Formative Research in Occupational Health and Safety Intervention for Diverse, Underserved Worker Populations: A Homecare Worker Intervention Project

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SYNOPSIS

Objective. The increasing numbers of minority, low-income, and contingent workers in the U.S. labor force present new challenges to occupational safety and health interventions. Formative research can be used to help researchers better understand target populations and identify unanticipated barriers to safety changes. The National Institute for Occupational Safety and Health initiated an intervention project to improve health and safety among homecare workers in Alameda County, California. Investigators conducted systematic formative research to gather information to guide intervention development.

Methods. Various qualitative methods were used including 11 focus groups (conducted in English, Spanish, and Chinese) and 10 key informant interviews. This article focuses on two picture-based focus group activities that explored workers' views on their relationships with consumers and their perceived barriers to interventions.

Results. Findings indicated cultural differences regarding workers' perceptions of their relationships with consumers. Chinese homecare workers mostly focused on respecting elders rather than initiating changes. Some English- and Spanish-speaking workers described efforts to negotiate with consumers. Results also identified workers' perceived barriers to interventions, such as consumers' resistance to changes and lack of resources. These findings played important roles in shaping the intervention materials. For example, given the lack of resources among consumers, the project tried to tap into community-level resources by collaborating with local stakeholders and developing community resource guides.

Conclusion. Formative research can be a valuable step to inform the development of occupational health and safety interventions for diverse, underserved worker populations.

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During the second half of the 20th century, the size of the working population in the United States doubled, increasing by 79 million workers. The composition of this expanded workforce reflects the country's changing demographics. A greater proportion of the workforce is foreign-born and Hispanic, and the aging of the baby boom generation has led to an increase in the median age of the workforce.[1,2] The organization of work is also changing as more people are employed in nontraditional roles such as part-time workers, independent contractors, and employees of temporary agencies. Compared with workers in traditional work settings, these workers are more likely to be young, female, and members of a minority group, and are more likely to have lower incomes.[3]

The changing workforce presents new challenges to developing and implementing effective occupational safety and health intervention programs. As the workforce becomes more diverse, the effectiveness of occupational safety and health programs can be compromised by factors such as workers' languages, literacy levels, and cultural backgrounds. In workplaces that employ low-wage and temporary workers, economic pressures may also make workers wary of new work practices. Workers may fear that the changes might lead to a reduction in the size of the workforce. Combined, these factors can influence workers' understanding of risk communication materials and create barriers to adopting new work practices, thus potentially compromising the success of an intervention program.

One approach to addressing these challenges is to conduct systematic formative research as part of the intervention development process. Formative research refers to research activities that are conducted at the initial stage of the intervention development to assess beliefs, perceptions, behaviors, the environmental structures, and other factors that may inform intervention development and enhance intervention effectiveness.[4] Formative research helps intervention planners and researchers better identify and understand target populations. Conducted in a participatory fashion, formative research can be used to generate knowledge about local conditions and, therefore, build trust, collaboration, and acceptance of the project.[5,6] The process is particularly important when diverse populations are involved. Methodologically, formative research employs a variety of quantitative and qualitative methods, including focus groups, key informant interviews, surveys, observations, and archival data analyses.[6,7]

Applying formative research to occupational health and safety intervention programs is one way to tackle new challenges among increasingly diverse worker populations. For an intervention to be successful, it is important to engage workers in developing and implementing the intervention. The use of formative research allows researchers to gather information about workers' awareness of workplace hazards, their attitudes toward the proposed intervention, and their perceptions of barriers to interventions. Consequently, researchers can better understand and eliminate potential barriers. It is also useful to tailor programs to the specific concerns of a particular workforce. The changing demographics of the workforce may present unanticipated concerns based on cultural norms or economic pressures; safety and health professionals in charge of the intervention may be unfamiliar with such concerns and barriers. The process of formative research may be especially important to help recognize the concerns within diverse and low-status worker populations.

In this article, we used a homecare worker intervention project to illustrate how formative research can be conducted and used to inform the design of occupational safety and health interventions. Homecare workers—who provide routine personal care services and housekeeping to elderly, disabled, and ill individuals—constitute one of the fastest-growing occupational groups in the U.S.[8] According to the 2000 Census, 90% of homecare workers are women, 50% are minorities, and 25% speak a language other than English at home.[9] They are also low-wage and low-status workers.[8] Health and safety interventions for homecare workers face particular challenges due to the multicultural, multilingual, and low-status nature of this population. This study serves as an example of how formative research can be used in the development of occupational health interventions for diverse, underserved worker populations.

BACKGROUND

Beginning in 2001, the National Institute for Occupational Safety and Health (NIOSH) of the Centers for Disease Control and Prevention (CDC) conducted a study assessing the causes and prevention of occupational injuries and illnesses within the California publicly funded homecare program.[10] California uses a consumer-directed model for the provision of services.[11] In this model, the consumers of services (the clients) are responsible for recruiting, hiring, training, directing, and firing their homecare workers. Throughout California, more than 400,000 people receive services at an annual cost of more than $700 million.[12] Alameda County, which includes the city of Oakland in northern California, has approximately 16,000 homecare workers.

The NIOSH study examined the health and safety risks for homecare workers in Alameda County. Findings from this study indicated that housekeeping tasks were as physically demanding to workers as consumer lifting and transfer tasks; that workers typically did not have knowledge nor adequate tools or equipment to complete their required tasks; and that most consumers' homes were not equipped and/or configured to allow for the efficient delivery of needed services.[10] Moreover, no program was in place to assist homecare workers or consumers in assessing risk or obtaining safety equipment such as gloves, safer chemicals, or ergonomic tools for workers.

Based on these findings, in 2006 NIOSH initiated a five-year intervention project to improve health and safety among homecare workers in Alameda County. Collaborators included local research partners, the workers' labor union, and the county agencies responsible for the program. The proposed interventions include both educational materials (e.g., safety checklists and community resource guides) and social marketing messages to help disseminate the materials. The goals are to help workers recognize hazards and identify simple, accessible, and low-cost equipment and services to improve their health and safety. The study also seeks to empower homecare workers to collaborate with consumers in raising hazard awareness and implementing safety interventions.

Prior to creating the intervention materials, systematic formative research was conducted to identify major attitudes and concerns of homecare workers and their consumers toward health and safety on the job. Because a primary goal of the planned intervention was to raise workers' confidence in their own ability to identify and eliminate work hazards, the formative research activities also attempted to identify the major obstacles that prevent homecare workers from making safety improvements.

METHODS

Various qualitative methods were used in the formative research stage. Specifically, six focus groups were conducted with homecare workers (two in English, two in Spanish, and two in Chinese), four focus groups were conducted with consumers (two in English, one in Spanish, and one in Chinese), and one was conducted with social workers (in English). English, Spanish, and Chinese languages were used, as they are three major languages in the target population. Additionally, 10 key informant interviews were conducted with local stakeholders to gather information on institutional barriers to health and safety for workers. These formative research activities generated voluminous data, all of which cannot be reviewed in this article. We have, therefore, limited the article to presenting key findings from two specific focus group activities with homecare workers. These two activities addressed two research questions: (*1*) "How do workers view their relationships with their consumers?" and (*2*) "What are workers' perceived barriers in making safety and health improvements?"

The first activity—an associative imagery activity—was conducted as an icebreaker to elicit homecare workers' general attitudes toward their work and their relationships with consumers. The associative imagery activity used a metaphorical technique to allow respondents to associate photos with their own emotions.[13] Participants were shown a number of pictures and asked to choose one that best represented their relationship with their consumers and explain why. Pictures that were colorful, dynamic, and abstract were selected for this activity, such as pictures of a bowl of bright oranges, a field of daisies, fireworks exploding in the sky, and the Leaning Tower of Pisa.

The second activity—a "thought bubbles" activity—was aimed at gathering more specific information on the workers' ability to successfully raise and resolve concerns about health and safety at work and their perceived barriers to making safety changes. Focus group participants were shown a flip chart with two stick figures with bubbles above their heads and given the following scenario: "A worker is approaching the consumer because he or she has back pain from scrubbing the floor and wants to request a mop or some other equipment." Participants were asked to answer two questions: (*1*) "What are the worker and the consumer thinking?" and (*2*) "What might the worker and the consumer be worried about?" (In other words, what might be the thoughts in the bubbles above their heads?)

Methodologically, both activities employed nontraditional focus group techniques that were purposely designed for the multicultural, multilingual, and multiethnic target population with a range of literacy levels. Past research has shown that pictures and photographs in focus groups work successfully with diverse, low-literacy, and sensitive populations.[13,14] Compared with a traditional question-and-answer method in focus groups, picture-based activities tend to transcend linguistic and literacy boundaries. These activities are likely to elicit lengthier, richer responses characterized by more descriptive language and sometimes hidden feelings and perceptions.[14]

The focus groups were audiorecorded and transcribed verbatim in the original languages. The

transcripts were imported to NVivo 7, a qualitative data analysis software program.[15] Two bilingual researchers (one fluent in English and Spanish, and the other fluent in English and Chinese) analyzed the data in NVivo. Regarding the associative imagery and thought bubbles activities, two broad categories of codes—"worker/consumer relationships" and "barriers to safety changes"—were first created deductively, based on predetermined research questions. Under each broad category, codes emerged inductively as two researchers read through transcripts independently. Two researchers met regularly to compare, discuss, and consolidate their codes. A third researcher reviewed and commented on the coding. As a result, under the "worker/consumer relationships" category, subcategories of codes were identified such as "change of attitudes," "mixed attitudes," "positive attitudes," and "negative attitudes." Under "barriers to safety changes," subcategories of codes included "lack of communication," "lack of resources," and "job insecurity."

RESULTS

The associative imagery and thought bubbles activities provided information regarding workers' views on their relationships with their consumers and their perceived barriers to making safety changes. It was important to understand relationships between homecare workers and consumers because the safety interventions designed for homecare workers require that they work collaboratively with consumers to address health and safety concerns. Furthermore, identifying the barriers perceived by workers would help researchers better recognize and address the barriers to enhance intervention effectiveness.

Workers' views on their relationships with consumers

An important finding from the associative imagery activity was that the pictures triggered different emotions and reactions among various cultural/language groups regarding the relationship between homecare workers and consumers. English- and Spanish-speaking homecare workers were more direct in expressing their mixed or sometimes negative emotions regarding their relationships with their consumers. Chinese-speaking homecare workers mostly focused on expressing respect for the elders they cared for and described attitudes consistent with Chinese sociocultural norms of hierarchy, placing themselves at the lower level and the elder at the higher level.[16] For example, a Chinese homecare worker who selected a photo of a geyser stated the following (translated from Chinese):

> Now, after seeing this picture [a geyser], I put the elders as priorities. My own position is below theirs. He is the geyser, above the ground. If I put the elders as the top, and consider myself lower to them, my work would be smoother. I would do whatever they ask me to do. I would obey them. For the two hours, I would do shopping if they want me to do shopping; I would bathe them if they want me to bathe them; I would cook; I would finish two hours of work and leave happily. It would be very difficult if you argue with them. If I obey everything you say and put you at the top, like the geyser always above me, there's nothing left for us to argue.

Although choosing a different photo of a traffic light, another Chinese worker expressed very similar beliefs of hierarchical relationships and the importance of obeying the elders (translated from Chinese):

> I chose the traffic light picture because it's like traffic police. You can't go when the light is red, and you can go when the light is green. When we serve the elders, we should consider their interests as priorities. We should try our best to do our work well. We should not upset him if he says no.

Chinese homecare workers talked about the process of gradually adapting themselves to the consumers' needs, rather than making any effort to suggest that the consumers make changes. One Chinese homecare worker associated the relationship to a picture of a pyramid (translated from Chinese):

> When you first start working at someone's home, it is all strange environment and you don't know what it's like. . . . You don't know what is hidden inside the pyramid. Besides, the pyramid is huge and you should learn to adapt yourself to it slowly, just like when something happens between two people, you should learn to be understanding. . . . It is not easy to go inside the pyramid, and you need to do it little by little.

In contrast, none of the English- and Spanish-speaking homecare workers considered their relationships with consumers as hierarchical. Some of them expressed negative emotions and frustration. They described their consumers as sometimes "mean," "rude," and "grouchy." A few English-speaking homecare workers mentioned that the photos of the geyser and the fireworks reminded them of explosions, because they sometimes wanted to explode when caring for elderly consumers, and they had to learn to be patient. Instead of expressing obedience to consumers, as the Chinese workers did, English- and Spanish-speaking workers were more likely to describe their relationship as one of negotiating with the consumers to make their work better for themselves. For example,

a Hispanic homecare worker stated the following (translated from Spanish):

> When I began to work with [my client], he was very rude, aggressive, and over time I have been like modeling him because I do not [work] with the rude ones, I can't [handle] rudeness. . . . [I tell him,] "I don't understand what you are saying. If you speak to me nicely, I understand. If you yell at me, I don't understand" . . . and I try to be very respectful.

These examples illustrate how culturally rooted views and beliefs might influence one's perceptions toward relationships between homecare workers and consumers. Understanding these cultural differences can inform group-targeted and culturally tailored intervention materials and social marketing messages. For example, it would be important to develop messages and strategies to empower Chinese homecare workers to initiate safety changes with consumers while incorporating the cultural value of respecting elders.

Workers' perceived barriers to making safety changes

The thought bubbles activity was intended to specifically examine workers' perceptions of barriers that may prohibit them from successfully controlling health and safety risks at work. A range of perceived barriers were identified, including workers' concern with job security, consumers' resistance to change, and consumers' lack of resources.

Some homecare workers were unwilling to communicate with consumers about job hazards for various reasons. One reason was that homecare workers were concerned about losing their jobs. A Spanish-speaking homecare worker commented that if a worker gets hurt, it would be best not to say anything because the consumer is going to say, "Since you shouldn't be working . . . I will find someone else." A Chinese homecare worker expressed a similar concern (translated from Chinese): "I feel miserable, but I didn't tell [my client that I did not want to do laundry using my own hands]. What would I do if I lost my job?"

Another reason for this unwillingness to communicate with consumers was that homecare workers perceived consumers as having a lack of interest in, or even being resistant to, making any safety changes. For example, an English-speaking homecare worker stated:

> I think that they are pretty much set in their ways . . . a certain way and if you deviate from it, just a little bit, it throws them way off base and it throws their whole world in[to] confusion, even if you know that you are going to suggest something. . . . [My client would say,] "I've done it this way for a million years, I don't want to change."

In other cases, homecare workers recognized that consumers' lack of resources may pose health risks for them. They attempted to make changes to reduce job hazards by approaching and communicating with their consumers to express their concerns. Yet, homecare workers encountered negative reactions, as consumers did not recognize these safety concerns for their workers and were unwilling to provide additional resources. A few examples include the following:

> (Translated from Chinese) Now the vacuum cleaner is too big and I have to vacuum every day. I can't move it. . . . I have to bring a small vacuum cleaner from my home. . . . And my client said that there's not enough room for [the small vacuum cleaner].

> The elderly lady that I'm taking care of, because of her age, she has no clue of what to do for me, because she has no . . . resources to help me with my back or anything like that and if you report it to the family members they say, "Oh well."

Understanding and overcoming such barriers revealed in these focus groups is essential to the development and success of the intervention program. For instance, because consumers may have limited resources, it is important to incorporate community partners to mobilize community resources in designing the resource guides as part of the intervention project.

DISCUSSION

Presently, the project has completed the formative research phase and the next stages will be devoted to designing, implementing, disseminating, and evaluating the intervention materials. Findings from the focus groups and other formative research have played important roles in shaping the intervention materials. Part of the complexity in working with homecare workers is the cultural diversity of this population. The project materials will be developed to target English-, Spanish-, and Chinese-speaking workers and consumers. In developing translations, it will be important to tailor messages to culturally sensitive views and beliefs expressed in the focus groups. For example, based on our formative research, the Chinese materials will need to be tailored to incorporate the values of respecting elders.

Another part of the complexity is that homecare workers face many barriers to improving health and safety, given the power dynamics between workers and consumers and the lack of resources on both sides.

Identifying these barriers is essential to the interventions' success. Results from focus groups suggested that homecare workers recognized multiple obstacles. Some of the most important obstacles included workers' lack of confidence in raising concerns to consumers, communication barriers between workers and consumers, and consumers' lack of resources.

The project has initiated several activities to address these obstacles. First, workers' lack of confidence in initiating changes can be improved by introducing change in small steps, learning from others' behaviors, and receiving encouragement.[17] The intervention will incorporate these elements through a simple workplace/home-safety checklist and a peer mentor program. The checklist will break down the complex behavior of identifying health and safety hazards into discrete, easy-to-use segments. This will allow for the experience of small successes that build confidence. Second, the intervention's educational materials will need to include tips on facilitating communication between consumers and workers with specific culturally sensitive messages. Lastly, given the lack of resources among consumers, the project is trying to better tap into community-level resources that can be directed toward advancing workplace safety and health. We are developing community resource guides that should help homecare workers and their consumers more successfully access these resources. The project has also created a strong stakeholder committee to foster collaboration with community service organizations that provide these needed services.

Findings from formative research activities that are not presented in this article revealed other information such as workers' hazard awareness, consumers' perspectives, and stakeholders' views on institutional barriers to improving health and safety for workers. All of these findings will be useful to shape the design of the proposed interventions.

CONCLUSION

While formative research has often been neglected in occupational safety and health intervention studies in the past, investigators need to recognize its importance, particularly when interventions target diverse, underserved worker populations. As shown in the homecare worker intervention project, formative research allowed us to better understand the health and safety concerns of the target populations, to recognize unanticipated barriers to making safety changes, and to create culturally tailored and sensitive intervention materials. When systematically planned and properly conducted, formative research can be a valuable step to inform the development and enhance the effectiveness of the interventions.

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