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Using Theoretical Constructs to Identify Key Issues for Targeted Message Design: African American Seniors' Perceptions About Influenza and Influenza Vaccination

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African American seniors (65 and older) are less likely to be vaccinated against influenza than are non-Hispanic White seniors. There is a clear need for targeted messages and interventions to address this disparity. As a first step, 6 focus groups of African American seniors ($N = 48$) were conducted to identify current perceptions about influenza and influenza vaccination. Emergent thematic categories were organized using the 4 main constructs of the extended parallel process model. Susceptibility varied based on perceptions of individual health status, background knowledge, and age-related risk. Some participants saw influenza as a minor nuisance; others viewed it as threatening and potentially deadly. Participants discussed issues related or antecedent to self-efficacy, including vaccine accessibility and affordability. Regarding response efficacy, some participants had confidence in the vaccine, some questioned its preventive ability or believed that the vaccine caused influenza, and others noted expected side effects. Implications and recommendations for message development are discussed.

Influenza and influenza-related illnesses are associated with 36,000 to 50,000 deaths, an average of 226,000 excess hospitalizations, and billions of dollars in health-care costs each year (Bridges et al., 2000; Centers for Disease Control and Prevention [CDC], 2006b; Thompson et al., 2004; Thompson et al., 2003). To put influenza in perspective, mortality rates indicate that influenza kills over twice as many Americans every year as HIV/AIDS (15,288) and almost as many as breast cancer (40,410; CDC, 2006a; Jemal et al., 2005; Thompson et al., 2003). Mortality related to influenza has doubled since the early 1990s (CDC, 2006b; Thompson et al., 2003). Influenza disproportionately affects persons aged 65 years and older; 63% of all influenza-related hospitalizations and over 90% of deaths in seasonal epidemics occur among this age group (CDC, 2006b; Thompson et al., 2004; Thompson et al., 2003).

Vaccination remains the primary option for decreasing both the spread and impact of influenza (CDC, 2006b). The CDC'S Advisory Committee on Immunization Practices recommends that adults ages 65 years and older receive an annual vaccination against influenza;¹ *Healthy People 2010* lists 90% vaccination of adults 65 and older as an objective (CDC, 2006b; U.S. Department of Health and Human Services, 2000). However, current vaccination rates among this population only reach approximately 64.1%; the highest vaccination level ever recorded for this group was 68% (Barnes & Schiller, 2007; CDC, 2006b).

In addition, there are significant racial and ethnic disparities in vaccination rates. Recent vaccination estimates for individuals 65 and older who reported receiving an influenza vaccination within the past 12 months were 67.2% among non-Hispanic Whites, 46.8% among non-Hispanic Blacks, and 44.8% among Hispanics/Latinos (Barnes & Schiller, 2007). *Healthy People 2010* identified eliminating health disparities as one of two overarching goals, with immunization noted as a focal area (U.S. Department of Health and Human Services, 2000). Both the Racial and Ethnic Adult Disparities in Immunization Initiative of the U.S. Department of Health and Human Services and the Adult Immunization Consensus Panel of the National Medical Association note the lacuna and, consequently, the need for concentrated efforts to increase influenza vaccination among African American seniors (Adult Immunization Consensus Panel, 2003; U.S. Department of Health and Human Services, 2002, 2004).

One study assessed the effect of managed care on influenza vaccination uptake and found racial disparities across both managed care and fee-for-service plans (Schneider, Cleary, Zaslavsky, & Epstein, 2001). A separate study of

Medicare beneficiaries found that unequal access accounted for less than 2% of the racial disparity and that provider discrimination was not the cause of the disparity (Hebert, Frick, Kane, & McBean, 2005). Rather, the apparent explanation for the disparity was that non-Hispanic White beneficiaries were significantly more likely than either African Americans or Hispanics to initiate medical encounters with the express purpose of being vaccinated. Hebert et al. conclude that eliminating missed vaccination opportunities would increase vaccination rates among multiple racial/ethnic groups. Other studies echo these findings, noting the importance of provider recommendation of influenza vaccination (Cowan, Winston, Davis, Wortley, & Clark, 2006; Nichol, MacDonald, & Hauge, 1996; Zimmerman, Santibanez, et al., 2003). A recent study, however, examined vaccination among Medicare beneficiaries and found that, even with provider recommendation, racial disparities persisted in receipt of influenza vaccination among African Americans and non-Hispanic Whites (Lindley, Wortley, Winston, & Bardenheier, 2006).

Although there is a need to increase provider recommendation of influenza vaccination, it is also important to pursue innovative approaches to increase vaccination rates among minorities. One promising approach is the development and dissemination of targeted messages. *Targeted* messages are designed to reach a defined population subgroup, generally based on demographic characteristics; they differ from *tailored* messages, which are created for individuals (Kreuter & Wray, 2003). Both tailored and targeted messages have been effective in health promotion efforts, including efforts related to influenza vaccination (Kreuter, Caburnay, Chen, & Donlin, 2004; Kreuter & Wray, 2003; Zimmerman, Nowalk, et al., 2003). The successful creation of targeted messages requires understanding the knowledge and attitudes of the community of interest. Thus, this study was designed to qualitatively assess African American seniors' perceptions regarding influenza and influenza vaccination, as well as reasons for past vaccination behavior, whether or not they received the vaccination, to inform the development of future influenza-prevention campaigns designed to increase vaccination rates among African American seniors in an attempt to reduce or eliminate racial disparities in influenza vaccination.

THEORETICAL FRAMEWORK

One approach to developing targeted messages using qualitative data is to organize coded findings by using an existing theoretical framework. Such a process facilitates the identification of crucial concepts to be included in the development of the proposed targeted message. The extended parallel process model (EPPM), developed by Witte (1992, 1994), incorporates elements of numerous health theories and models, such as the health belief model (Rosenstock, 1974), the parallel process model (Leventhal, 1970), social cognitive theory (Bandura,

¹The Advisory Committee on Immunization Practices identifies individuals age 65 and older as a high-risk group for complications of influenza. With the publication of the 2006 recommendations, the Advisory Committee now identifies those individuals 50 and older as a target group for vaccination. This study focuses on those who are 65 and older.

1977, 1986), and protection motivation theory (Rogers, 1975, 1983). We chose to use the EPPM as an underlying theoretical base as it has been used effectively to both generate and evaluate messages intended to motivate health behavior (Cameron, Witte, Lapinski, & Nzyuko, 1999; Cho & Witte, 2005; Kline & Mattson, 2000; McKay, Berkowitz, Blumberg, & Goldberg, 2004; Morrison, 2005; Witte, Berkowitz, Cameron, & McKeon, 1998; Witte, Berkowitz, Lillie, et al., 1998; Witte, Cameron, Lapinski, & Nzyuko, 1998).

The EPPM suggests that effective messages need to contain elements of both threat and efficacy (Witte, 1992, 1994, 1998). However, it is also necessary to be aware of the starting point of the audience; using the theoretical framework of the EPPM to organize the data provides us that information. The threat component of the model includes both the perceived susceptibility and perceived severity of the health threat (e.g., "Am I at risk for influenza?" "How bad is influenza?"). The efficacy component of the model includes both perceived self-efficacy and perceived response efficacy. Perceived self-efficacy refers to beliefs as to whether or not one is capable of performing the behavior in question (e.g., "I am able to get a flu shot."), whereas perceived response efficacy relates to one's belief in the effectiveness of a specific recommendation/proposed behavior (e.g., "Getting a flu shot will protect me from getting influenza this year."). These theoretical constructs of perceived susceptibility, perceived severity, perceived self-efficacy, and perceived response efficacy thus can be used to identify emergent themes related to influenza and influenza vaccination.

Summary

The facts that (a) influenza is a disease with high mortality, particularly among seniors; (b) influenza vaccination is effective in reducing the severity of illness, if not preventing it entirely; and (c) there is a critical underutilization of influenza vaccination among African American seniors strongly support the need for development of targeted interventions to increase influenza vaccination among African Americans (Egede & Zheng, 2003; Ostbye, Taylor, Lee, Greenberg, & van Scoyoc, 2003). To develop such messages, we must first understand how the community perceives influenza and the influenza vaccination. This study used constructs of the EPPM to organize and understand current views related to influenza and the influenza vaccination to identify key issues and information gaps to be addressed in targeted messages designed to increase vaccine uptake among African American seniors.

METHOD

Participants/Setting

Focus groups were conducted in a large urban Midwestern city; participants were recruited through flyers, word of

mouth, and primary care physicians. Six focus groups were conducted in five neighborhoods at five sites (church, patient services meeting space, senior housing facility, Urban League satellite facility, senior housing/community center) to be more accessible and comfortable for participants. Recruitment continued until saturation occurred (i.e., consensus of the research team that no new information was emerging in the focus groups; Charmaz, 2001, Glaser & Strauss, 1967; Strauss & Corbin, 1990). Forty-eight African American seniors participated. Participants ranged in age from 65 to 86, with a mean age of 74.1 years ($SD = 6.6$); 87.5% were women. Regarding education, 8.7% had not attended high school, 30.4% had some high school education, 26.1% were high school graduates, 21.7% reported some college education, 4.3% were college graduates, and 8.7% had obtained some postgraduate education. Over 90% of the sample reported having some form of insurance. The majority of participants who reported income earned less than \$20,000 per year (69.4%). Although 77% indicated they had received a flu shot at least once, comparable to national standards, only 50% of participants reported receiving the influenza vaccination the previous year.

Protocol

As part of a larger study, a semistructured focus group protocol was designed to elicit participants' knowledge and attitudes about influenza and the influenza vaccine, as well as their past experiences (positive or negative) with the influenza shot. Participants were also asked to indicate reasons for choosing to receive or forgo the vaccine, to elicit both barriers and facilitators to vaccination.² Probes were used throughout the focus group sessions when needed to clarify responses or engage less vocal participants.

Data Collection

Focus group sessions began with introductions of the moderators and the informed consent process, which included consent for videotaping the group discussion to reduce the need for note-taking and to facilitate analysis. All participants signed consent forms approved by the institutional review board; none refused participation. Participants completed a brief anonymous sociodemographic questionnaire to assess age, race, education, income, health status, and past influenza vaccination status. Discussion began once all participants had completed the questionnaire, and lasted approximately 90 min. Following completion of the group discussion, participants were thanked and given \$30 as compensation for their participation. All videotapes were

²The protocol was intentionally designed to elicit general perceptions, knowledge, and past experiences related to influenza and the influenza vaccine. As such, the questions did not specifically ask participants to reflect on the four EPPM constructs.

transcribed verbatim and carefully compared with the original recordings to ensure transcription accuracy. Personal identifiers were removed and the transcripts were distributed to three coders.

Data Analysis

Transcripts were analyzed using latent content and constant comparative techniques (Strauss & Corbin, 1990) through which three coders independently assessed participant responses for focal themes before convening to compare and compile their findings. Through consensus, the coders constructed an overarching categorical system describing all issues surrounding influenza vaccination. From this exhaustive system, the coders then reached agreement on the themes pertaining to conceptual constructs found within the EPPM; specifically, those relating to perceived susceptibility to influenza, perceived severity of influenza, perceived self-efficacy regarding vaccination, and perceived vaccine efficacy (response efficacy). The coders then returned to the data to assess independently the adequacy of the categorical system, including the set pertaining to the EPPM, after which they reconvened to discuss their conclusions and triangulate their perspectives. After reconciling minor discrepancies, the coders returned to the data one last time to test the exhaustiveness of their categorical system. Through this process, the team codified an inventory of vaccine knowledge and uptake issues raised by participants that pertain to the EPPM.

RESULTS

Whether topics centered on knowledge of and attitudes toward influenza or toward the vaccine itself, participants generated vigorous discussion and lively debate, although seldom much consensus. Perceptions of severity and susceptibility focused on influenza itself, whereas perceptions of self-efficacy and response efficacy focused on the recommended response of influenza vaccination. The scope of responses follows.

Perceived Susceptibility

Participants expressed a spectrum of beliefs concerning their perceived likelihood of contracting influenza, a collection of beliefs conventionally referred to as "perceived susceptibility" (see Table 1). Some believed that their likelihood of contracting the virus was limited, largely because they historically had enjoyed good health. For instance, Joy stated, "Well, I really don't be sick . . . I'm in pretty good shape the doctors say." Cheryl shared a similar sentiment, stating, "I'm a person that don't catch colds very easily."

At the other end of the spectrum were those who perceived high susceptibility to influenza. Such views were

based, in part, on how mindful participants were of the prevalence of influenza. For example, Robin justified her perception by describing how widespread she believed it to be. She explained, "so many people got it. I mean, all over the nation, people got the flu." Similar perceptions of influenza's prevalence included overt speculation about the virus's high communicability, revealed in comments such as "it's a contagious virus" and "it's very easy to catch." Other participants suggested that one's immune response to illness in general was a main determinant in personal susceptibility to influenza. For example, Paula, who believed herself to be more susceptible than most to illness, including influenza, stated, "I'm allergic to everything except life." Martha shared a similar sentiment, stating, "I do catch colds quick." For those such as Paula and Martha, who believed themselves prone to illnesses in general, perceived susceptibility to influenza appeared to be high.

Participants also attributed susceptibility to influenza to age-related differences in immune system response, although diverse perspectives emerged as to which age groups were, in fact, the most vulnerable. Some felt that younger people are less susceptible, commenting that "young people can fight it" or "throw it off," whereas others thought seniors to be less susceptible, making comments such as, "very few people that I know my age have the flu." Others believed seniors to be the most susceptible, noting, "I think because you're older, resistance is low." Finally, some provided an age range of those whom they felt to be most susceptible. Gloria was one such individual, observing, "I can think of more younger people having the flu, more so than the older people. You know, like in their 30s and 40s."

In summary, some participants perceived low risk due to their general good health or their age, whereas others cited their age or their general propensity for easily acquiring colds and other illnesses as increasing their risk. Individual perceptions of the prevalence and contagion of influenza also appeared to influence perceived susceptibility.

Perceived Severity

As with participants' perceived susceptibility to influenza, perceptions of the severity of the virus varied greatly (see Table 1). To some, influenza was an inconvenient but rather mundane illness that required little more than rest to recover. Josephine summarized her assessment of influenza's severity by stating, "[It's] not the worst thing in the world. It can be dealt with." In contrast, others saw influenza as a serious illness with the capacity, at the very least, to make one feel miserable. As Kyra explained, when one contracts influenza, "you really, really, really feel really sick," and Ezra stated "you feel like you gonna die." Some perceptions of severity appeared to arise from past experiences with contracting the disease, with participants discussing both effects and duration of the illness. Sandra

TABLE 1
Key Message Considerations and Example Message Components Based on EPPM Constructs

<i>EPPM Construct</i>	<i>Emergent Themes</i>	<i>Related Message Component</i>
<i>Perceived susceptibility:</i> Participants cited personal knowledge and health status to justify their individual perceptions of susceptibility:	Relevance of individual health status (e.g., generally healthy vs. generally unhealthy)	“Even healthy persons who are 65 and older are at risk for catching the flu.” “It’s a whole lot easier to get the flu than you may think—even if you are usually healthy.”
	Knowledge of prevalence and contagion of influenza	“The flu is spread through the air when someone coughs, sneezes, or even just talks.” “Many people around you could give you the flu—at home, at church, in the supermarket, on the bus—just about anywhere. And if you get the flu, you could spread it to people around you.”
	Age-related risks (e.g., beliefs that older individuals are more susceptible to illness in general, younger individuals equally if not more susceptible)	“As you get older, it gets harder for your body to fight the flu. Almost all of the people who die from the flu are 65 and older—just like you.” “As you get older your immune system gets older too—and (it) has to work harder for you to stay healthy and fight off disease.”
<i>Perceived severity:</i> Both accurate and inaccurate perceptions were identified, often based on past experience or personal knowledge:	Influenza is an inconvenience, but not serious	“Influenza is a serious lung infection that attacks millions of people every winter. Influenza, also called the flu, can kill you.”
	Influenza can be incapacitating (citing effects and duration of illness)	“Most people who get the flu feel horrible. The flu usually comes on <i>suddenly</i> and people have high fevers, severe headaches, extreme tiredness, a dry cough, and bad muscle aches. Often, people can’t even get out of bed.”
	Influenza can be fatal (either directly, such as the 1918 flu, or by exacerbating comorbidities)	“The flu is much worse than a common cold, runny nose, sore throat, or diarrhea. When we talk about the flu, we mean influenza. Influenza is serious, and it can kill you.” “Although everyone could catch the flu, those of you who are 65 and older are at <i>increased risk</i> of severe complications of the flu—including death.”
<i>Perceived self-efficacy:</i> Participants discussed antecedent factors that bolstered or impeded their ability to be vaccinated against influenza:	Accessibility of vaccine	“You can get the shot at your doctor’s office or at other places in the community—like pharmacies, supermarkets, senior centers, churches, and health departments.”
	Affordability of vaccine	“Medicare covers the costs of annual influenza vaccination for all Medicare beneficiaries.”
<i>Perceived response efficacy:</i> Participant responses identified both positive and negative perceived consequences of vaccination, also known as outcome expectations:	Vaccine prevents influenza or reduces severity and duration of symptoms	“Getting your flu shot every year gives you the best possible protection against the flu. People who get the flu shot are much less likely to get the flu.” “So you should get the shot to protect yourselves—and to protect your family and friends around you.”
	Physician recommendation of vaccination	“If you still have questions—talk to your doctor or nurse.”
	Skepticism or lack of confidence in vaccine	“The flu shot triggers a reaction which causes your body to create antibodies. So, if you are exposed to the flu later, these antibodies are ready and waiting to protect you against the flu. It takes your body two weeks after you get the shot to be ready to fight the flu. If you were exposed to the flu before you got the shot, your body might not be ready to fight.”
	Negative consequences of vaccination, including general side effects and concerns that vaccine will cause influenza	“The flu shot <i>cannot</i> give you the flu, but some people may get a slight fever and feel a bit achy for a day or two after getting the shot. This happens because your body is working hard creating those antibodies to make you ready to fight off the flu.”

noted: "I have to stay in bed half the time. I can't even go to work. I stay home from work for over a week."

Others discussed their understanding of the potential lethality of influenza. For example, Sereatha declared, "OK. That flu can kill you." Some referenced historical dates during which influenza struck with widespread deadly effect, discussing both the "devastation" of the Hong Kong Flu, as well as the Spanish Flu such as when Grant noted, "the flu [in 1918] that killed millions of people." Other participants did not perceive influenza itself to be fatal, but they noted that its repercussions sometimes were. Jean, a woman with a history of aneurysms, described her worry during a previous experience with influenza, stating, "every time I sneezed and coughed, it made my head hurt. I didn't want to have another vein burst."

In summary, participants reported various perceptions of influenza's severity. To some, the virus was little more than an inconvenience. Conversely, others perceived high severity, particularly those who had experienced severe symptoms in the past or who believed in influenza's potential to dangerously exacerbate comorbidities or be fatal itself.

Perceived Self-Efficacy

In the focus groups, no utterances were made specifically addressing participants' beliefs in their own ability or capability to enact the recommended response (e.g., "I am able to get a flu shot." "I can get a flu shot."). However, participants discussed many issues related to adopting the recommended behavior (in this case, influenza vaccination). Participants described at length antecedent factors that either bolstered or impaired their ability to utilize the vaccine. These identified barriers and facilitators are likely to be part of the cognitive thought process one would enact if directly asked about one's ability to engage in the recommended response. Therefore, barriers and facilitators were coded under the perceived self-efficacy construct (see Table 1).

Access to the vaccine played a key role in participants' assessments of antecedent events, with some individuals citing greater access to the vaccine than others. Multiple participants recalled when they had worked for employers who made influenza vaccination available at the job site and, in some cases, even mandated its use. Robin explained, "It was required for us to take. I worked for the government and they had us in line . . . and gave everybody the flu shot." Other employers did not mandate vaccination but did provide interested employees with easy access to the vaccine. Kelly recalled: "When I went to work for the county, they gave us time off and transportation to the city hall to get the flu shots every year." Whether vaccination was facilitated or mandated, work environments providing ready access appeared to positively affect individual perceptions of self-efficacy.

Issues of vaccine access and convenience remained a common theme when participants described vaccination

opportunities outside of a work environment. Some indicated their receipt of the vaccine as something that was routine and convenient. For instance, if they had a scheduled physician visit during the months when vaccine is routinely offered (usually October—January), some noted that their doctor would offer or suggest it to them. Donna stated: "I had to go to the hospital and I had an appointment to get in there, and the doctor said it would help me from getting it. So I said, 'well, since I'm here, go ahead and give it to me.'" However, when the vaccine was not readily available at the physician's office (e.g., during times of vaccine shortage) and the physicians directed them to pharmacies or community centers, the inconvenience of having to travel to another location led some to forgo vaccination. Eve recounted, "I mean, one hospital did give them [for free]. But, who wants to go there?" In these cases, self-efficacy perceptions appeared to be heightened when the vaccine was readily available, whereas challenges to conveniently accessing the vaccine appeared to decrease participants' perceptions of their ability or likelihood of receiving the recommended vaccination.

Sometimes, even if participants had ready access to the vaccine, affordability dictated their receipt of the vaccine. For some, such as Daniel, who stated, "I got mine because it was free," the cost, or lack thereof, appeared to be a deciding factor in vaccine utilization. When not made available free of charge, some had been forced to forgo vaccination. As Eve suggested, "some of the problem [is] they don't have health insurance and cannot afford to pay for these things."

In summary, coded themes related to perceived self-efficacy largely described events that occurred prior to vaccination and were related to both vaccine accessibility and affordability. That is, participants did not *directly* express their belief in their own ability to be vaccinated but rather raised topics that acted as either barriers or facilitators to vaccine uptake. When influenza vaccination was made readily available or offered at little to no cost, participants indicated a greater likelihood of being vaccinated. Among those for whom receiving the vaccine entailed either unwanted fees or inconvenience, perceived self-efficacy appeared to be diminished.

Perceived Response Efficacy

Beliefs related to the vaccine's capacity to effectively prevent influenza, conventionally referred to as "response efficacy," included complete faith in the vaccine; concern about side effects, including the concern that the vaccine itself would cause influenza; and beliefs that the vaccine was completely ineffective. Participants devoted a considerable amount of time during the focus groups to sharing and discussing these perceptions (see Table 1).

Many participants identified beliefs of consequences subsequent to vaccination, also known as outcome expectations

(Bandura, 1977). These beliefs were coded as perceived response efficacy because they expressed beliefs that the specified behavior (influenza vaccination) would lead to these outcomes (Witte, Meyer, & Martell, 2001). Similar to how antecedent factors may bolster or impair perceptions of self-efficacy; beliefs related to consequences of vaccination are likely to form a basis for one's perception of the efficacy of the vaccine itself.

Some participants strongly believed in the ability of the vaccine to prevent influenza and advocated for its use. These individuals felt the vaccine either prevented influenza entirely or, at the very least, diminished symptom severity if one contracted influenza. Some were nonspecific in discussing their belief in the efficacy of the vaccine, such as Daniel, who stated, "I just figure it's a vaccine that's going to help protect me against the virus." Alternatively, some participants, such as Lois, directly stated their belief in the vaccine: "I get them every year. I believe in it." Simone explained: "I would continue to get it because it's worked well for myself." Others offered recollections of past illnesses, which they attributed to the fact they had forgone influenza vaccination that year. Kyra noted: "And there was one year that I didn't take it. . . . I really got sick and I said to myself you didn't take the flu shot this year." For those who were not certain that the vaccine conferred immunity, many indicated their beliefs that the vaccine would at least minimize influenza's effects. Josephine stated, "it's going to reduce any kind of symptoms that I might get and it may prevent the symptoms from happening at all." Similarly, Michelle acknowledged, "it doesn't stop you from getting the flu, it stops you from having it bad."

Participants often cited provider recommendation as the impetus for vaccination, as well as for believing in the efficacy of the vaccine. Kay recalled: "Finally my doctor wouldn't let me get out of it. . . . That's how I started taking it. You have to have it Ms. Sullivan, you have to have it. I don't want it. He kept on 'til he started me taking it." Michelle noted: "For myself, I did it because my doctor said it would help," and Josephine simply stated: "I trust my doctor, so if my doctor advises it, I'm going to follow that advice."

There were, however, some participants who voiced a clear lack of confidence in the efficacy of the vaccine. John stated: "what may work on you may not work on me." Skepticism arose in some because they knew others who contracted influenza, even after being vaccinated. Florence explained: "My sister has the flu every year, and she takes the shot! . . . I said, 'well, that doesn't make sense.' And she has it real bad. So, I never bothered with it."

In addition to focusing on vaccine efficacy, many participants voiced concerns about the vaccination itself, which included general fears of sickness, discussions of side effects, and perceptions that the vaccine would cause one to contract influenza. These expressed fears and perceived risks are presented in the paragraphs that follow, coupled with

other potential outcomes of vaccination that were noted by participants. A great deal of discussion centered on these perceived consequences of vaccination.

For some, the vaccine generated general anxiety or fear, although the source of these emotions often was unclear. For instance, when describing their feelings about the vaccine, some participants used words such as "frightened," "afraid," or "scared," but found themselves hard-pressed to explain why. For example, Chelsea was unable to identify what caused her apprehension about the vaccine, but simply stated, "I don't know. I'm just frightened."

Others provided clear reasons for their trepidation, including voicing a variety of risks they associated with vaccination, such as potential side effects, often discussed in terms of illness following vaccination. A portion of these discussions centered on unidentified illness, believed to be a result of vaccination. For example, Claire spoke of her own experiences, explaining:

I had it [the flu shot] once. About six or seven years ago. It derailed me! It knocked me out! So I'm afraid of them. I won't go that way any more. It took me apart. So I haven't taken one again for quite a while and I doubt if I'll go back there again.

First-hand experience was not a prerequisite for believing one could become ill after being vaccinated. Such information can be spread across social networks, as was the case in the example provided by Daniel, who explained:

Most of the people that I know, the reason they've given for not getting the flu shot is they've gotten negative information from friends. They know someone who said, "Oh, I took the flu shot and I got so sick!" Well, the people I know, they say, "well, I'm not going to get sick. I'm just not going to take that."

Some participants spoke of illness resulting from the vaccine in rather vague terms, whereas others provided specific accounts. Multiple participants described experiencing fatigue, fevers, or a loss of appetite after receiving the vaccine, such as Erica, who reported experiencing all of these symptoms at once:

But the flu shot, when I took it I ran a high temperature and was really, really sick for weeks. I had a high temperature; I couldn't get off the couch for five days! I couldn't eat or nothing! That's how sick I was.

Regardless of the symptom, each was described as a perceived negative outcome or side effect occurring as a result of vaccination.

In addition to discussions of side effects, some questioned whether or not taking the vaccine would actually cause a person to contract influenza. Participants had heard such speculation from others, such as Doris, who stated, "I heard that it's a germ that lets you have the flu. I heard that. But I don't believe that, for myself." Others, such as Clarice, believed such information to be true: "I thought if

I took the flu shot I might get a cold, get the flu.” Some professed first-hand experience with contracting influenza after being vaccinated, including Shirley, who stated: “I take it, the flu shot, then, I get the flu,” or Robin, who explained:

Back in the '70s you had that swine flu [shot] and a lot of people got sick from that. I did too . . . I got really, really sick, and finally, I had to take off from work. And think I took off about two days. About the third day I'm goin' on back to work and here, everybody else crawlin' back to work. And “why are you all off?” Everybody had the flu from the shots. And it was proven that those shots was giving people the flu.

Despite the many concerns participants had about the influenza vaccine, there were those who felt the potential risks were worth the rewards. For instance, Kyra explained, “I think the good part outweighs the risky part of it. Just like with normal shots, the same thing. You may get pneumonia, you may get sick, but probably, 96% of the people, this is going to save them in some way.” Even among those who claimed to react poorly to the shot itself, some felt the benefits they received exceeded any incurred costs. For instance, Sandra declared, “I take it so I won't be as sick. It does make me feel bad, but I still get up and go. You know?”

In summary, participants' perceptions of vaccine efficacy varied greatly and included concerns related to side effects of vaccination. Some believed the vaccine effectively prevented or diminished influenza, often citing past experiences or the efforts of their personal health-care providers. In contrast, others questioned the vaccine's efficacy, citing both their and others' past experiences with detrimental side effects. Concerns that the vaccine not only did not protect one against influenza but actually caused one to contract influenza were voiced. Thus, there were participants who felt the benefits of the vaccine outweighed its potential costs, and others who believed that the vaccine simply failed to protect people from influenza.

DISCUSSION

Although influenza vaccination levels of individuals 65 and older have increased from 33% in 1989 to 64% in 2006 (Barnes & Schiller, 2007; CDC, 2006b), vaccination rates continue to lag far behind the *Healthy People 2010* objective of 90% vaccination. Furthermore, significant racial disparities exist, highlighting the critical need to pursue innovative approaches, such as the creation of targeted messages for specific racial or ethnic groups, to increase vaccination rates among minorities. As a first step in the process of developing such targeted messages, this study sought to assess African American seniors' perceptions related to influenza and the influenza vaccine.

Previous research has identified provider recommendation to be a significant factor in influenza vaccination,

which is consistent with the responses of some participants who credited their provider(s) for encouraging them to be vaccinated. However, research conducted by Lindley et al. (2006) discovered that provider recommendation, although important, was less influential than individual attitudes toward vaccination, specifically among African American seniors. Other researchers have called for racial- and ethnic-specific strategies to be employed when promoting influenza vaccination (Chen, Fox, Cantrell, Stockdale, & Kagawa-Singer, 2007). Thus, an important contribution of this study is the identification of specific perceptions about influenza and influenza vaccination among African American seniors. This study uncovered many misperceptions and misinformation, in addition to identifying accurate perceptions held by the participants. These perceptions were organized into emergent thematic categories using the four main constructs of the EPPM.

The EPPM posits that an individual may react to a health threat such as influenza in one of three ways (Witte, 1992, 1994). One may ignore the threat if one does not perceive oneself susceptible or does not believe the threat to be severe. Alternately, one may perceive high levels of both susceptibility and severity (which together constitute threat) but not believe that the recommended response is efficacious, or may have low self efficacy. In this case, the EPPM hypothesizes that the individual will engage in fear control processes, and will attempt to control the fear he or she feels (the emotional reaction) as opposed to trying to control the actual threat of influenza. The final hypothesized outcome occurs when the individual perceives high levels of threat and high levels of both self- and response efficacy. In such a situation, the EPPM proposes that one will engage in desired danger control processes and be motivated to protect oneself against the threat of influenza. Messages designed to promote influenza vaccination must therefore provide sufficient information to induce both high levels of threat and efficacy in message recipients to motivate them to control the danger of influenza by accepting the recommended response of vaccination.

Implications and Recommendations

Results of this study can be used to guide the development of targeted messages intended to increase vaccination rates among African American seniors. Not surprisingly, analyses identified a wide range of perceptions among all four EPPM constructs. As participants included those who consistently receive annual vaccination as well as those who have never been vaccinated, it is likely that some participants are already engaged in danger control. Thus, the goal of message development is to both reinforce accurate beliefs as well as to provide information to address and correct concerns and misperceptions of those who remain unvaccinated. Suggestions for focal points to consider in message development, based on the responses of our participants, are

presented in the following sections, organized by the four EPPM constructs. Examples of message components that could be used to address these issues are presented in Table 1.

It is important to realize that the message examples presented in the table do not form a specific narrative; rather, they address focal points related to the constructs of the EPPM. These individual message components must be woven together into a structured narrative to have the greatest effect. Messages and interventions using multimedia to explain and illustrate the identified concepts may result in increased comprehension of the message narrative by providing viewers with additional channels of information.

Perceived susceptibility and perceived severity.

To increase perceived susceptibility, messages must correct the misperception that having a history of good health protects one against contraction of influenza (see Table 1). Provision of information regarding both the prevalence and contagion of influenza may assist in explaining why a healthy individual may still be at risk. A message that pairs issues of susceptibility and severity by noting that those 65 and older are at increased risk for severe complications of influenza, such as development of pneumonia, hospitalization, and death, may be particularly effective in providing the needed justification for why those 65 and older are considered a high-risk group. By describing specific symptoms of influenza, and separating them from other illnesses, such as the common cold, messages will provide receivers with an accurate depiction of the specific threat.

Perceived self-efficacy. An important finding is the recognition that issues related to self-efficacy were often phrased in terms of antecedent factors to vaccination. The semistructured focus group protocol did not explicitly ask participants their perceptions of their ability to be vaccinated (i.e., “Are you able to get a flu shot?”), but rather asked them to discuss reasons for choosing to accept or forgo vaccination (“For those of you who have gotten a flu shot, why did you get it?” “For those of you who have not gotten a flu shot, what were the reasons you decided not to get it?”). The resulting discussion, perhaps not surprisingly, did not focus on individual perceptions of one’s ability but rather on barriers and facilitators to vaccination. These barriers and facilitators are plausible antecedents to perceptions of self-efficacy. In fact, Witte et al. (2001) argue that because barriers are likely influences on one’s perceived ability to perform a given behavior, they should be considered “an integral part of the overall concept of self-efficacy” (p. 21).

The focus of this discussion on barriers and facilitators of influenza vaccination should serve as a reminder, if not a caution, for future message development. Specifically, interventions based on the EPPM should address not only explicit self-efficacy components but also these antecedent factors. For an individual who perceives low self-efficacy regarding a specific health behavior, it may not be enough for a message to proclaim that performing the behavior is

“easy”; rather, the message needs to address the likely underlying concerns antecedent to the self-efficacy perception. Messages should present a direct acknowledgment of the barriers (e.g., access, affordability) and stress the facilitators (alternative locations for vaccination; Medicare coverage; see Table 1 for examples). Although the messages themselves may not be able to increase access to vaccine, they can ensure that receivers are aware of the available options for vaccination, information that may serve to increase perceived self-efficacy.

Perceived response efficacy. A great deal of discussion related to EPPM constructs centered on issues related to perceived response efficacy. Many participants discussed their beliefs of consequences subsequent to vaccination, suggesting that messages should address these outcome expectations related to the expected costs and benefits of specific behaviors (Bandura, 1977, 2004), as these expectations are likely to form the basis for response-efficacy beliefs. Messages should not only reinforce those who believe in the protective effects of vaccination, but also validate and explain potential side effects (see Table 1). Just as it is not enough to state that “vaccination is easy,” merely emphasizing that the vaccine “works” leaves a great deal unsaid. Providing accurate information may ease some of the general, unspecified concerns and apprehensions about vaccination, and explaining how the vaccination works may serve to decrease skepticism. Recognizing and providing a rationale as to why some individuals may still contract influenza even after vaccination directly addresses specific concerns that were raised regarding vaccine efficacy. Of great importance is that messages must go beyond merely stating that the flu shot cannot give you the flu, but must clearly articulate and explain the reasons why such an outcome would be impossible (e.g., explaining that during vaccine creation, the flu virus is broken up into little pieces, a process that kills the virus).

Limitations

As qualitative methods were used, it was not possible to identify whether or not the frequency or magnitude of the views expressed may indeed differ across race and ethnicity. Many of the issues discussed, specifically related to concerns about vaccination, may be consistent among seniors, regardless of race or ethnicity. However, disparities in influenza vaccination are well documented, and the specific focus of this study was to assess African American seniors’ perceptions about influenza and the influenza vaccine to assist in developing targeted messages and interventions. Participants were drawn from a restricted geographical region and included more women than men. Census data for the city in which this study was conducted indicate that women make up approximately 61% of the African American population age 65 and older (U.S. Census

Bureau, 2005), yet the uneven composition of our sample may restrict generalizability. However, results from the National Health Interview Survey indicate that African American men and women 65 and older are equally as likely to be vaccinated against influenza (Barnes & Schiller, 2007; Xakellis, 2005). As this study was qualitative in nature, we cannot assess whether or not age, health status, income, education, or past vaccination status may affect participant attitudes and beliefs. The influenza vaccination rate of 50% reported among participants is comparable to national statistics, suggesting that participants may not differ from the general population of African American seniors based on vaccination status.

Conclusion

Both accurate and inaccurate perceptions and beliefs regarding influenza and influenza vaccination exist among African American seniors. Existing theories, such as the EPPM, offer frameworks through which to organize key issues and themes. Identification of concerns voiced by members of specific subgroups of the general population allows for the development of targeted messages designed to increase the uptake of influenza vaccination. As noted, the EPPM constructs allow us to identify leverage points on which to build a message but need to be woven into a structured narrative in order to develop a successful educational program about influenza. Theoretically developed interventions are repeatedly proposed as the ideal but are not always the norm (Maibach & Parrott, 1995; Witte, 1995). Yet even with the advantages theoretically based interventions may give, studies such as the one described here remind us of the statement: "'Good' theories of human behavior and communication processes provide only half the necessary information for effective health message design. The other half of the equation is a thorough knowledge of the target audience" (Maibach & Parrott, 1995, p. viii). This study allowed us to achieve a better understanding of our target audience by assessing current perceptions of severity, susceptibility, response efficacy, and self-efficacy. The findings also highlight the need to address other crucial determinants of behavior such as perceived barriers and outcome expectations when developing messages to increase influenza vaccination among African American seniors.

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