information that otherwise would not have been obtained. Seriousness and susceptibility of childhood poisoning were significant determinants of seeking treatment, but they did not contribute to using the poison center. Because these mothers consistently expressed extreme concern regarding the effects of poisoning, we determined that an intervention should minimize fear arousal rather than increase mothers' perception of threat to their children.

Self-efficacy is the level of confidence that one can successfully execute a specific behavior. Numerous studies support that self-efficacy is an important predictor of behavior.^{16,17} This construct can be considered one barrier to utilization of the poison center. Both English and Spanish-speaking mothers voiced doubts about their ability to understand and carry out recommendations from the poison center staff. Analysis of the focus group data attributed this lack of self-confidence to several factors: being too shy to initiate the call and fear of not understanding the language (Spanish speakers); urgent nature of poisoning and mothers' panic inhibiting their ability to perform necessary treatment at home (both groups). The implication for intervention development is to use an educational method that increases the observer's self-efficacy. Observational learning through modeling is a powerful and efficient approach for addressing self-efficacy. By observing women like themselves interacting with the poison center and successfully implementing treatment recommendations, mothers' self-efficacy for this set of behaviors should improve and thus increase the likelihood that they will use the poison center.

The 2 groups of mothers demonstrated differences and similarities in barriers to using the poison center. Although lack of knowledge about this service and perceived language barriers were issues for Spanish-speaking mothers, the English-speaking women were concerned about the competence of the staff, especially for dealing with medication ingestion. Negative outcome expectations were common barriers. Treatment delay, impersonal treatment, and fear of being labeled as negligent were prominent themes. Modeling and testimonials are effective methods for addressing these negative outcome expectations through vicarious reinforcement. This can be done by hearing other women's experiences with the poison center and viewing positive outcomes resulting from desired behavior. Benefits of using the poison center that were identified by the focus groups can be addressed with such an approach.

Some important barriers are external to the population. These include the inherent difficulty of

recalling a 7- or 10-digit number, inaccessibility to a telephone, the product labeling, and inadequate provision of information about the poison center to this population. These factors need to be addressed using methods other than those developed for personal behavior change and reiterate the importance of including targets for change besides individuals. Although addressing such issues was beyond the financial scope of our intervention efforts, these findings could be presented to key agents of policy and organizational change.

The expressed preference to call 911 was attributed to the societal norm, the shorter phone number, and the desire by some mothers to have medical personnel dispatched to their home. In many cases, calls made to 911 concerning poisoning incidents are routed to the poison center once the problem and severity of the situation is understood. One could argue however, that it is preferable in most cases for parents to call the poison center directly for a poisoning incident for 2 reasons. First, this would allow the caller to reach the poison center more quickly. Second, this would reduce the number of calls to an already busy 911 system.

The participants' preferences for learning about the poison center were congruent with our proposed theoretical methods and strategies. Their suggestion to use scenarios with "real-life moms in real-life situations" was an accurate lay description of role-modeling. Although they did not understand all of the reasons for such an approach, these low-income mothers knew as well as experienced social scientists that knowledge is a necessary but not sufficient predictor of behavior change.

There are several limitations to this study. Participants were not selected at random, but instead were purposively recruited from English- and Spanish-speaking mothers. There is a potential bias in obtaining participants in this manner. Mothers who chose to participate may have differed from mothers who declined participation at recruitment, and also from mothers who agreed to attend but ultimately did not. Participating mothers may have been more highly motivated to learn or may have simply had a more easily manageable schedule. This may account in part for the relatively older age of participants. In addition, only 1 clinic site was used for the recruitment of participants. Nevertheless, we believe that the mothers in our purposive sample were culturally and ethnically similar to the population of interest. We do not presume that these participants completely reflected all the beliefs of mothers in these racial and ethnic groups. However, the findings in each focus group were so consistent, we felt that additional groups were unnecessary.

We did not delve into the various subgroups of Spanish speakers, with regard to acculturation, education, or age. This might be considered a limitation if broad generalizations were to be made concerning this population as a whole. However, the purpose of this study was instead to gain a better

understanding of general themes that were congruent from group to group to help in the creation of an educational intervention.

CONCLUSION

In summary, qualitative data from focus groups and constructs from behavioral science theories were used to understand why the target population underutilized poison centers. This approach provided a method for collecting information not obtained by usual survey methods. Interaction between participants gave us greater insight into their social and cultural perceptions and behavior. Without their input, we would not have discovered the different barriers to poison center utilization between English- and Spanish-speaking mothers. In addition, we determined that the hypothesized importance of seriousness and susceptibility were factors that contributed to overutilization of emergency services, and therefore mothers' emotional arousal should be addressed. Using these findings, we will develop and evaluate a videotape intervention to increase poison center utilization by low-income minority mothers.

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