The Effects of Framing and Action Instructions on Whether Older Adults Obtain Flu Shots

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The authors tested the effects of cues to action—messages intended to increase flu immunizations. North Dakota counties were randomly assigned to reminder letters, action letters, or no letters. Within the reminder-letter counties, Medicare recipients received either (a) a reminder from the state peer review organization (PRO) to obtain a flu shot or (b) a reminder from the PRO, framed either in terms of the loss associated with failing to get a shot or (c) the benefits associated with getting a shot. Within the action-letter counties, Medicare recipients learned where and when to receive a flu shot. Reminder type failed to differentially affect the immunization rate (overall $M = 24.5\%$). However, the action messages worked better (28.2\%) than no message (19.6\%).

Key words: action instructions, framing effects, flu immunization

In this study, we delivered interventions to prompt flu immunization to nearly 16,000 rural residents in North Dakota. Since 1993, Medicare has provided reimbursement for influenza vaccinations, yet only 35\%–38\% of Medicare beneficiaries submit reimbursement claims (Health Care Financing Administration, 1994). Although this rate underestimates the total number of adults over 65 who receive vaccinations, because many do so without claiming the Medicare benefit, nearly half of older adults do not receive their annual vaccination (Centers for Disease Control and Prevention, 1995a). Between 1971 and 1994, 20,000 Americans died of influenza-related illnesses, and more than 90\% of these deaths were among adults 65 and older (Centers for Disease Control and Prevention, 1995b). Thus, promoting influenza vaccinations for older adults can save lives.

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Investigators have examined several ways of increasing influenza vaccination rates. For example, compared with no-intervention controls, messages sent from physicians or hospital settings directly to adults’ homes increase vaccination rates (e.g., Larson, Bergman, Heidrich, Alvin, & Schneeweiss, 1982; Leirer, Morrow, Pariente, & Doksum, 1989). The Montana–Wyoming Foundation for Medical Care implemented a large-scale mail-reminder strategy (McMahon, Hillman, & McInerney, 1995). Nearly 40,000 Medicare recipients were sent either an informational brochure plus a personalized letter from the foundation medical director or just a form letter. Reminders produced a 6\% increase in intervention regions across both states, but the type of mailing made no difference.

A reminder can be conceptualized as a cue to action, a classic but understudied variable in the health belief model (Salovey, Rothman, & Rodin, 1998; Strecher, Champion, & Rosenstock, 1997). In addition to testing the effects of the presence or absence of such cues, one can also manipulate specific features of the cue to determine whether they heighten its impact. We varied the content of reminders in the present study in two important ways:
framing the reminder information differently and providing different action instructions.

The rationale for creating multiple framing messages comes from research suggesting that individuals are persuaded differently by health messages that emphasize the costs versus the benefits of a behavioral alternative. Rothman and Salovey (1997) labeled messages addressing the costs of not taking action as loss frame messages and those addressing the benefits of taking action as gain frame messages. Rothman and Salovey have specified the conditions under which each of these frames works best, basing their predictions on the premise that people are more willing to take risks when faced with the potential costs of a decision but are more risk averse when faced with the potential benefits of a decision (Tversky & Kahneman, 1981). Thus, gain-framed appeals should more effectively encourage people to perform behaviors involving minimal risk, such as prevention behaviors (e.g., Detweiler, Bendell, Salovey, Pronin, & Rothman, 1999; Linville, Fischer, & Fischhoff, 1993; Rothman, Salovey, Antone, Keough, & Martin, 1993). Loss-framed appeals should more effectively encourage people to perform behaviors involving some degree of risk, such as detection behaviors (e.g., Banks et al., 1995; Kalichman & Coley, 1995; Schneider et al., 2001; but see Lalor & Hailey, 1990). In the current experiment, we mailed reminders to promote getting a flu shot that included either a gain-framed or a loss-framed appeal. Because obtaining a flu shot can help prevent someone from developing the flu, we predicted that the gain-framed message would be more effective.

A different rationale is required to explain the possible effects of varying action instructions. The work of Leventhal (1970) suggested that providing explicit action instructions improves the chances of behavior change following persuasive health appeals. More recently, Gollwitzer and Schaal (1998) have discussed the role that implementation intentions play in ensuring that people take action. They proposed that when people identify the specific characteristics of a behavior (e.g., when, where, and how), they are more likely to follow through on their intentions. If providing action instructions helps people form implementation intentions, then providing specific information about how to carry out an intended behavior should encourage action.

In this experiment, the manipulation of action instructions reflected a naturally occurring difference in two organizational approaches to communicating with Medicare recipients. In one approach, county public health officers sent letters to older adults living in their county. These letters could be tailored to list the dates and places where the flu vaccine would be available. Theoretically, the effects of such action instructions should be to increase vaccination rates. In the second approach, reminder letters were mailed from the Medicare peer review organization (PRO) in the state. The PRO was able to manipulate the content of its letters in terms of framing. However, because the letters came from a single source and went out across the state, it was not feasible to provide specific action instructions about when and where to obtain a vaccination. Thus, the structure of these state organizations (the PRO vs. the state health department) afforded us the opportunity to conduct parallel tests of the impact of message framing and of action instructions on immunization rates.

In summary, four types of cues to action were mailed to North Dakota Medicare subscribers who had not had a reported vaccination during the previous flu season. We created a gain-framed message, a loss-framed message, and a brief reminder message to be sent from the North Dakota PRO. In addition, county health officers sent a reminder letter with explicit action instructions. Finally, we collected data about respondents who did not receive a letter. These procedures resulted in two parallel designs. Following from Rothman and Salovey (1997), we predicted that respondents in the framing conditions would be more likely to obtain a flu shot in response to the gain-framed message. Following from the work of Leventhal (1970) and Gollwitzer and Schaal (1998), we expected that the reminder accompanied by specific action plans would increase vaccination rates over the reminder alone.

Method

Overview of Design

The overall goal of the agency responsible for the conduct of this research was simply to increase the number of North Dakota residents receiving flu immunizations. Our experimental work had to be implemented within the logistical parameters of this agency. In particular, features of the field experiment affected the method of random assignment. We did not ask county health officers to conduct multiple mailings; instead, we asked them to mail a single, one-page letter from their own offices. Thus, the manipulation of specific action instructions could not be crossed with the manipulation of the persuasive appeal included in the framing reminders. Moreover, although it would have been possible to randomly assign participants within counties to the control (no-letter) condition, we did not do so because of a concern about contamination of the experimental and control conditions. Some counties in the state are very small (the total number of respondents in our experimental counties ranged from 45 to 1,575), and recipients could have shared information.

The procedure for participant assignment was thus as follows. First, we randomly assigned counties to either the reminder-letter (n = 17), action-letter (n = 12), or no-letter (n = 20) conditions. Within the reminder-letter counties, we then randomly assigned individuals within each county to either the reminder-only, reminder plus positive frame, or reminder plus negative frame conditions. Within the action-letter counties, all individuals received the same action letter from their county public health offices. Within the control counties, no individuals received an intervention.

Participants

The intervention participants in this study included 6,730 men and 9,107 women who lived in 29 North Dakota counties and were on Medicare. No-intervention control participants were 3,420 men and 4,476 women in 20 North Dakota counties. All participants—both intervention and controls—were selected because they had not submitted Medicare reimbursement requests to cover flu shots the previous year.

Materials

Materials sent directly from the PRO included two different letters, two different inserts, and a reminder card. The letters were printed on North Dakota Health Care Review, Inc. (the PRO) letterhead and were addressed to each individual. Each letter began with the statement, “As a representative of North Dakota Health Care Review, Inc., I am concerned that some Medicare-eligible individuals are not getting the right facts about flu shots.” The reminder letter highlighted four main points: (a) “You should

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1 Six counties were excluded from the study. Five of the larger counties were part of a different study of hospital involvement in vaccinations, and a public health officer in one county declined to participate.
have a flu shot every year,” (b) “Medicare will pay for your flu shot this fall,” (c) “The flu shot is safe,” and (d) “You should have your shot soon.”

The framing letter included the same four points that appeared in the reminder letter. In addition, the framing letter stated, “As a person 65 or older, you are at risk for getting a serious case of flu.” Each letter ended with, “If you haven’t had your flu shot this Fall, I encourage you to schedule an appointment soon. Please post the enclosed card where it will remind you to have your shot.” The closing displayed the signature of a medical doctor, who was the PRO medical director.

The framing letter was accompanied by one of two inserts measuring 10.0 mm × 28.0 mm and printed on heavy glossy paper. The gain insert featured the picture and testimonial of a North Dakota woman who had received a flu shot the previous year and had not gotten the flu. The testimonial stated, “I got a flu shot last year, and stayed healthy. I’m convinced that the flu shot protected me. I like to stay as healthy and active as I can, so I’m getting a flu shot again this year.” In addition, the insert displayed information about three benefits of getting “your flu shot soon” ("You will be less likely to get the flu this fall"; “If you do get the flu, you will probably not be as sick”; and “You will be less likely to enter the hospital because of the flu”).

The loss insert featured the picture and testimonial of another North Dakota woman who had not received a flu shot last year and had spent several days in bed, sick with the flu. The testimonial stated, “I didn’t get a flu shot last year, and caught the flu. I was sick and in bed for nine days. I want to avoid catching the flu again this year, so I’m getting a flu shot.” In addition, the insert displayed information about three costs “if you don’t get your flu shot soon” ("You will be more likely to get the flu this fall"; “If you do get the flu, you will probably be more sick”; and “You will be more likely to enter the hospital because of the flu”).

The bottom of the framing inserts included a colorful 6.5 mm × 10.0 mm reminder card that could be separated from the insert on a perforated line. For the gain frame, the card read, “Stay Healthy. Get The Flu Shot.” For the loss frame, the card read, “Don’t Get Sick. Get The Flu Shot.” The neutral reminder condition included similarly sized reminder cards with the message, “Get the Flu Shot. Not the Flu.”

Materials sent directly from the public health facilities were similar to the framing letters, but they differed in the specifics of planning vaccination appointments. The letters were printed on public health facility letterhead and were addressed to “Dear [county name] resident.” Each letter began as follows:

The flu season will soon be upon us, and it’s time for you to make arrangements to get your flu shot. Flu, or influenza, is an easily spread virus, and flu shots are for anyone who wants to reduce the risk of catching the disease and avoid illness and hospitalization.

The letter went on to indicate the exact times and places during which the health units would be holding flu shot clinics. The list included the town, date, time, and place where the shot could be obtained. The letter concluded by stating, “Medicare B pays for flu shots. Please bring your Medicare card with you to the flu clinic.” The director of nursing signed the letter.

Procedure

The database for each county contained the names and addresses of participants in random order. For letters sent from the PRO, residents of each of the 17 counties were randomly assigned to one of three mailing conditions. Participants in the reminder condition received the reminder letter and a reminder card. Those in the loss-frame condition received the framing letter and the loss-frame insert with a reminder card attached. Participants in the gain-frame condition received the framing letter and the gain-frame insert with a reminder card attached. For mailings by the 12 county-based public health facilities, the PRO provided the mailing list of persons in the county who had not had their vaccination a year previously.

Everyone on the county list then received the same letter. In the 20 control counties, we tracked the behavior of randomly selected (proportionate to the county population) men and women who had not had a prior-year vaccination. The reported sample sizes (see Table 1) do not include letters that were returned and Medicare beneficiaries whose identification numbers did not match with the vaccination data. Subject loss was approximately 6%, with no differences between conditions.

Results

Vaccination rates were computed after determining whether each individual had a Medicare reimbursement claim in the 6 months following the intervention. Table 1 shows the vaccination rates by condition.2 The overall vaccination rates observed in this study were just under 25%. Although this rate is meaningfully lower than the 35%–38% Medicare reimbursement rate cited earlier, recall that our vaccination rate is for adults who had not been reimbursed for a shot during the previous flu season. Thus, our sample likely included many adults who were less motivated or perceived greater barriers to obtaining a vaccination.

Because of how participants were assigned to condition, we analyzed the effect of our two manipulations separately. First, because individuals in the three framing groups were randomly assigned within each county, we conducted an analysis to compare those conditions. The prediction that the gain-framed message would have a greater impact than the loss-framed message was not supported. As Table 1 shows, neither the gain-framed (23.5%) nor the loss-framed (24.5%) message improved vaccination rates compared with the brief reminder (24.5%).

In the second set of analyses, we compared the action-letter and control conditions. The action-plan approach was very effective, producing a significantly higher vaccination rate (28.2%) than the no-treatment control condition (19.6%), z = 12.01, p < .01. Because assignment to these two conditions was accomplished at the county (rather than the individual) level, we also conducted a statistical test using county as the unit of analysis. This test also produced a reliable effect, such that the action instructions (M = 29.36%) produced a higher vaccination rate than that observed in the control counties (M = 19.83%), t(26) = 3.24, p = .003 (two-tailed).

Discussion

The data lead to two strong conclusions. First, differential framing was no more effective than providing a simple reminder. Second, providing action instructions had a powerful incremental effect on vaccination rates. These data are in line with the findings of McMahon et al. (1995) in their similar large-scale study—letters produced an increase in vaccination rates, but subtle differences in letter content made no difference.

The predicted advantage for a gain-framed appeal failed to emerge; indeed, we failed to observe any benefit from including additional reasons to get a flu shot, regardless of framing. It is theoretically important to learn that framing is sometimes ineffec-

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2 The only demographic data we could obtain were for gender, and analyses showed no differential main or interaction effects for this variable. For all individuals included in the research, the vaccination rate was 24.36% for the 9,911 men and 23.42% for the 13,235 women.
In the reminder-letter conditions, participants from the same 17 counties were randomly assigned to receive different reminders.

Framing versus action instructions are attributable to matching message content to stage, as just noted. Alternatively, the content of the messages might affect different mechanisms. Framing messages may be more likely to change beliefs and attitudes. Although attitudes are related to intentions, which are in turn related to behavior (Ajzen & Fishbein, 1980), the causal chain is sufficiently lengthy that small effects on attitudes may not be revealed in behavioral outcomes. In contrast, action messages are intended to change behavior directly—not through any mediating processes (other than perhaps implementation intentions). A more important barrier for immunizations among this group of older adults may be a knowledge gap (how to obtain a shot) rather than an attitudinal gap (feelings about getting a shot). To the extent that the manipulations target different processes or barriers, it may not be surprising that they appeared to produce different effects on flu vaccination rates.

The action instructions provided by the county health officers produced a strong effect. Telling people where and when to obtain a flu shot increased vaccination rates by 44% over no reminder, and this effect was significant even when using counties as the unit of analysis. Because our collaboration with the PRO allowed us to collect only outcome data (not additional data), we are unable to definitively state why the action instructions were so powerful.

However, as proposed earlier, if one intends to obtain a flu shot, then specific information about how to do so should increase action according to several different theoretical perspectives (Gollwitzer & Schaal, 1998; Leventhal, 1970; Weinstein, 1988). The overall purpose of the research was to identify strategies to increase immunization. Close collaboration with the North Dakota PRO allowed us to reach nearly 16,000 individuals across 29 counties within the state. However, the limitations associated with this type of partnership can create design problems that limit the theoretical conclusions that can be drawn. The need to keep things simple for the public health mailings, for example, meant that we could not implement a completely crossed design. In addition, because of confidentiality issues, we were unable to survey or interview respondents about their reactions to the messages or whether they even read the material, making it impossible to know with certainty why the framing messages failed to have a differential effect. Researchers planning to conduct similar research must weigh the costs and benefits of an applied focus.

Despite the interpretative problems for theoretical understanding, the research did result in clear applied implications. In short, providing action instructions increased vaccination levels. Had we mailed this type of reminder to 10,000 older adults, our data suggest that 966 additional people would have obtained a vaccination over no reminder—an important lesson in how social psychological theory can be applied to benefit the public’s health.

### Table 1

<table>
<thead>
<tr>
<th>Group assignment</th>
<th>% obtaining flu shot</th>
<th>n</th>
<th>No. of counties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reminder letters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reminder only</td>
<td>24.5</td>
<td>3,258</td>
<td>17</td>
</tr>
<tr>
<td>Reminder + loss frame</td>
<td>24.5</td>
<td>3,262</td>
<td>17</td>
</tr>
<tr>
<td>Reminder + gain frame</td>
<td>23.5</td>
<td>3,260</td>
<td>17</td>
</tr>
<tr>
<td>Action plan</td>
<td>28.2</td>
<td>6,057</td>
<td>12</td>
</tr>
<tr>
<td>Control</td>
<td>19.6</td>
<td>7,896</td>
<td>20</td>
</tr>
</tbody>
</table>

Note. In the reminder-letter conditions, participants from the same 17 counties were randomly assigned to receive different reminders.

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3 Because the framing manipulation failed to produce differences, it is possible to collapse across that variable and to compare the counties randomly assigned to framing versus the counties randomly assigned to the action instructions. This conservative analysis just missed conventional significance, \( t(27) = 1.87, p = .07, \text{two-tailed} \).

### References


### Call for Nominations

The Publications and Communications (P&C) Board has opened nominations for the editorships of *Contemporary Psychology: APA Review of Books*, *Developmental Psychology*, and *Psychological Review* for the years 2005–2010. Robert J. Sternberg, PhD, James L. Dannemiller, PhD, and Walter Mischel, PhD, respectively, are the incumbent editors.

Candidates should be members of APA and should be available to start receiving manuscripts in early 2004 to prepare for issues published in 2005. Please note that the P&C Board encourages participation by members of underrepresented groups in the publication process and would particularly welcome such nominees. Self-nominations are also encouraged.

Search chairs have been appointed as follows:

- **Contemporary Psychology: APA Review of Books**: Susan H. McDaniel, PhD, and Mike Pressley, PhD
- **Developmental Psychology**: Joseph J. Campos, PhD
- **Psychological Review**: Mark I. Appelbaum, PhD

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Karen Sellman, P&C Board Search Liaison
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The first review of nominations will begin November 15, 2002. The deadline for accepting nominations is November 25, 2002.