Randomized Trial Examining the Effect of Two Prostate Cancer Screening Educational Interventions on Patient Knowledge, Preferences, and Behaviors

Melissa R. Partin, PhD, David Nelson, PhD, David Radosevich, PhD, Sean Nugent, BA, Ann B. Flood, PhD, Nancy Dillon, RN, PhD, Jeremy Holtzman, MD, MPH, Michele Haas, BA, Timothy J. Wilt, MD, MPH

OBJECTIVE: **To assess the effect of video and pamphlet interventions on patient prostate cancer (CaP) screening knowledge, decision-making participation, preferences, and behaviors.**

DESIGN: **Randomized, controlled trial.**

SETTING: **Four midwestern Veterans Affairs medical facilities.**

PATIENTS/PARTICIPANTS: **One thousand, one hundred fifty-two male veterans age 50 and older with primary care appointments at participating facilities were randomized and 893 completed follow-up.**

INTERVENTIONS: **Patients were randomized to mailed pamphlet, mailed video, or usual care/control.**

MEASUREMENTS AND MAIN RESULTS: **Outcomes assessed by phone survey 2 weeks postintervention included a 10-item knowledge index; correct responses to questions on CaP natural history, treatment efficacy, the prostate-specific antigen (PSA)'s predictive value, and expert disagreement about the PSA; whether screening was discussed with provider; screening preferences; and PSA testing rates.**

Mean knowledge index scores were higher for video (7.44; *P* = .001) and pamphlet (7.26; *P* = .03) subjects versus controls (6.90). Video and pamphlet subjects reported significantly higher percentages of correct responses relative to controls to questions on CaP natural history (63%, 63%, and 54%, respectively); treatment efficacy (19%, 20%, and 5%), and expert disagreement (28%, 19%, and 8%), but not PSA accuracy (28%, 22%, and 22%). Pamphlet subjects were more likely than controls to discuss screening with their provider (41% vs 32%; *P* = .03) but video subjects were not (35%; *P* = .33). Video and pamphlet subjects were less likely to intend to have a PSA, relative to controls (63%, 65%, and 74%, respectively). PSA testing rates did not differ significantly across groups.

CONCLUSIONS: **Mailed interventions enhance patient knowledge and self-reported participation in decision making, and alter screening preferences. The pamphlet and video interventions evaluated are comparable in effectiveness. The lower-cost pamphlet approach is an attractive option for clinics with limited resources.**

KEY WORDS: **prostatic neoplasms; prostate-specific antigen; mass screening; decision making; patient education.**
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The significant impact of prostate cancer (CaP) on morbidity and mortality in this country[1] certainly warrants a search for effective early detection and treatment strategies. However, evidence is inconclusive about whether mass CaP screening and early treatment for CaP can reduce mortality. Hence, few professional organizations endorse mass CaP screening and most recommend providers inform their patients about the risks and benefits of CaP screening and involve them in CaP-testing decisions.[2–5]

Previously evaluated interventions to facilitate such informed CaP screening decisions include a video,[6–9] patient group discussions,[7] brief scripts read to patients during clinic visits,[10] and informational pamphlets distributed at study visits[11] or through the mail.[12] The studies evaluating these strategies suggest that some of them increase patient CaP screening knowledge[6–9,11,12] and participation in decision making,[13] and may decrease interest in prostate-specific antigen (PSA) testing[6–9,12] and active CaP treatment.[7,9,10,12] With the exception of the group discussion and video,[7] however, none of the above strategies have been directly compared. Due to cost concerns, it is important to know whether the more resource-intensive interventions also have greater impact. The mailed pamphlet approach is an attractive strategy because it can be broadly implemented at low cost, but it is not clear whether this low-intensity intervention is as effective as more intensive strategies. A comparative evaluation of the less resource-intensive pamphlet approach with one or more of the more resource-intensive interventions could provide valuable information for programs searching for efficient and effective approaches to promoting informed CaP screening decisions. The video is a logical comparison because its efficacy has been established, but its effectiveness in clinical practice has not yet been thoroughly explored.

Received from the Center for Chronic Disease Outcomes Research (MRP, DN, SN, ND, MH, TJW), Veterans Affairs Medical Center; Transplant Information Services (DR), Department of Surgery, and Clinical Outcomes Research Center (DR, JH), School of Public Health, University of Minnesota, Minneapolis, Minn; and Center for the Evaluative Clinical Sciences (ABF), Dartmouth Medical School, Hanover, NH.

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Address correspondence and requests for reprints to Dr. Partin: Center for Chronic Disease Outcomes Research (152/2E), Minneapolis VA Medical Center, 1 Veterans Drive, Minneapolis, MN 55417 (e-mail: Melissa.partin@med.va.gov).

The primary objective of this study was to assess the relative effectiveness of the video and a mailed pamphlet intervention for increasing patient CaP screening knowledge and decision-making participation. We also examined the impact of the interventions on screening preferences and testing rates.

METHODS

Assignment

Population and Setting. The sample was drawn from male veterans age 50 and older who had no CaP, and scheduled primary care appointments at one of four Veterans Affairs (VA) medical facilities in the Midwest between April and June 2001.

Design. The study design was a randomized, controlled trial and the unit of randomization was the patient. Using a computer-generated algorithm, 1,152 eligible veterans, stratified by age (50 to 69, 70+), PSA in the past year (yes, no), and facility, were randomly assigned to 1) pamphlet, 2) video, or 3) usual care (control) (see Fig. 1). Two weeks prior to their primary care appointments (referred to hereafter as the "target appointment"), pamphlet subjects were mailed an educational pamphlet developed by the study team, and video subjects were mailed the educational video evaluated in previous studies. Approximately 1 week after their target appointment, all subjects were asked to complete a phone survey to assess knowledge, preferences, and decision-making participation. A total of 42 of the 1,152 participants were excluded from the analysis because they were found to be deceased (n = 8), female (n = 5), or diagnosed with CaP (n = 29). A total of 893 (80%) of the remaining 1,110 participants completed the survey and were included in the analysis. VA utilization databases were used to assess PSA testing rates 2 weeks and 1 year post-target appointment. The study protocol was reviewed and approved by the Institutional Review Board at the four participating facilities and the University of Minnesota.

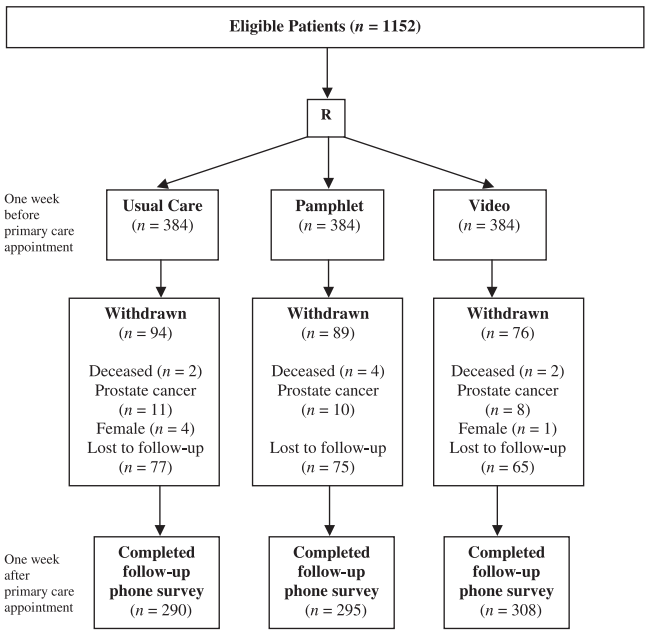

FIGURE 1. Study subject flow diagram.

Conceptual Model

The study analysis plan was informed primarily by social cognitive theory,[14] which posits a reciprocal determination between cognitive processes (e.g., knowledge and attitudes), environmental factors (e.g., provider recommendation), and behavior, and assumes that patient characteristics such as demographics and health status can affect behavior through their influence on cognitive and environmental processes. The study interventions are designed primarily to enhance patient knowledge. Hence, education, personal history of prostate or urologic problems, family history of CaP, prior PSA testing, and morbid conditions are included as independent measures in this study because they may mediate the effect of the interventions, either through positive correlations with knowledge (as we suspected might be the case for education, personal history, family history, and prior PSA), or negative impacts on how thoroughly patients examine the materials (as we suspected would be the case for comorbidities, personal history, and prior PSA).

Protocol

Interventions. Controls subjects received usual care. Both interventions were mailed 1 week prior to the target appointment and contain the same factual content assessed in our knowledge measures, but use different approaches to presenting information.

The pamphlet, written at the 6th grade level, was designed to provide a balanced representation of the potential risks and benefits of screening. It starts with a definition of the PSA and why not all doctors are recommending it. It defines the prostate and CaP and how CaP is different from the common but less serious condition, benign prostatic hypertrophy (BPH), which causes similar symptoms. It then summarizes the accuracy of the PSA and the unknown efficacy of CaP treatments. Space is provided on the back to write down questions to discuss with a health care provider. The point that there is a decision to make and that the patient should play an active role in it is emphasized throughout. Additional details about the pamphlet development and content are available elsewhere.[15] The estimated cost of the pamphlet is less than $2 per intervention.

The video intervention used the 23-minute video developed by the Foundation for Informed Medical Decision Making (FIMDM) entitled "The PSA Decision: What YOU Need to Know" (April 1 to June 30, 2001 version). The

Table 1. Sample Characteristics

Characteristic	All Groups (*N* = 893)	Study Group: Video (*N* = 308)	Pamphlet (*N* = 295)	Control (*N* = 290)	Group Difference *P* Value
Mean age, y	68.4	68.4	68.4	68.3	.99
Married	69.6	67.3	73.4	68.3	.23
Education					
<High school	22.2	22.8	19.4	24.3	.19
High school	37.6	39.8	34.5	38.4	
>High school	40.2	37.4	46.0	37.3	
Nonwhite	5.0	4.7	5.2	5.2	.93
Overall health					
Excellent	4.5	4.6	6.5	2.4	.11
Very good	21.7	21.0	25.2	18.8	
Good	37.0	40.0	33.7	37.2	
Fair	25.5	24.9	23.5	28.1	
Poor	11.4	9.5	11.2	13.5	
Comorbid conditions					
CHD	30.8	30.8	32.5	29.0	.64
CHF	9.4	8.1	9.5	10.7	.56
COPD	20.7	18.8	23.7	19.7	.29
Diabetes	25.0	26.6	26.8	21.4	.23
Asthma	3.7	3.3	4.1	3.8	.86
Substance abuse	6.9	5.8	8.5	6.6	.42
Depression	15.6	15.9	14.9	15.9	.93
Any of the above	67.5	65.6	68.8	68.3	.66
Prostate-specific items					
Ever had PSA	70.2	68.5	70.4	71.9	.67
Ever abnormal PSA	10.9	8.5	11.2	13.2	.19
Prostate problems	20.5	20.3	20.8	20.5	.99
Family history of CaP	14.9	14.4	11.9	18.4	.09
AUA urinary symptom scale severity					
None (0)	16.6	18.8	15.8	15.2	.38
Mild (1 to 7)	48.3	50.2	46.2	48.4	
Moderate (8 to 19)	29.7	26.0	33.7	29.6	
Severe (20)	5.4	5.1	4.3	6.9	
Medications					
Alpha blocker	17.7	14.0	21.0	18.3	.07
Diuretic	30.0	28.3	29.2	32.4	.51

CHD, coronary heart disease; CHF, congestive heart failure; COPD, chronic obstructive pulmonary disease; PSA, prostate-specific antigen; CaP, prostate cancer; AUA, American Urological Association.

FIMDM video was designed to enable 100% comprehension at the 10th grade level, and, like the pamphlet, seeks to provide a balanced representation of the risks and benefits of screening.[9] It begins with a summary of the risks and benefits of screening. Then two physicians (an internist and urologist) discuss their differing opinions about the value of the PSA test. Next, a patient with early CaP talks about why he decided not to undergo active treatment and how he feels about screening. It finishes by encouraging the patient to consider which CaP screening outcomes would most influence their decision to be screened, and to discuss their preferences with their doctor. The cost of the video intervention was approximately $37.00 per patient. However, we were able to obtain the videos at cost for research purposes. The usual cost of the videos is $250 apiece. The actual cost per intervention in practice would depend on how many videos were purchased and whether they were returned after viewing. Roughly 90% of the patients in our study returned the videos as requested in preaddressed, postage-paid envelopes.

Data Collection and Measures. Patient knowledge, preferences, and decision-making outcomes were assessed approximately 1 week post-target appointment by phone. Additional patient characteristics and utilization measures were collected from VA outpatient databases.

The primary outcome measure for the study was CaP screening knowledge, as assessed from a previously validated 10-item index. The index score is calculated as the summative number of correct responses to 10 knowledge questions. "Don't know" responses are treated as incorrect. Index scores range from 0 to 10. Additional details about how the index was developed and its psychometric properties are available elsewhere.[16]

Table 2. Unadjusted Proportion of Correct Responses to Individual Knowledge Index Items*

Item	Video	Pamphlet	Control	χ^2 *P* Value
PC natural history and risks factors				
Most men diagnosed as having prostate cancer die of something else (*True*/False)	0.68	0.66	0.49	<.0001
Men are more likely to die because of prostate cancer than because of heart disease (True/*False*)	0.73	0.72	0.70	.72
Prostate cancer is the MOST COMMON cause of problems with urination (True/*False*)	0.32	0.37	0.30	.19
Prostate cancer NEVER causes problems with urination (True/*False*)	0.88	0.87	0.85	.58
Prostate cancer is one of the LEAST common cancers among men (True/*False*)	0.71	0.75	0.79	.17
PSA accuracy and follow-up tests				
The PSA (prostate-specific antigen) test will pick up ALL prostate cancers (True/*False*)	0.77	0.70	0.63	.001
A prostate biopsy can tell you with more certainty whether you have prostate cancer than a PSA (prostate-specific antigen) test can (*True*/False)	0.80	0.81	0.80	.85
If you have an ABNORMAL PSA (prostate-specific antigen) test result, your doctor may recommend that you have a prostate biopsy (*True*/False)	0.91	0.86	0.87	.09
Treatment complications				
Loss of sexual function is a common side effect of prostate cancer treatments (*True*/False)	0.70	0.68	0.63	.17
Problems with urination are common side effects of prostate cancer treatments (*True*/False)	0.79	0.75	0.79	.46

* *Correct responses are in italics.*

Responses to four individual knowledge questions on CaP natural history, treatment efficacy, PSA accuracy, and expert disagreement about PSA efficacy that did not exhibit high enough correlations with other knowledge items to be included in the final index were also examined because they have been used in prior studies.

Patient participation in CaP screening decision making was assessed by a single question about whether CaP screening was discussed at their last clinic visit.

Screening preference was assessed from a single yes/no question regarding whether the patient thought they would have a PSA test in the next year.

PSA testing rates were assessed at 2 weeks and 1 year post-target appointment using current procedural terminology codes stored in VA outpatient records. We chose a 2-week interval for the first measure assuming that, for those patients who at the time of the intervention had not received a PSA test in the past year, any decision to be screened in response to the intervention would likely be ordered at the target appointment. We chose a year interval for the second measure because, for those patients who had received a PSA test in the past year at the time of intervention, up to 12 months would need to pass before they would be eligible to have another test. Because some subjects may obtain tests outside the VA, these measures may underestimate screening.

Intervention exposure was assessed from two questions. The first question asked whether the respondent recalled receiving any educational materials about CaP in the mail recently. Those who said "yes" to this question were then asked if they had a chance to look at the materials.

Additional measures collected in the survey and used as explanatory variables included prior PSA testing, prior abnormal PSA, family history of CaP, prostate problems, the American Urological Association's Urological Symptom Index,[17] and demographics (age, race/ethnicity, marital status, education). Explanatory measures collected from VA outpatient databases included comorbidities (CHD, CHF, COPD, diabetes, asthma, substance abuse, depression) and medications that are used to treat or may cause urinary symptoms (alpha blockers, diuretics).

Analysis. Unadjusted analyses of variance and logistic regression were used to examine the effects of the interventions on outcome measures. To increase the precision and power for estimating effects, we regressed each outcome on study group and the additional measures in Table 2.

We used standard linear regression analysis to model the expected knowledge index scale score as a function of study group and the other measures in Table 2. The validity of the standard F-tests and inferential methods used to investigate the intervention effects were checked by comparing the results with those obtained from a bootstrap regression analysis, which yielded consistent results.

Logistic regression models were used to examine responses to the four survey questions on CaP natural

history, treatment efficacy, PSA accuracy, and expert disagreement about PSA efficacy, as well as whether PSA testing was discussed with the provider and screening preferences and behavior. To more fully understand the estimated intervention effects, we estimated the model-predicted probability of response for the participant under each intervention condition. These estimated probabilities were then averaged across the entire population to obtain model-estimated, adjusted, average probabilities of response for each of the three interventions.

A final set of analyses estimated the proportion of each intervention group that looked at the materials and then examined the impact of the interventions among those who viewed the materials. These analyses used propensity scores[18] to balance groups by the characteristics in Table 1. This procedure first involved conducting a logistic regression analysis within each intervention group to model the odds of viewing the intervention, as a function of the characteristics in Table 1. The estimated regression functions were then used to calculate the probability of viewing each of the interventions for each member of the study population, had they been sent the intervention. These probabilities were grouped into quartiles and added as a covariate to modifications of the analyses described above where the intervention measure categorized participants as having viewed the video, the pamphlet, or neither intervention.

Masking and Disclosures

All mailings were implemented by the study coordinator. The coordinator did not have direct contact with subjects and providers were blinded to the fact that their patients were participating in a trial. Follow-up interviewers were blinded from intervention assignment, but the statisticians conducting the analyses were not. All authors were involved in the development of the pamphlet but none were involved in the development of the video.

RESULTS

Sample Characteristics

Table 1 displays sample characteristics by treatment group. The χ^2 test results shown in the last column of Table 1 suggest that our randomization procedures were successful at balancing study groups.

CaP Screening Knowledge Index

Video and pamphlet subjects scored moderately higher than the control group on the knowledge index. The adjusted mean scores were 7.4 for video subjects, 7.3 for pamphlet subjects, and 6.9 for controls. The improvement over the control group for the video intervention was statistically significant in both the unadjusted and adjusted analyses. The improvement over the control group for the pamphlet intervention was only significant in the adjusted analyses.

Table 2 presents the unadjusted proportions of correct responses to each individual question included in the knowledge index, by treatment group. While the treatment groups were more likely than controls to answer most questions in the knowledge index correctly, the differences across groups are small and insignificant for all but two items.

Other CaP Screening Knowledge Items

Table 3 displays the results for treatment group differences on the four knowledge items not included in the index but examined in previous studies.[9,12] There were no significant differences across groups on the proportion correctly answering the question on the predictive value of the PSA. Pamphlet and video subjects were significantly more likely than control subjects, however, to correctly answer the questions on CaP natural history, treatment efficacy, and expert disagreement about the value of the PSA test. The difference between video and pamphlet estimates for the expert disagreement question is statistically significant ($P = .009$). There were no other significant differences between pamphlet and video subjects with respect to these questions.

CaP Screening Discussion, Preferences, and Behavior Measures

Table 4 displays the results for study group differences on screening discussion, preferences, and testing rates. The difference between pamphlet and control subjects on the measure regarding whether screening was discussed with the provider is statistically significant but the difference between video and control subjects is not. Subjects in both intervention groups were significantly less likely than control subjects to indicate they intended to have a PSA test in the next year. The proportion of video, pamphlet, and control subjects receiving a PSA did not differ significantly across groups at either 2 weeks or 1 year post-target appointment.

Adjustments for Incomplete Intervention Exposure

Only 56% of video subjects ($n = 168$) and 50% of pamphlet subjects ($n = 142$) reported looking at the intervention materials mailed them. Table 5 provides results for all outcomes derived from analyses that limited the intervention groups to those who looked at the intervention materials (and combined those who did not with controls). These analyses provide information on the extent to which the modest intervention effects observed in the intent to treat analyses are due to the fact that many of the subjects randomized to the two interventions never looked at the materials. The intervention effects do increase for most outcomes after adjusting for exposure (most notably for

Table 3. Unadjusted and Adjusted* Proportions Correctly Answering Additional Knowledge Items, by Treatment Group

	Study Group					
	Video		Pamphlet		Control	
Knowledge Item‡	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
PSA predictive value Based on what you have heard or read, how many men with ABNORMAL PSA test results have prostate cancer? Would you say *most DON'T have prostate cancer*, about HALF have prostate cancer, or most DO have prostate cancer?	0.28	0.28	0.22	0.22	0.22	0.22
Natural history Based on what you have heard or read, about how many men diagnosed as having prostate cancer will actually die BECAUSE of prostate cancer? Would you say most die because of prostate cancer, about half die because of prostate cancer, or *most die because of something else*?	0.62†	0.63†	0.61†	0.63†	0.52	0.54
Treatment efficacy Prostate cancer treatments have been shown to extend the life of a man with prostate cancer. (True/*False*)	0.19†	0.19†	0.20†	0.20†	0.06	0.05
Expert disagreement All experts agree that men should get annual PSA tests. (True/*False*)	0.29†	0.28†	0.18†	0.19†	0.08	0.08

* *Adjusted for characteristics in Table 1.*
† P *value versus control ≤.05.*
‡ *Correct responses are in italics.*

the knowledge index, knowledge of PSA accuracy for video subjects, and screening discussion). However, for some outcomes (e.g., PSA intentions and behavior) the exposure adjustment produces minimal increase or even a decrease in effects.

DISCUSSION

This study provides the first direct comparison of a low-intensity pamphlet intervention with the widely evaluated FIMDM video for promoting informed CaP screening decisions. There were notable differences between the intervention groups on two measures: the knowledge item assessing expert disagreement about the PSA test, and whether screening was discussed with the provider. The difference on the knowledge measure is likely due to differences in how this point was made in the two materials. In the pamphlet, this point was made by stating that not all experts recommend the PSA test and why. In the video, this point was made more obviously (by interviewing two doctors expressing differing opinions about the PSA). The differences in screening discussion may be related to the fact that the pamphlet is a more portable decision tool, includes space for writing down questions (which may prompt patients to bring the pamphlet to appointments), and may have served as a visual reminder to discuss

Table 4. Unadjusted and Adjusted* Proportions Discussing Screening with Their Provider, Intending to Be Screened in Next Year, and Receiving a PSA, by Treatment Group

	Study Group					
	Video		Pamphlet		Control	
Item	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
Discussed PSA at last visit	0.35	0.35	0.41	0.41†	0.31	0.32
Intend to have PSA in next year	0.61†	0.63†	0.64†	0.65†	0.72	0.74
PSA within 2 weeks	0.27	0.29	0.28	0.28	0.30	0.29
PSA within 1 year	0.67	0.70	0.67	0.67	0.70	0.69

* *Adjusted for characteristics in Table 1.*
† P *value versus control ≤.05.*
PSA, prostate-specific antigen.

Table 5. Adjusted* Mean Knowledge Index Score, Proportion Correctly Answering Additional Knowledge Items, and Proportions Discussing Screening with Their Provider, Intending to Be Screened in Next Year, and Receiving a PSA, by Redefined Treatment Group†

	Study Group		
Outcome	Exposed Video (*N* = 168)	Exposed Pamphlet (*N* = 142)	Unexposed and Controls (*N* = 556)
Mean knowledge index score	7.75‡	7.45‡	6.97
Knowledge of PSA predictive value	0.30‡	0.23	0.20
Knowledge of CaP natural history	0.63‡	0.64‡	0.52
Knowledge of treatment efficacy	0.17‡	0.23‡	0.08
Knowledge of expert disagreement	0.31‡	0.18‡	0.09
Discussed PSA at last visit	0.37‡	0.42‡	0.29
Intend to have PSA in next year	0.64	0.66	0.71
PSA within 2 weeks	0.31	0.30	0.25
PSA within 1 year	0.70	0.70	0.67

* *Results are adjusted for imbalances between redefined treatment groups on factors in Table 1 (due to the selective nature of intervention exposure) using a statistical procedure called "propensity analysis."*[18]

† *Intervention groups are limited to subjects who reported in the survey that they recalled receiving and looked at educational materials mailed them. Intervention subjects who did not report looking at the materials are combined with the control group.*

‡ P *value versus control* ≤.05.

screening. Because the intervention content was not identical for the two interventions, we are not able to assess whether the differences in effects are due to differences in intervention mode (video vs pamphlet) or content.

Confirming assertions made elsewhere that knowledge building in the complex area of CaP screening is particularly challenging,[19] the effects of both interventions on overall knowledge were small. This was largely because study group differences in the proportion of correct responses to knowledge index items, though in the expected direction, were significant for only two items. Differences were much more pronounced for the knowledge questions not included in the index. This variation in effects by knowledge items could reflect variation in the complexity of the information conveyed, effectiveness of the materials at conveying the information, salience of the information to patients in considering whether or not to be screened, and/or measure quality. All of the knowledge measures used in this analysis have been previously assessed for validity and reliability.[16] However, additional research elucidating the relative impact of each of these factors on knowledge outcomes could help guide further development of shared decision-making interventions in both CaP screening and other areas.

The modest increases in knowledge observed in this study were accompanied by significant differences in screening preferences and self-reported decision-making participation. Relative to controls, subjects in both interventions were more likely to discuss screening with providers and less likely to want to be screened. Because decision-making literature suggests that even modest increases in knowledge can be meaningful if they coincide with changes in patient preferences, increased decision-making participation and satisfaction, or enhanced alignment of decisions with patient values and preferences, these changes in knowledge may not be trivial. Our conclusions regarding patient participation in decision making are limited by the fact that we used only a single question to tap this important dimension of the shared decision-making process. Additional research examining the impact of these interventions on more detailed measures of patient participation is needed to more fully understand the impact of interventions on this dimension.

Neither of the interventions had a significant impact on PSA testing. One prior study on a VA population also found no significant PSA-testing differences between controls and subjects receiving a mailed pamphlet after a full year follow-up,[12] but two previous studies found significantly lower testing rates within 2 weeks of intervention among subjects receiving the FIMDM video, relative to controls.[7,9] The lack of association at 2 weeks in our study may be explained by the fact that at least half of the men in this study received a PSA in the year prior to the intervention and hence were not yet eligible for rescreening. However, this cannot explain the continued lack of association at 1 year. Because the interventions were not designed to promote or discourage CaP screening *per se*, this lack of effect on screening behavior should not be interpreted as a failure of the interventions. Indeed, it is possible that the interventions had a profound effect on screening, increasing screening for some and decreasing it for others, resulting in no differences overall. Furthermore, some tests may have been ordered without patient knowledge. Additionally, due to the undoubtedly influential role of provider recommendations in CaP screening decisions, only interventions geared at *both* patients and providers are likely to have a marked influence CaP screening behavior.

The effects on knowledge and other outcome measures observed in this study are less pronounced than observed in previous video evaluations. Wilt and colleagues[12] also observed more modest effects in their evaluation of a similar pamphlet intervention, but could not confirm whether the differences between their results and those from prior studies were due to the intervention, population examined, or methodology. We used the same video intervention evaluated in previous studies and employed similar measures. However, in most previous studies of the video, the study sample was restricted to individuals who agreed to watch the video in clinic, and opportunities for group discussion were provided. Hence, exposure to and salience of the intervention was likely higher in these prior efficacy studies

relative to our effectiveness study, in which exposure to the materials was voluntary, variable across the study sample, and reached only about 50% for both intervention groups. However, our additional analyses redefining treatment groups according to exposure suggest that the modest effects observed in our trial cannot be attributed to incomplete intervention exposure alone. In the prior video studies, patients were informed that they would be questioned about the materials and were interviewed immediately after the intervention. In the current study and the previous evaluations of mailed pamphlets, however, subjects were not informed that they would be questioned and the interval between intervention and questioning averaged 2 weeks. Because the knowledge gained from these interventions likely declines over time, these differences in data collection protocols may also contribute to the differences in effect sizes.

CONCLUSIONS

The results from this study suggest that both interventions evaluated modestly enhance patient CaP screening knowledge and self-reported participation in decision making, and decrease interest in screening relative to controls. While the impact on specific outcomes varied somewhat between the two interventions, they are generally comparable in effectiveness. Given comparable impact, the lower-cost pamphlet is an attractive option for busy clinic settings with limited resources. Additional research is needed to assess the impact of these interventions on patient-provider interactions and the shared decision-making process.

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