Behavior Change

Applying the Health Promotion Model to Development of a Worksite Intervention

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Abstract

Introduction. *Consistent use of hearing protection devices (HPDs) decreases noise-induced hearing loss, however, many workers do not use them consistently. Past research has supported the need to use a conceptual framework to understand behaviors and guide intervention programs; however, few reports have specified a process to translate a conceptual model into an intervention.*

Purpose. *The strongest predictors from the Health Promotion Model were used to design a training program to increase HPD use among construction workers.*

Subjects/Setting. *Carpenters (n = 118), operating engineers (n = 109), and plumber/pipefitters (n = 129) in the Midwest were recruited to participate in the study.*

Design. *Written questionnaires including scales measuring the components of the Health Promotion Model were completed in classroom settings at worker trade group meetings.*

Measures. *All items from scales predicting HPD use were reviewed to determine the basis for the content of a program to promote the use of HPDs. Three selection criteria were developed: (1) correlation with use of hearing protection (at least .20), (2) amenability to change, and (3) room for improvement (mean score not at ceiling).*

Results. *Linear regression and Pearson's correlation were used to assess the components of the model as predictors of HPD use. Five predictors had statistically significant regression coefficients: perceived noise exposure, self-efficacy, value of use, barriers to use, and modeling of use of hearing protection. Using items meeting the selection criteria, a 20-minute videotape with written handouts was developed as the core of an intervention. A clearly defined practice session was also incorporated in the training intervention.*

Conclusion. *Determining salient factors for worker populations and specific protective equipment prior to designing an intervention is essential. These predictors provided the basis for a training program that addressed the specific needs of construction workers. Results of tests of the effectiveness of the program will be available in the near future.*
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Key Words: Health Promotion Model, Worksite Intervention, Predictor-Based Training, Hearing Protector Use, Predictors of Behavior

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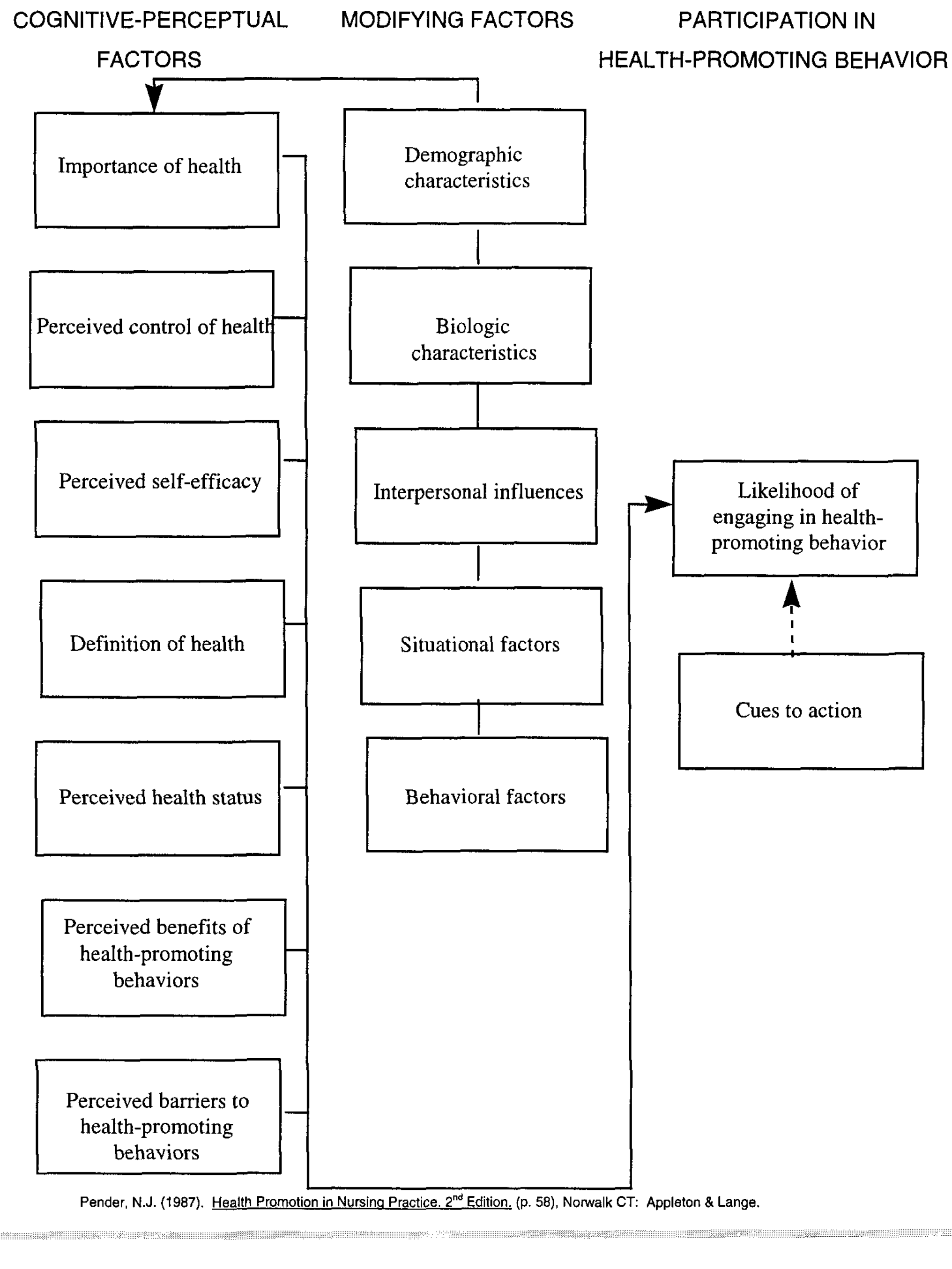
INTRODUCTION

Past research has supported the need to use a conceptual framework to understand workers' behaviors.[1] The importance of a conceptual basis to guide behavioral intervention programs is well accepted.[2,3] While a number of models are reported to serve as the bases for interventions, few reports were found in the literature that specified step-by-step processes to be used in translating model components into contents of interventions. We previously reported our use of a similar process with another target group.[4] Other studies using stages-of-change theory[5,6] have provided intervention content tailored to the individual's response on specific questionnaire items. In this study, tailoring to the individual was not possible. Therefore, it was necessary to develop a single intervention package for delivery to groups of construction workers. The Health Promotion Model was used to identify predictors of use of hearing protection by construction workers (Figure 1). This paper reports the strategies used to translate the predictors into intervention content and process.

In the United States, it is estimated that more than 30 million workers are exposed to hazardous noise on the job.[7] Not only does hazardous noise lead to hearing loss, it is also believed that noise leads to increased stress and stress-related physiologic disorders.[8–11] Because of this significant occupational health problem, the Occupational Safety and Health Administration (OSHA) has mandat-

Figure 1

Health Promotion Model



Pender, N.J. (1987). Health Promotion in Nursing Practice. 2nd Edition. (p. 58), Norwalk CT: Appleton & Lange.

ed hearing conservation programs and safety standards relating to worksite noise for industrial workers.[12] These standards specify sound levels in decibels measured on the A-scale (dB(A)), and duration of exposure during the workday. In addition, the standard requires employers to (1) monitor employee noise exposures at the worksite; (2) provide notification of employee noise exposures; (3) provide a variety of suitable hearing protection devices (HPDs); (4) provide instruction in the fit and use of hearing protection devices; (5) provide education regarding the effects of noise on hearing and provide training programs to employees, including access to information and training materials; and (6) provide employees with yearly audiometric

Table 1

Demographics, Noise Exposure, and Hearing Protection Use by Trade Group

	Operating Engineers (n = 118)		Carpenters (n = 109)		Plumber/ Pipefitters (n = 129)	
	M	SD	M	SD	M	SD
Age*** (y)	41.0	10.0	27.0	6.4	30.5	8.2
Years in trade***	17.2	10.0	6.1	5.5	7.3	7.3
Proportion of time exposed to high noise***	58%	34%	43%	27%	39%	26%
Proportion of time wearing HP† in noise***	51%	39%	21%	31%	33%	35%
% Married***	72.0		39.4		51.2	
% High school plus***	30.5		47.7		65.1	
% Never use HP***	10.2		43.1		20.2	
% Always use HP***	11.9		1.8		2.3	

† HP = hearing protection.
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

tests and education about the meaning of such tests. A standard does exist for the construction industry, which requires employers to provide hearing protection and a hearing conservation program for employees who are exposed to noise at or above an 8-hour time-weighted average of 90 dB(A). However, this standard is less complete than the one for industrial workers, because it lacks specificity regarding the nature of an effective hearing conservation program.[13,14]

Whenever possible, employers are required to use engineering or administrative controls to reduce noise. When these controls are not possible or have not been accomplished, HPDs should be used to prevent noise-induced hearing loss, which is irreversible but entirely preventable. However, past research has shown that many construction workers do not use HPDs on a regular basis.[15]

While prior research has examined the efficacy of HPDs,[16–18] relatively few studies have examined factors related to the use of hearing protection by construction workers. In a prior study, Lusk, Ronis, and Kerr[4] identified factors that influenced factory workers' use of hearing protection and the implications of these factors for developing training programs. Construction workers, however, differ from factory workers in several ways.

As a group, construction workers have the highest rates of work-related injury and illness in the United States.[19] They frequently work in rapidly changing environments, being exposed to noise from their own equipment as well as noise from the equipment of others sharing their work site. In many cases, engineering controls to reduce noise may not be feasible. In addition, construction workers frequently move from site to site and may work on several different sites during the same day. This increases the need for the individual worker to take more personal responsibility for safety and health than may be necessary in an industrial environment.

The Health Promotion Model[20] identified the predictors of individuals' use of hearing protection for construction workers (Figure 1). Previous research found that the model predicted a large proportion of the variance in the use of HPDs by factory workers.[21] The current study extends the application of the model for understanding the use of hearing protection to a new population: construction workers. Once identified, the predictors of construction workers' use of hearing protection were used to create a training program designed to increase the use of hearing protection among construction workers.

METHODS

Subjects

Carpenters, operating engineers (heavy equipment operators), and plumber/pipefitters in the Midwest were recruited through trade unions and trade group associations to participate in the study. Both trainees and apprentices, as well as experienced workers in the three trades, were included. Written questionnaires were completed by the participants in classroom settings as they attended their training programs. Demographics by trade group are summarized in Table 1. A total of 356 workers participated in the study (118 carpenters, 109 operating engineers, and 129 plumber/pipefitters). Across all three trade groups, the vast majority were male (94.5%) and Caucasian (87%), with about 8% being African American. The mean age differed by group, with the operating engineers being the oldest (41 years) and carpenters being the youngest (27 years). The proportion of workers who were married also differed by group, consistent with the distribution by age.

Nearly all the workers had at least

Table 2

Description and Reliability Coefficients for Instruments Measuring Components of the Health Promotion Model*

Component	Instrument	No. of Items	Reliability (Alpha)
Modifying factors			
Interpersonal influences for HP use	Interpersonal norms	4	0.76
	Interpersonal support	8	0.86
	Interpersonal modeling	2	0.86
Situational factors	HPD availability and accessibility	9	0.80
	Noise exposure†	3	0.94
Cognitive-perceptual factors			
Perceived control of health	Perceived health competence	8	0.78
Definition of health	Clinical health scale	7	0.87
	Overall wellness	9	0.85
Perceived health status	Self-rated subindex of health‡	4	0.72
Perceived self-efficacy in the use of HP	Self-Efficacy of use of HPDs	10	0.73
Perceived benefits	Benefits of use	12	0.69
	Value of use of HPDs§	5	0.87
Perceived barriers	Barriers to use of HPDs	12	0.84

* All instruments have a Likert-type six-point response scale unless otherwise noted. HP = hearing protection; HPD = hearing protection device.
† Response format was percentage of time for three time periods.
‡ Response format with four-point responses.
§ A 10-cm visual analog scale with "slightly important" and "highly important" as the endpoints.

a high school diploma (95%); however, workers in the plumber/pipefitter and carpenter groups were more likely to have had some formal education beyond high school than were the operating engineers. The mean number of years worked in the trade also differed among groups, with the older operating engineers having worked more years than the younger carpenters and plumber/pipefitters.

Instruments to Measure Components of the Model

Questionnaires were provided in a booklet format that required approximately 35 to 40 minutes to complete. Table 2 identifies the components of the Health Promotion Model, the instruments used to measure these components, the number of items in each scale, and the reliability coefficient for this sample. Cronbach's alpha coefficients were used as the reliability measure.[22] Values above .70 are generally considered acceptable,[23] and all but one of the scales met this criterion. The benefits scale had an alpha of .69, which is not a serious problem. It is notable that the two-item scale of interpersonal modeling achieved a reliability of .86, despite its brevity. A brief description of the instruments used in this study follows.

Modifying Factors

Demographic Characteristics. Data were collected for a number of demographic characteristics, including race/ethnicity, age, gender, marital status, education level, job classification and years of employment in the construction trade. In addition, workers' perceptions of their hearing ability were assessed by such questions as "How would you rate your overall hearing at the present time" with answer categories of excellent, good, fair, and poor.

Interpersonal Influences for the Use of Hearing Protection. A scale, adapted by the researchers from instruments developed by the Child/Adolescent Health Behavior Research Center at the University of Michigan to measure social support for exercise behavior (N. J. Pender, personal communication, 1993), measures interpersonal norms, interpersonal support, and interpersonal modeling for the use of hearing protection. Interpersonal norms assessed respondents' beliefs about how much others (family members, friends, supervisors, and coworkers) believe they should wear hearing protection when in a high-noise work environment. Interpersonal support measured perceptions of praise or encouragement for wearing hearing protection from friends, family members, supervisors, and coworkers. Interpersonal modeling assessed how much each respondent believed coworkers and supervisors use hearing protection when exposed to noise.

Situational Factors. Two scales to measure situational factors were developed by the researchers. First, perceptions of accessibility and availability of HPDs were measured by questions such as "Ear plugs are available to pick up at my job sites" and "At my job sites, I have a choice of different types of ear plugs." The second scale, perceived noise exposure, defined high noise levels ("when you have to shout to be heard by a coworker who is three feet or less away from you") and asked for the percentage of time spent in high-noise environments for three time periods; the past week, the past month, and the past 3 months.

Cognitive-Perceptual Factors

Perceived Control of Health. Measured by the Perceived Health Competence Scale,[24] perceived control of health assessed the extent to which respondents felt in control of their health. "I'm generally able to accomplish my goals with respect to my health" is an example of an item from this scale.

Definition of Health. In a previous study, Lusk, Kerr, and Baer[25] revised the Laffrey Health Conception Scale[26] to measure the definition of health. This revised scale was used in the present study as well. The Clinical Health subscale, used in its original form, measured respondents' conceptions of health with items such as "Being free from symptoms of disease." A new, reduced Overall Wellness subscale was created from selected items in the original scale and used to measure definition of health with items such as "Feeling great—on top of the world."

Perceived Health Status. The perceived health status factor, used to assess respondents' conceptions of their current health statuses, was measured by the health subindex of the Philadelphia Geriatric Center Multi-level Assessment Instrument,[27] which uses a four-point response format from "excellent" to "poor." An example of an item is "How would you rate your overall health at the present time?"

Perceived Self-efficacy in the Use of Hearing Protection. The level of confidence respondents had regarding their ability to use hearing protection was measured by a scale designed by the researchers for this project. An example of an item from this scale is "I am sure I can use my hearing protection so it works effectively."

Perceived Benefits of Using Hearing Protection. The two subscales used to measure respondents' beliefs regarding the benefits of wearing hearing protection, Benefits of Use and Value of Use, were developed by the researchers for this project. The first scale was modeled on a scale developed by Murdaugh and Hinshaw[28] to measure benefits of and barriers to exercise. "Wearing hearing protection protects me against hearing loss from noise exposure" is an example of an item from the Benefits Scale. The second scale, Value of Use, was modeled on Pender's Value of Outcome Exercise Scale (N. J. Pender, personal communication, 1986) and assessed the degree of importance of such items as "Keep out noise" and "Protect my hearing."

Perceived Barriers to Use of Hearing Protection. Also modeled on the Murdaugh and Hinshaw[28] Benefits and Barriers Scale, the Perceived Barriers Scale was designed by the researchers for this project to assess real or perceived impediments to the use of hearing protection. An example of an item from this scale is "Hearing protection keeps me from hearing what I want to hear."

Dependent Variable. The dependent variable, frequency of use of hearing protection, was a self-report measure of the percentage of time ear plugs or ear muffs were used during exposure to a high-noise situation. High noise was defined as the noise level at which a worker would have to shout to be heard by a coworker 3 feet or less away. Five time periods were assessed: at the most recent job site, at the site before that, during the past week, during the past month, and during the past 3 months. Recognition of the difficulty in using hearing protection consistently was made clear in the wording of the questions, making it acceptable for workers to report nonuse. In all cases, an honest report of actual use was requested.

Observation of factory workers' use of hearing protection correlated with their self-report at 0.89,[29] giving credence to the use of the self-report measure and validating its use as the measure of the dependent variable. Because of this validity and its relative cost- and time-efficiency, self-report was the optimum measure for this study.

RESULTS

Identification of Predictors

Linear regression and correlation techniques were used to assess the importance of the components of the theoretical model as predictors of (and potentially as influences on) use of hearing protection. First, use of hearing protection was regressed on 20 predictor variables identified by the theoretical model (Figure 1). These included (1) demographic variables (race/ethnicity, age, gender, marital status, education level, years of employment in the construction trade, and job classification), (2) modifying factors (availability of HPDs and frequency of exposure to high noise levels) and interpersonal influences to use hearing protection (norm, interpersonal support, and modeling of use of hearing protection), and (3) cognitive perceptual factors (self-efficacy for use of hearing protection, perceived benefits of using hearing protection, perceived value of use of hearing protection, perceived barriers to use of hearing protection, personal health competence, clinical and wellness definition of health, and perceived health). The multiple correlation for this regression was .70, $p < .001$. The adjusted r^2, taking into account the number of predictors, indicated that these variables accounted for 46% of the variance in use of hearing protection.

Table 3 presents the main results of the regression analysis along with correlations of hearing protection use with the predictor variables. Because this report is focused on identifying predictors to be translated into an intervention, results for the demographic variables (which are not amenable to change and have been reported elsewhere), are not included in the table. Beyond the significance test results, the size of the standardized coefficients—especially the correlation coefficients—indicates the predictive validity of each variable.

Five of the predictors had statistically significant regression coeffi-

Table 3

Regression and Correlation Results Relating Hearing Protection Use to Predictor Scales

Variable	Regression Coefficient	Standard Error	Standardized Coefficient	Correlation
Self-efficacy	0.08	0.02	0.16**	0.39***
Benefits	0.05	0.03	0.09 NS	0.38***
Value of use	0.06	0.02	0.12**	0.32***
Barriers	−0.05	0.02	−0.14**	−0.45***
Personal health competence	0.04	0.02	0.08 NS	−0.16**
Clinical Health	0.02	0.02	0.05 NS	−0.01 NS
Wellness	−0.02	0.02	−0.05 NS	0.07 NS
Perceived health	−0.04	0.04	−0.04 NS	−0.01 NS
Availability	−0.01	0.02	−0.04 NS	0.29***
Noise exposure	0.21	0.05	0.17***	0.17**
Interpersonal norm	0.03	0.04	0.05 NS	0.40***
Support	−0.02	0.04	−0.03 NS	0.31***
Modeling	0.12	0.02	0.37***	0.54***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; NS = not significant.

cients, meaning they had predictive value even when all the other predictors were statistically controlled. These five predictors were perceived noise exposure, self-efficacy, value of use, barriers to use, and modeling of use of hearing protection. The signs of these five coefficients were all in the expected directions: Use of hearing protection was greater among workers with higher self-efficacy for use, higher perceived value of use, lower perceived barriers to use, greater perceived exposure to noise, and perceptions of more modeling of use. (The signs of the nonsignificant coefficients do not matter). The same predictors that were significant in the regression analysis (except noise exposure) also had substantial correlations (.3 and above) with use of hearing protection. There were also statistically significant and sizable correlations of some other predictors with use of hearing protection. These additional findings were that high use was substantially associated with high perceived benefits, high availability of HPDs, high norms for using hearing protection, and high interpersonal support for using hearing protection.

As an additional assessment of the strength of association of the predictive factors with use of hearing protection, confirmatory factor analysis was conducted to compute disattenuated correlations between use and each predictor. These are estimates of how strongly the variables would correlate with use if they were measured without error.[30] This analysis identified the same variables indicated by the Pearson correlations as most strongly related to use: self-efficacy, benefits, value of use, barriers, availability, norm, interpersonal support, and modeling. Again, clinical and wellness definitions of health and perceived health were unrelated to use of hearing protection, and perceived noise exposure was only modestly correlated with use.

Translation of Results Into Intervention

A videotape was developed as the core of the intervention because it would assure consistency of content in training sessions, be acceptable as an educational mode in the construction industry, and offer potential for dissemination for others' use. The predictors of use of hearing protection, identified through the analyses, provided the basis for the content of the training intervention. Individual items from the scales measuring the important predictors of use of hearing protection were explored. Means, standard deviations, and correlations of each item with workers' use of hearing protection were reviewed for each trade. In order to identify predictor items most useful in designing the intervention, the research team, with input from consultants, developed three criteria for selection of content for the intervention: (1) those items that correlated with use (.20 or higher), (2) those items with room for improvement in scores (that is, not already at ceiling), and (3) those items potentially amenable to change.

Of the important predictor scales, barriers to use and interpersonal modeling of hearing protection items best met the criteria and therefore provided the majority of bases for the intervention. For example, "Hearing protection keeps me from hearing what I want to hear" is a barrier item that met the criteria. This item was significantly correlated with use of hearing protection ($r = -.2$ to $-.4$) for all three trade groups, the mean (3.5 on a scale of 1 to 6) was not at ceiling, and was amenable to change by influencing workers' perceptions of the barrier.

Translating barrier items into instructional dialogue in the script represents a unique challenge. Simply restating an item such as "Hearing protection keeps me from hearing what I want to hear" rather than providing an alternative, more desirable, point of view emphasizes a barrier. To avoid the problem of emphasizing the negative, this item was addressed in three ways. First, in the first part of the video a discussion between an occupational health nurse and the worker/narrator takes place in which the nurse describes the effect of one's own voice sounding very loud and resonant when hearing protection is worn, while the voices of others sound relatively normal. The worker/narrator agrees he does experience this effect. The results of this conversation produce a professional discussion of how to alter this perceived barrier by emphasizing that the sound of others' voices are unchanged. In the second part of the video, the worker/narrator discusses the use of hearing protection with coworkers. One of these workers describes having been concerned that he would not hear things as well while wearing hearing protectors. He explains, however, that having adjusted to hearing protectors, he could communicate better in noise with them than without them. The worker also states that his experience may not be true for everyone. This conversation demonstrates that the barrier has been overcome, with confirmation from a peer. Third, the written materials included in the training program address the real difficulty of hearing desired sounds when HPDs are used by workers who already have some hearing loss. Information was included regarding HPDs especially designed for those with hearing impairments.

As another example of translation from research to intervention, an item from the interpersonal influences, social modeling of use of hearing protection scale, "Supervisor wears hearing protection" had a strong correlation (r = .4 to .5) with use of hearing protection and was not at ceiling (mean = 2.3 on a scale of 1 to 3). This was translated into an instructional script using social modeling. The worker who has just been asked about his use of hearing protection states that he wears it as a matter of habit, and that this habit was formed by the influence of his supervisor's use of hearing protection. Another way in which this social models item is demonstrated is by virtue of the fact that the first worker is interested in asking his peers about their use of hearing protection. Although his action does not relate directly to the social influence of supervisors, it implies that being influenced by and interested in the safety behaviors of those one works with is an appropriate and accepted behavior.

While a significant portion of the instructional script was derived from the data obtained from workers, additional research contributed to the intervention. For example, Bandura's social cognitive theory[31] was a strong influence throughout the script. The narrator and other workers continually state that they believe they have control over their hearing protection and that it is up to them to manage their hearing health, with guidance from professionals as needed.

The final intervention consisted of a 20-minute video that included trainer guidance and interaction with workers during a practice session and written handouts. The entire intervention was presented in a manner that encouraged hands-on activity. A script for trainers was designed with this approach in mind, and guided practice in the use of hearing protection, using Bandura's concept of guided mastery experience,[31] was incorporated into the videotape. For example, during the video, the narrator coaches trainees as they practice rolling a foam earplug into a small, crease-free cylinder. Social modeling of positive attitudes and perceptions concerning use of hearing protection, as well as active participation in one's hearing health, are demonstrated throughout the video and by the trainers. Bandura's concept of vicarious practice[31] is the operating process here.

Social modeling of characters in the videotape involves the participants in experiences with hearing protection. For example, through the eyes and ears of coworkers in the video, viewers vicariously experience the benefits of using hearing protection, successful elimination of barriers, and increased confidence in the use of hearing protection. Furthermore, the practice session portion of the intervention implemented Bandura's guided practice or mastery concepts[31] by having workers insert hearing protection devices and receive feedback from trainers.

In summary, the results of multiple regression and correlation analyses yielded important predictors from the Health Promotion Model that were related to use of hearing protection. Individual items from the scales measuring these predictors were examined more closely to select content for an intervention to increase use of hearing protection. The predictor-based content was woven into a videotape, a trainer script, a practice session, and handouts using learning processes advocated by Bandura's social cognitive theory.

Test of Effectiveness of Intervention

For the test of the effectiveness of the intervention, construction workers were randomly assigned to a Solomon Four-Group design, either individually or by naturally occurring groups, when attending trade group meetings. One group received only the pretest, another group received the pretest and the intervention, the third group received only the intervention, and the fourth group served as a control, receiving only the posttest. The posttest measure was elicited approximately 1 year after the delivery of the intervention.

We chose the Solomon Four-Group design, rather than a two-group design in which both groups were pretested, because we thought there was a possibility that participants who were pretested might react differently to the intervention than those who were not. The Solomon Four-Group design is ideal in this situation because it tests the impact of the intervention among people who do and do not receive pretests and also determines whether pretesting alone acts as an intervention.

Groups receiving the intervention also provided feedback information regarding their perceptions of the intervention. The feedback results and the test of the effectiveness will be used to refine the intervention. Ultimately, the intervention and a manual to guide its use will be distributed nationally.

DISCUSSION

As recommended in reviews of worksite research,[1,3] this study used a theoretical framework, the Health

Promotion Model,[20] to determine the predictors of the desired behavior and as a basis for designing an intervention. Since the literature does not offer specific guidance for the translation of conceptual frameworks into the content and creation process of interventions, the research team defined criteria for selection of the content for the intervention based on association with use of hearing protection, amenability to change, and room for improvement. In addition, the content was also guided by social cognitive theory in designing the process used in the intervention.

The researchers recognized the importance of determining the salient factors for each group[32] prior to designing an intervention to meet the needs of particular trade groups and categories of workers. Furthermore, in terms of promoting the use of other personal protective equipment, such as safety glasses, hard hats, and protective clothing, it is expected that there will be variability in relative importance of specific predictors of use based on the type of personal protection required. This suggests the need for determination of the salient factors for both the worker group and the specific equipment.

Knowledge of the unique characteristics of construction work environments was used to select actors, settings, equipment and processes for production of the video portion of the intervention. Real-time active worksites were used for shooting most scenes of the video. While it would not be feasible to develop separate interventions for each trade group, the researchers believed it was important that workers felt some identification with the workers and worksites depicted in the intervention.

Subsequent studies will build on this concept by developing and testing new interventions. A project recently funded by the National Institutes of Health will assess the effectiveness of an interactive, individually tailored multimedia intervention for factory workers.[33] Another project, recently funded by the National Institute for Occupational Safety and Health, will address the use of computers to provide individually tailored interventions to construction workers.[34]

Results from this study clearly document the need for increasing use of HPDs by construction workers. In order to prevent noise-induced hearing loss, HPDs need to be used 100% of the time in high noise, and these workers reported use from 21% to 57% of the time. Use of hearing protectors for anything less than 100% of the time significantly reduces their effectiveness in preventing noise-induced hearing loss.[35,36] In contrast with factory workers, noise exposures for construction workers are less controllable, making it even more important to encourage these workers to assume responsibility for use of HPDs to prevent noise-induced hearing loss.

With little expectation of significant further reduction of noise levels on construction sites, consistent use of HPDs by workers is essential in preventing noise-induced hearing loss. Thus, it is critical to implement interventions that are effective in increasing use of HPDs.

SO WHAT? Implications for Health Promotion Practitioners and Researchers

The importance of using conceptual models as a basis for interventions has long been recognized. This study suggests a specific process for translating a conceptual model into an intervention. Statistical analysis identified the components of the model that best predicted the behaviors. The authors suggest selection criteria to identify the questionnaire items that measure predictors, which then serve as the basis for the design of an intervention.

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