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Instrument development and validation for use in a health education program

Joanna Lynn Blockey

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Entitled

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Examination Committee Chair

Dean of the Graduate College

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ABSTRACT

Instrument Development and Validation For Use in a Health Education Program

by

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This study was conducted to establish the validity and reliability of a dependent measure instrument developed specifically for health education programs geared to expectant mothers and their significant others who smoke.

This study's instrument was distributed to 201 randomly chosen college students participating in health education, general education, educational psychology, and communication studies classes at the University of Nevada, Las Vegas.

Results from this study found that the instrument has merit. The confirmatory factor analysis, which proved the instrument's reliability, isolated three different areas of study: beliefs about smoking in general; the effects of smoking on pre- and post-natal babies; and why smokers hesitate to quit smoking. Its factorial validity was supported by three steps taken to establish it: the use of focus groups; the information gained from the large sample of randomly selected students; and the factor analysis used to establish its construct validity.
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CHAPTER 1

BACKGROUND

Every year in America, one out of every 15 babies born is affected by low birthweight. According to the March of Dimes Birth Defects Foundation, low birthweight is related to 60 percent of infant deaths and those babies who survive face serious health problems during the newborn period and are at increased risk of long-term disabilities.

While advances in newborn medical science have reduced the incidence of low birthweight deaths and disabilities, a number of these babies are left with problems such as mental retardation, cerebral palsy, and impaired lung function, sight, and hearing (March of Dimes Public Health Education Information Sheet, 1992).

While many factors can influence birthweight, a mother’s behavior during pregnancy may significantly affect her baby if she doesn’t receive early, regular prenatal care — the most controllable factor that prevents low birthweight. Other factors include: eating a balanced diet; gaining enough weight; and avoiding smoking, drinking alcohol, or using unprescribed drugs.

Since smoking is one of the factors that is detrimental to both the mother and her unborn child, the purpose of this study is to validate a dependent measure instrument which can be used in future studies on smoking and pregnancy. That study will determine whether or not a video-enhanced presentation will be more effective than an oral presentation in increasing the health awareness of expectant moms who smoke.
This area of study merits attention because the health and economics of future generations of Americans are at risk. Although the nation's infant mortality rate dropped to an all-time low in 1993, (8.3 deaths per 1,000 live births, down from 8.5 deaths per 1,000 live births in 1992) the rate is still higher than that of 21 other countries. (National Center for Health Statistics). While the economic impact of these statistics varies state by state, the medical costs for these infants can be staggering. In a study completed in Texas in early 1994, researchers projected that 11,000 newborns would be affected by low birthweight that year, and that hospital expenses for these underweight infants would run about $400 million (“Viewpoint,” 1994).

To clarify the term “low birthweight,” public health information from the March of Dimes Birth Defects Foundation notes that,

“low birthweight is a weight of five pounds, eight ounces (2,500 grams) or less at birth. Very low birthweight is a weight of three pounds, five ounces (1,500 grams) or less. Low birthweight falls into two categories: preterm birth (premature birth) which occurs before the 38th week of pregnancy, and small-for-date babies which are full-term but underweight. Their low birthweight results in part from a slowing or temporary halting of growth in the womb” (March of Dimes Public Health Education Information Sheet, 1992).

This information sheet also notes that socioeconomic factors such as low income and a lack of education may also factor into low-birthweight since low-income mothers may not be able to afford proper health care and nutrition, and teenagers may not know about good health habits. It goes on to say that unmarried women are more likely to experience stress and other social, economic, and psychological disadvantages, which can result in having low-birthweight babies.

However, low birthweight can be prevented in many cases. Women who receive early and regular prenatal care learn good health habits and ways to reduce the possibility of having low-birthweight babies. They learn the basics of
good nutrition, as well as the importance of avoiding behaviors that cause low-birthweight, especially smoking, drinking alcohol, and taking unprescribed drugs (March of Dimes).

Other health risks associated with smoking during pregnancy include stillbirths, miscarriages, and ectopic (tubal) pregnancies. New research also shows that there is an increased risk of SIDS (Sudden Infant Death Syndrome) which was reported in Pediatric Report's *Child Health* newsletter (1993) and other studies (Hammack, 1994) and (Clark, J.M., Maclaine, K; 1992).

In Nevada, low birthweight figures are consistent with the national average. At Sunrise Children’s Hospital and Medical Center in Las Vegas, Nevada, 10 percent of the nearly 7,000 babies born in 1994 fell into low birthweight categories and, according to Barbara Ludwig, the former director of the Center for Healthy Families at Sunrise Hospital, while their “Baby Your Baby” program has been successful in getting expectant mothers to take a greater interest in receiving earlier prenatal care, some of those mothers have had trouble understanding the detrimental effects of tobacco on their unborn babies.

Similarly, the national office of the March of Dimes has charted a continuing trend in the number of low-birthweight babies born. Karla Damus, MSPH, R.N., PhD., an epidemiologist at the Albert Einstein College of Medicine in New York, noted that the March of Dimes goal of decreasing the number of low birthweight babies to 10 percent by the year 2000, will not be attained. In fact, according to the March of Dimes, the numbers in the African-American community will remain high at approximately 14 to 15 percent.
CHAPTER 2

REVIEW OF LITERATURE

Along with various articles on the effects of smoking on fetal development and health risks to expectant mothers, other literature included in this study highlights the importance of empowering participants to take an active role in changing their health risks behaviors and the importance of targeting a message to its audience. The definitions and roles of reliability and validity associated with dependent measure instruments are also discussed.

In the area of tailoring the message to the pregnant smoker, researchers found that pregnant smokers more readily quit smoking when the message was tailored to their needs (Windsor, R.A.; Cutter, G.; Morris, J.; Reese, Y; Manzella, B; Bartlett, E. E.; Samuelson, C.; Spanos, D: December 1985), and when the message was delivered by the woman’s physician or health care professional (Li, V.C; Coates, T.J.; Spielberg, L.A.; Ewart, C.K.; Dorfman, S.; Huster, W.J.: September 1984).

Conversely, another study suggested that tailoring methods for specific target populations does not increase their effectiveness in the area of smoking cessation. They may, however, prompt participants to consider taking action to quit smoking (Davis, S.W.; Cummings, K.M.; Rimer, B.K.; Sciandra, R.; Stone, J.C.: Winter 1992).

In another area of study, the Persuasive Health Message Framework (PHM) has been used as a guide to determine the salient beliefs of participants
regarding smoking and pregnancy. The PHM, is comprised of elements from the theory of reasoned action (Fishbein & Ajzen, 1975), the elaboration likelihood model (Petty & Cacioppo, 1986), and protection motivation theory (Rogers, 1983). According to these researchers, the PHM offers an integrated approach to generating messages that are culturally, demographically, and geographically appropriate for specific target audiences (Atkin and Freimuth, 1989; Fishbein and Ajzen, 1981; Flora and Thoreson, 1988), and is invaluable in developing effective health education campaigns.

According to research conducted by Kim Witte, (1992b), the PHM “should contain a health threat message which makes the audience feel susceptible to a severe threat, an efficacy message which convinces the audience that they can perform the recommend response to avert the threat, and should be targeted to a specific audience.” Witte also notes that “perceptions of threat must be sufficiently balanced by strong response and self-efficacy perceptions. That is, the recommended response must be perceived by the audience as efficacious enough to eliminate or substantially reduce the threat before they will change their behaviors” (Rogers, 1975, 1983) (Witte, 1992b, 1992c). In short, the target audience has to believe that they have the power to overcome the health threat before they will make an attempt to change their behaviors.

In some health promotion campaigns, fear appeals are used to gain attention and facilitate some degree of behavior change. Maibach and Parrott (1995) state that “fear appeals must include a severe threat, evidence suggesting the target is especially vulnerable to the threat, and solutions that are both easy to perform and effective” (pg. 79).

Other campaigns use positive affect (positive messages that trigger an appropriate audience response) to overcome such barriers as selective perception and selective retention. According to Janis, Kay, & Kirschner (1965) and Reeves,
Newhagen, Maibach, Basil, & Kurz (1991), several studies have demonstrated that positive affect leads to greater receptiveness of messages. These researchers also note that public service messages that are entertaining, engaging, humorous or dramatic are more likely to succeed. However, Maibach and Parrott (1995), note that “an exception is when the audience feels threatened by an issue. Under these circumstances, positive affect may not promote receptiveness” (pg. 85).

Along with making health information relevant to participants, educators must also empower them to make informed decisions regarding self care. Empowering patients has frequently been used in the treatment of diabetes (Anderson, et al., 1991) (Arnold, et al., 1995), and is equally applicable in the area of smoking cessation. According to Anderson, “The empowerment philosophy is based on the assumption that to be healthy, people must be able to bring about changes not only in their personal behavior but also in their social situations and the institutions that influence their lives” (pg. 309).

Arnold notes, “The empowerment philosophy assumes that individuals care about themselves and will strive to make decisions they perceive to be in their own self-interest. When patients make decisions that are internally motivated, they will have greater and longer-lasting energy for follow-through than if their decisions are externally motivated. (eg, to please the provider)” (p. 309).

It is important for parents to remain non-smokers because research conducted by Corbo, et al. (1996), Haglund and Cnattingius (1990) and the U.S. Environmental Protection Agency (1989) has shown that smoking during pregnancy and second-hand smoke during the toddler years can directly affect lung function and the bronchial health of children. And as the research by the Texas Prevention Partnership prenatal substance abuse program shows, an estimated $400 million will be spent in their state annually to care for 11,000 drug-exposed, underweight infants.
However, Dr. James Prochaska (1996) notes that people have to be ready to make changes. Contrary to popular beliefs, New Year’s resolutions don’t happen overnight, they have probably been made three years in a row, according to Prochaska. In an article entitled, “Just do it, isn’t enough: change comes in stages,” Prochaska stated that “change doesn’t begin with action,” which is actually the fourth of six stages of change according to the Transtheoretical Model of Behavior Change (Fava, Velicer, Prochaska, 1995). The five Stages of Change in the area of smoking cessation include:

**Precontemplation** (in which a smoker has no intention to quit within the next six months); **Contemplation** (in which a smoker is seriously considering quitting within the next six months), **Preparation** (in which a smoker is seriously planning to quit within the next 30 days and has made at least one quit attempt in the past year.), **Action** (in which a former smoker has been continuously quit for less than six months), and **Maintenance** (in which a former smoker has been continuously quit for more than six months) (pg. 4).

"Fewer than 20 percent of a population that needs to make a change are prepared for action at any given time," notes Prochaska (1996) “yet, more than 90 percent of behavior change programs are designed with this 20 percent in mind” (pg. 4). Prochaska also noted that former smokers sometimes relapse for various reasons, but they shouldn’t be discouraged by their lack of willpower. It is important for them to know that “most people lapse at some point. But action followed by relapse is better than no action at all. People who take action and fail within a month are twice as likely to succeed over the next six months as people who don’t take any action at all.” Prochaska noted: “Smokers need to know that change is not a smooth process and that willpower is not the be-all and end-all.” He went on to say that change carries with it a great deal of anxiety over the unknown (how will I feel if I quit smoking, what will I do to relieve stress/fit in with my crowd), and over a fear of failure. But he notes: “Smokers should
remind themselves that they have more than one chance at quitting. If they don’t make it the first time, use it as a learning experience, it takes the pressure off. Also, it’s a way of recognizing that change is a process rather than an event.”

**Transtheoretical Model**

Developed by Prochaska and DiClemente (1984), the Transtheoretical Model of Behavior Change has been used extensively in the area of smoking cessation where there is the greatest empirical support for its use. However, the model has also been used in the areas of HIV risk reduction, exercise adoption and weight control, among others. Along with the stages of change previously discussed, the model also includes various processes of change which are emphasized during the various stages.

According to Nola Pender, RN, PdD, FAAN, (1996), these processes are “covert or overt activities that people engage in to modify their experiences and their environments in order to modify behavior. They were identified in multiple studies and have their roots in various therapy systems (behavioral, cognitive, existential, experiential, humanistic, etc.). They are categorized in the transtheoretical model as either experiential or behavioral processes or strategies.”

Regarding the processes of change, Velicer et al (1996) notes that:

In addition to the processes of change, the model assumes the existence of other independent variables which are specific to the problem area. These are conceptualized broadly to involve either the External Environment or the Internal Environment. Included in the External Environment are any intervention on the problem area, changes in the natural environment that affect behavior, such as a policy change, or changes in the interpersonal environment. The Internal Environment includes personality characteristics, cognitive abilities, available monetary resources, and personal historic events that might impact on the problem area (pp. 556-557).

Pender also notes that core concepts from other behavioral change models
have been integrated into the transtheoretical model. “In particular, the concept of decisional balance from Janis and Mann’s decision-making model (1977) is integral to the theory. This conflict model assumes sound decision making involves comparison of all potential gains and losses which are entered into a balance sheet. The behavior should occur when the potential gains of engaging in the behavior outbalance the losses. The four categories of these gains and losses include: “personal gains or losses; gains or losses for significant others; self-approval or disapproval, and approval or disapproval from significant others” (pg. 167).

Velicer et al (1996), combine these four categories into three constructs: Habit Strength (the behavioral aspects of smoking); Positive Evaluation Strength (Pros) includes positive images, beliefs in the utility of smoking, positive evaluation of the effects, and a generally favorable value and belief system regulating smoking. People in the precontemplation stage are most positive about smoking (the benefits outweigh the risks); and Negative Evaluation Strength (Cons) includes the negative consequences, images, and beliefs of and about smoking (Velicer et al. 1996). According to Pender:

Cross-sectional studies of 12 health behaviors showed that during precontemplation, the cons of changing the behavior were higher than the pros. During either contemplation or preparation, depending on the behavior, the pros increase was followed by a decrease in the cons so that there was a crossover in decision balance. That is, for the majority of behaviors studied, the balance between the pros and cons had reversed before action occurred. During the maintenance stage, the pros of engaging in the desirable behavior or not engaging in the undesirable behavior continued to outweigh the cons. These principles are an interesting attempt to quantify the dose-response relationship between a cognitive shift and a behavioral change (pg. 166).

Understanding this model’s stages and processes of change is important for a number of reasons. According to Velicer et al. (1996), “in a general popula-
tion of smokers, we can expect that the majority of people are concentrated on
the first two stages. In a recent summary of three representative samples from
the United States, the same pattern emerged in each sample: approximately 40
percent of the population was in Precontemplation, 40 percent of the population
was in Contemplation, and 20 percent of the sample was in Preparation”
(pg. 555). The authors note:

Within the context of the model, it can be seen that four critical transitions
occur, each of which can be a focus of an intervention: (a) movement from
Precontemplation to Contemplation, (b) from Contemplation to Preparation,
(c) from Preparation to Action, (d) from Action to Maintenance. Existing criterion measures that focus only on target behaviors (e.g.
weight loss, smoking, or alcohol abstinence) are appropriate for only one
of these transitions: from Preparation to Action, where the person actually
changes behavior. Most existing interventions focus on this transition
(Prochaska & DiClemente, 1992; Velicer & DiClemente, 1993; Velicer,
Rossi, Ruggiero & Prochaska, 1994). The other three transitions can be
assessed only poorly or not at all with standard outcome measures.
Almost no interventions exist for the first two transitions. Any study
assessing the effectiveness of interventions targeted at these transitions
will require the development of alternative criteria. This is particularly
critical in the early stages, where traditional measures have no sensitivity
to change at all (pg. 561).

Taking these results into consideration, it is hoped that the information
gained from this study’s dependent measure instrument will both prove its
validity and reliability and note where in these first three stages of change the
majority of smoking participants can be found.

This is important because research has shown that smoking cessation
during pregnancy differs dramatically from cessation during periods of
nonpregnancy (Stotts et al. 1996). According to these researchers, “pregnant
quitters were not engaging in experiential and behavioral processes at levels
associated with the action stage of change. Low levels of process use and high
efficacy indicated an externally (for the baby) motivated stopping rather than an
internal, intentional process of change, which may account for high relapse rates postpartum.” Stotts also noted:

The high relapse rates postpartum suggest that these women may not have fully prepared themselves to quit and may be more akin to women in earlier stages of the change process. In fact, the pregnancy may be a type of “external” motivator that makes quitting less difficult. Consequently, these women may not use the cognitive and behavioral coping strategies that typically assist people in their smoking cessation efforts (Prochaska & DiClemente, 1985). Once the external motivation is removed via birth of the baby, relapse is a likely outcome (pg. 340).

These high relapse rates may be further influenced by the daily environment in which the participants live. Not only did they have to refrain from smoking during their pregnancies, but they had to do so surrounded by glamorous advertising campaigns for various cigarettes. Popular magazines geared to women and teenagers, are replete with ads showcasing photos of beautiful models or popular movie stars caressing the ever-seductive cigarette, but neglect to include articles on the health risks associated with smoking.

Elizabeth Whelan (1993), reviewed the July/August 1992 issues of 10 publications (Redbook, Glamour, New Woman, Cosmopolitan, Vanity Fair, Self, Family Circle, Mademoiselle, McCall’s, and Harper’s Bazaar). Whelan noted that “not only is their [the magazines] ‘health advice’ a distortion of scientific reality, but also that the ‘disinformation’ about health is sponsored (through billions of dollars worth of advertising) by the manufacturers of the leading cause of premature, preventable death — cigarettes (pg. 10).

Whelan found that although approximately 500,000 Americans die each year as a result of smoking cigarettes, the magazine issues in question focused instead on the “alleged ill effects of trace level chemicals and other hypothetical causes of disease” (pg. 10). The health advice they offered women on how to stay healthy, included eating more broccoli, taking vitamins, and buying a pet.
Whelan (1993) also noted that while magazines might claim to be in the business of entertaining more than informing, "the role of cigarette advertising revenues in the ‘filtering’ of stories with bad news about smoking cannot be underestimated" (pg. 11). According to Whelan, "the magazines carried 147 cigarette advertisements during the traditionally sparse month of August, all of which characterized the product as being glamorous, sexy, and feminine" (pg. 11). These same magazines carried stories on popular stars with photos of them holding well-placed cigarettes.

"If historians ever wonder about the underlying causes of inverted health priorities that characterize our nation’s public health policies today," Whelan (1993) writes, "policies that draw attention to the alleged dangers of everything from apples to bacon to electric blankets, yet ignore the significance of nearly $4 billion in advertisements annually for the leading cause of death -- they need look no further than the magazines at today’s newsstands" (pg. 12).

It is important to note that the tobacco industry’s advertising budget has always been quite generous. According to the 1994 Surgeon General’s Report, the American Tobacco Company (ATC) spent $400,000 in advertising dollars starting in the 1920s, primarily to encourage women to begin smoking. This amount grew to $19 million by 1931 (pg. 165). The ATC viewed reaching the potential female market as "a new gold mine right in our front yard" (Bernays 1965, pg. 383).

The idea was to promote Lucky Strike cigarettes as a diet aid and symbols of freedom. To ensure the success of this campaign, Edward Bernays, the "father of public relations," organized women "to smoke in public during the 1929 New York Easter Parade" (Schudson 1984) and to carry placards identifying their cigarettes as "torches of liberty" (Bernays 1965, pg. 197). Photos were then distributed to small-town newspapers throughout the nation (Schudson 1984). Bernays called this campaign, "the engineering of consent" (Bernays 1965, p. 390).
To say that the Bernays campaign was successful, would be an understatement, both in terms of advertising dollars and that women proved to be a gold mine. In 1996, the Phillip Morris Company spent $3.9 billion in advertising, sponsorships, and promotional items. That breaks down to $8.5 million a day, or $350,000 an hour (Federal Trade Commission, Congressional Report, 1997).

With the tobacco industry continuing to lure teenagers and young women into tobacco's grasp in order to make up for the older Americans who have quit smoking as a result of death or smoking cessation, it is more important than ever to get the message out to women in their child-bearing years to quit smoking as soon as possible; not only for their own health, but for the health of their children (Valbo, A.; Schioldborg, P.; 1991).

In order to have a positive impact in this area, however, an aggressive health education campaign must be implemented both in schools, perinatal and prenatal classes. And, the dependent measure instrument used in pre- and post-tests to define any increases in the participant’s health awareness must be deemed both valid and reliable in order to be an effective research tool.

The definition of health education includes the following: According to the President’s Committee on Health Education in 1980: “Health education is a process which bridges the gap between health information and health practices. Health education motivates the person to take the information and do something with it — to keep himself healthier by avoiding actions that are harmful and by forming habits that are beneficial.”

Lawrence Green (1980), et al, however prefers to use the words “help” or “facilitate” rather than motivate. According to Green (1980), “Motivation is not something done to people; it is a drive that occurs within the individual. Health education can strengthen and appeal to existing motives and can enable the behavioral expression of existing motives, but it does not ‘motivate’” (pg. 4). The
authors prefer to define health education as “any combination of learning experiences designed to facilitate voluntary adaptations of behavior conducive to health” (pg. 7).

**Reliability and Validity**

In the area of reliability and validity, Borders and Abbott (1991) note: “The goal of any research is to test the hypotheses you developed long before you collected any data... Essentially, internal validity is the ability of your design to test what it was intended to test (pg. 71).” In regards to the future study where this dependent measure instrument will be applied, an increase of health awareness in expectant mothers who smoke will be determined. This, after viewing either an oral or videotaped presentation of the same information and via a pre-test, post-test use of the instrument.

Borders and Abbott (1991) also noted the importance of enhancing the internal validity during the design phase of the study by weeding out extraneous variables that could taint the results (pg. 71). This was accomplished by distributing a draft of the instrument to various health educators in Las Vegas and Reno, Nevada, and to research specialist Vivian Scott at Southwest Gas Corporation. Their input and suggestions were incorporated into the current dependent measure instrument which will be used in this study.

Suggestions from Ms. Scott included: not bunching similar questions together in order to prevent the participant from forming conclusions; leaving slight breaks between sections of questions in order to break eye contact, therefore holding the participants’ attention; and shading every other question, in order to ensure that participants were able to keep question and scale together.

Two threats to internal validity are confounding variables and extraneous variables. According to Borders and Abbott (1991), “confounding occurs whenever two variables in a study vary in such a way that the effect of one on the
dependent measure cannot be separated from the effect of the others. In other words, the two variables are highly correlated, and ascribing changes in the dependent variable to either one alone is impossible” (pg. 71).

The authors clarified the terms by noting that high humidity in the testing room would be an extraneous variable. If the humidity was present for only one group of subjects, then confounding occurred. They note: “Confounding occurs when the extraneous variable varies systematically across conditions along with your independent variable” (pg. 72).

In this study, extraneous variables could include end of semester time constraints for the students — they have their own exams to worry about; or results could be affected by increased knowledge of the health educators participating in the study. A confounding variable could be how much media coverage participants have acquired regarding recent coverage of the tobacco industry.

According to Tull and Hawkins (1984), while “the terms validity, reliability, and measurement accuracy are often used interchangeably, each does have a specific meaning based on the type of measurement error that is present” (pg. 239). They note:

Measurement error can be either systematic or variable in its impact. A systematic error, also known as bias, is one that occurs in a consistent manner each time something is measured. For example, a general tendency to respond favorably independent of one’s true feelings (an additional stable characteristic) would occur each time that individual’s attitude is measured. This would be a systematic error. A variable error is one that occurs randomly each time something is measured. For example, a response that is less favorable than the true feeling because the respondent was in a bad mood (temporary characteristic), would not occur each time that individual’s attitude is measured. In fact, an error in the opposite direction (overly favorable) would occur if the individual were in a very good mood. This represents a variable error (pg. 239).

The authors also define reliability “as the extent to which a measurement is free of variable errors; validity as the extent to which the measure provides an accurate representation of what one is trying to measure,” although they prefer
“the extent to which a measurement is free from systematic error.” And, that “measurement accuracy is defined as the extent to which a measurement is free from systematic and variable error” (pg. 240).

For this particular study we will be focusing on factorial validity. According to Allen and Yen (1979), “factorial validity is a form of construct validity that is established through factor analysis. Factor analysis is a term that represents a large number of different mathematical procedures for analyzing the interrelationships among a set of variables and for explaining these interrelationships in terms of a reduced number of variables, called factors. A factor is a hypothetical variable that influences scores on one or more observed variables” (pg. 111).

Allen and Yen (1979) note that “factor analysis can also be used in test development, and that factorial validity is established by conducting a factor analysis on the test in question as well as on a set of tests that produce known factors (marker tests) (pg. 112). Each marker used to establish factorial validity should be as pure a measure of the factor in question as possible (that is, it should load highly on one, and only one, factor)” (pg. 113).

Allen and Yen (1979) note the basic steps in test development include:

1. Plan the test. Systematically layout the exact areas to be covered by the items. This planning is crucial for logical or sampling validity.
2. Write items for each of the areas in the plans. Include twice as many to allow for items which are discarded or altered.
3. Administer all the items to a reasonably large sample (at least 50, and preferably several hundred). This sample should be representative of the population with which the final version of the test will be used.
4. Conduct an item analysis. Select the best items, refine them if necessary.
5. Administer the revised test to another representative sample of subjects (pg. 118-119).

To further ensure the external validity of this study’s dependent measure, a random cross-section of students was asked to fill out the instrument on a voluntary basis during the last week of classes. Participants included 201 health
education, general education, educational psychology, and communication students at UNLV.

In summary, the results from the studies previously cited, include:

• smoking is detrimental to the health of both mother and child as well as a difficult habit to break.

• that tobacco companies have lured young women into becoming smokers through splashy, eye-catching advertisements.

• that in order to proceed with future studies that utilize this dependent instrument, it must be validated in order to be judged an effective research tool.

Research Question

Will this dependent measure instrument prove to be a valid as well as a reliable research tool in measuring the health awareness/beliefs of subjects in regards to the effects of maternal and/or public smoking on unborn and newborn babies?
CHAPTER 3

METHODOLOGY

Subjects

This study included 201 students from the University of Nevada, Las Vegas (UNLV). This random group of volunteers were students in Health Education, general Education, Educational Psychology, and Communication Studies. Dr. Charles Regin, Dr. Warren McNab, Dr. Alice Corkill, and Dr. Tony Ferri asked students in their classes if they would be willing to take 10 minutes of class time to fill out the questionnaires. This assignment took place during the last week of the semester. Out of the 250 questionnaires distributed (extras were provided), 201 questionnaires were completed. Age range of participants included those between 18-years-of-age and mid-50’s, with the majority (92.2 percent) falling into the target age range of 18 to 34 years (of most expectant moms in local prenatal programs). Nearly 30 percent (29.9%) were males and 70.1 percent were females. Out of the 201 students surveyed, 40 (20 percent) were either current or previous smokers. While this number is slightly less than the national average of 23.5 percent, and much less than the average in Nevada of 28.9 percent, it may be due in part to the fact that these were college students who may have been more aware of the health risks associated with smoking.
Dependent Measure Instrument

Questions 1 - 31 of this instrument measure the subjects' attitudes and beliefs regarding the effects of smoking on fetal and childhood health. The 13 demographic and lifestyle questions at the end of the questionnaire were used primarily to determine what stage of change the participants were in according to the Transtheoretical Model.

This dependent measure questionnaire was initially distributed to a focus group of health education and maternal/child health professionals, as well as a research specialist, in order to ensure its face validity and to garner feedback and additional questions for this study. These health professionals were chosen for their expertise in the field of maternal/child health and for their willingness to participate in this study. They included: David Christy, Dr. P.H., Health and Prevention Specialist, UNR Cooperative Extension Office; Marlene Smith-Hanks; Certified Substance Abuse Counselor, Marriage and Family Therapist, director/Healthy Families Project; Lisa Ashley, B.S. Social Work, Perinatal Substance Abuse Prevention Specialist/Healthy Families Project; and Jody Ruggiero, former Program Services director/March of Dimes/Nevada. Vivian Scott, a research specialist for Southwest Gas Corporation, also participated in the focus group.

The primary purpose of this study was to determine the reliability and validity of this instrument (whether it measures what it is supposed to measure). If it proves to be both, it will be used in a future study to determine whether or not a video-enhanced presentation has a greater impact than an oral presentation on altering the health beliefs of participants regarding smoking and pregnancy.
Statistics

Factor analysis was used in an exploratory fashion in this study. Other appropriate statistics were also used as well, including a covariance matrix. It was this researcher’s original belief that four possible groupings would arise from the survey instrument, including the participant’s attitudes regarding: smoking effects on the unborn; smoking effects on the newborn; beliefs or attitudes about smoking in general; and attitudes involving smoking cessation. Upon completion of the study, however, only three groupings occurred, with attitudes regarding smoking effects on both the unborn and newborn combining.

Procedure

As previously stated, the dependent measure instrument was distributed to 201 students at UNLV, who participated voluntarily. The students were asked by their instructors (Drs. Corkill, Ferri, McNab, & Regin) if they would like to participate in a graduate student’s research project by filling out a questionnaire. The students who agreed were given approximately 10 minutes either at the beginning or the end of class to answer the questions. This was conducted in typical classroom settings. The completed questionnaires were then collected and the data was analyzed using the “Statistical Package for the Social Sciences” (SPSS) via the university’s mainframe.

Human Subjects Committee

The Human Subjects Committee originally approved a much larger study which included this study’s dependent measure instrument. When it was determined that the focus of this study would only be on the instrument, verbal
approval was requested of and received from Marsha Green in the Office of Sponsored Programs. The original approval and documentation can be found on pages 36-49 in Appendix B, "Review and Approvals."
CHAPTER 4

RESULTS

The research question posed was whether or not the instrument would do what it was designed to — measure the health awareness/beliefs of the participants; or would it need to be modified. In this case, only one item out of one on the questionnaire failed to load on any of the three factors found. Since its removal does not negatively impact the study, and since the reliability of the instrument does increase slightly with its removal (the Cronbach alpha reliability for the whole instrument was 0.86), this researcher is suggesting that item one be removed permanently from the instrument. See Table 2 for details (pg 28).

As previously stated, 92.2 percent of the subjects were in the target age range of future participants (18-34 years old) and 70.1 percent were females of child-bearing age.

Out of the 201 participants, 40 (20 percent) were either current or previous smokers. Of those smokers, 32 percent (12) were males and 70 percent (28) were females, seven of whom quit smoking when they found out that they were pregnant. More than 92 percent (92.5) fell within the target age range of 18 - 36 years of age.

The start-up age of 30 percent (12) of this group of smokers occurred between 9 - 14 years of age and 55 percent (22) started between 15 - 20 years of age. This finding means that 85 percent of these smokers were actively using tobacco by the age of 20. Peers influenced 75 percent to start smoking and 60
percent smoked to relieve tension. None of the 40 smokers said that they were influenced to smoke by either movies or magazines, although the possibility exists that they weren't conscious of the influence.

In regards to smoking cessation, only 12.5 percent (5) would stop if insurance paid for their cessation classes, only one person was interested in actually beginning a smoking cessation class, and only 25 percent (10) thought they needed professional help to stop smoking.

Several (82.5 percent) had tried to quit at least once in the past: 40 percent (16) once; 12.5 percent (5) twice; and 30 percent (12) several times. Seven (17.5 percent) had never tried to quit. Thirty percent started again because they liked to smoke and 32.5 started again because their peers did and they felt out of place at parties. On an average, 75 percent smoke one-half pack or less a day and 17.5 percent smoke one pack of cigarettes a day.

According to the Transtheoretical Model, nearly 40 percent of this group would fall into either the Precontemplation, Contemplation, Preparation, or Action Stage of Change, with approximately 5 percent in the Maintenance phase.

The confirmatory factor analysis, which provides support for the instrument's validity, isolated three different areas of questions (instead of the four originally considered): Factor One, which had an eigenvalue of 6.91, representing 22.3 percent of the variance, measures “cessation readiness” containing assertions dealing with the subject's readiness to quit. Factor Two, which had a eigenvalue of 4.51, representing 14.5 percent of the variance, measures “beliefs” containing assertions about the connection between smoking and its effects on the smoker, the unborn and newborns. Factor Three, which had an eigenvalue of 3.06 with 9.9 percent of the variance, measures “personal needs” and includes assertions about the subject's sense of self, like their weight, their ability to quit, etc. Its factorial validity was supported by the three steps taken to establish it:
the use of focus groups of experts, the information gained from the large sample of randomly selected students, and the factor analysis used to establish its construct validity. Means and standard deviation scores are found in Table 1 (pg 25-27).

The factorial validity of this study's dependent measure instrument was established through factor analysis and through a system of pre-planning the structure, layout, and content of the questions and by distributing it to focus groups of health education and research professionals who also reviewed the questions for content, appropriateness, and clarity. The test's development followed steps outlined by Allen and Yen (1979) and further supports the questionnaire's validity.

Taking the previous information into account, it is this researcher's findings that this dependent measure instrument meets the required specifications to be deemed a reliable tool for future research in the area of health education, specifically geared to measuring the health awareness/beliefs concerning smoking and pregnancy.
### TABLE 1
Reliability Analysis — Scale (Full)

<table>
<thead>
<tr>
<th>Question</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 The lungs of a pregnant smoker filter out harmful ingredients that could hurt her unborn baby:</td>
<td>2.1095</td>
<td>1.7053</td>
<td>201.0</td>
</tr>
<tr>
<td>Q2 It is OK for people to smoke around a pregnant mom because her unborn baby can't breathe the smoke:</td>
<td>1.1940</td>
<td>.6222</td>
<td>201.0</td>
</tr>
<tr>
<td>Q3 Tobacco smoke is not as harmful to an unborn baby as illegal drugs:</td>
<td>1.5970</td>
<td>1.0158</td>
<td>201.0</td>
</tr>
<tr>
<td>Q4 It doesn't matter what a pregnant mom eats or drinks because her unborn baby receives special nutrients from her body:</td>
<td>1.0995</td>
<td>.3001</td>
<td>201.0</td>
</tr>
<tr>
<td>Q5 It doesn't matter if a pregnant mom uses alcohol, tobacco, or drugs because her unborn baby is protected by the placenta:</td>
<td>1.0348</td>
<td>.1838</td>
<td>201.0</td>
</tr>
<tr>
<td>Q6 I don't believe that smoking can hurt an unborn baby:</td>
<td>1.0796</td>
<td>.4045</td>
<td>201.0</td>
</tr>
<tr>
<td>Q7 I believe that a pregnant mom can still take drugs or drink alcohol without hurting her unborn baby:</td>
<td>1.0896</td>
<td>.4147</td>
<td>201.0</td>
</tr>
<tr>
<td>Q8 Having a low-birthweight baby means that an expectant mom will have an easier delivery:</td>
<td>1.2637</td>
<td>.6125</td>
<td>201.0</td>
</tr>
<tr>
<td>Q9 An expectant mom can start smoking again once her baby is born:</td>
<td>1.5920</td>
<td>.9709</td>
<td>201.0</td>
</tr>
<tr>
<td>Q10 A new mom can smoke while she's nursing without hurting her baby's health:</td>
<td>1.1940</td>
<td>.4766</td>
<td>201.0</td>
</tr>
<tr>
<td>Q11 A nursing mom can eat or drink anything she wants to without hurting her baby's health:</td>
<td>1.2587</td>
<td>.5854</td>
<td>201.0</td>
</tr>
<tr>
<td>Q12 Cigarette smoke in another room will not affect a newborn's health:</td>
<td>1.5771</td>
<td>.8218</td>
<td>201.0</td>
</tr>
<tr>
<td>Q13 Dads can smoke in the house without affecting a newborn's health:</td>
<td>1.2438</td>
<td>.5247</td>
<td>201.0</td>
</tr>
<tr>
<td>Q14</td>
<td>I don't believe that smoking around newborns is bad for them:</td>
<td>1.1244</td>
<td>.4236</td>
</tr>
<tr>
<td>Q15</td>
<td>I know other women who smoked when they were pregnant and there is nothing wrong with their children:</td>
<td>2.3134</td>
<td>1.1816</td>
</tr>
<tr>
<td>Q16</td>
<td>If smoking was really bad for you, the government would have stricter laws against it:</td>
<td>1.5423</td>
<td>.7871</td>
</tr>
<tr>
<td>Q17</td>
<td>If smoking was really bad for you, magazines wouldn't place cigarette advertisements:</td>
<td>1.4378</td>
<td>.7262</td>
</tr>
<tr>
<td>Q18</td>
<td>The health of a baby will be more the result of &quot;chance&quot; rather than what an expectant mom consumes:</td>
<td>1.3085</td>
<td>.5333</td>
</tr>
<tr>
<td>Q19</td>
<td>My mom smoked when she was pregnant with me, and there is nothing wrong with me:</td>
<td>1.8756</td>
<td>1.1702</td>
</tr>
<tr>
<td>Q20</td>
<td>Smokers are afraid to quit smoking because of weight gain:</td>
<td>3.0846</td>
<td>1.1392</td>
</tr>
<tr>
<td>Q21</td>
<td>Smokers are afraid to quit smoking because friends might not like them anymore:</td>
<td>2.0995</td>
<td>1.0771</td>
</tr>
<tr>
<td>Q22</td>
<td>Smokers are afraid to quit smoking because they don't know how else to relieve stress:</td>
<td>3.3433</td>
<td>1.1299</td>
</tr>
<tr>
<td>Q23</td>
<td>Smokers are afraid to quit smoking because they might not be successful at quitting:</td>
<td>3.4527</td>
<td>1.0812</td>
</tr>
<tr>
<td>Q24</td>
<td>Smokers are afraid to quit smoking because the physical discomfort might jeopardize their lifestyle:</td>
<td>3.1990</td>
<td>1.1446</td>
</tr>
</tbody>
</table>

**CURRENT OR PREVIOUS SMOKERS ONLY.**

<p>| Q25 | I am ready to quit smoking, but don’t know how: | 1.0149 | 1.3801 | 201.0 |
| Q26 | I am seriously thinking about quitting smoking within the next six months: | 1.1045 | 1.5537 | 201.0 |
| Q27 | I am ready to quit smoking within the next 30 days: | .9801 | 1.4141 | 201.0 |
| Q28 | I would quit smoking around pregnant moms if I knew it was bad for their unborn babies: | 1.4030 | 1.9804 | 201.0 |
| Q29 | I would quit smoking if my doctor asked me to: | 1.2338 | 1.7777 | 201.0 |
| Q30 | I would try to stay “smoke free” if I knew it would help my children stay healthier: | 1.4527 | 2.0197 | 201.0 |
| Q31 | I would quit smoking if I could find a low-cost program: | 1.1542 | 1.6465 | 201.0 |</p>
<table>
<thead>
<tr>
<th>Questions:</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1</td>
<td>0.12063</td>
<td>0.02758</td>
<td>0.02038</td>
</tr>
<tr>
<td>Q2</td>
<td>-0.09725</td>
<td>0.34698</td>
<td>-0.09064</td>
</tr>
<tr>
<td>Q3</td>
<td>0.04331</td>
<td>0.37516</td>
<td>0.13506</td>
</tr>
<tr>
<td>Q4</td>
<td>-0.04106</td>
<td>0.48515</td>
<td>0.07935</td>
</tr>
<tr>
<td>Q5</td>
<td>-0.01127</td>
<td>0.47551</td>
<td>-0.05627</td>
</tr>
<tr>
<td>Q6</td>
<td>0.03257</td>
<td>0.39791</td>
<td>-0.20658</td>
</tr>
<tr>
<td>Q7</td>
<td>0.21273</td>
<td>0.45015</td>
<td>-0.06977</td>
</tr>
<tr>
<td>Q8</td>
<td>0.07507</td>
<td>0.54904</td>
<td>0.02480</td>
</tr>
<tr>
<td>Q9</td>
<td>0.11177</td>
<td>0.51235</td>
<td>-0.05756</td>
</tr>
<tr>
<td>Q10</td>
<td>0.19074</td>
<td>0.56106</td>
<td>0.12597</td>
</tr>
<tr>
<td>Q11</td>
<td>0.14442</td>
<td>0.57515</td>
<td>0.15014</td>
</tr>
<tr>
<td>Q12</td>
<td>0.04344</td>
<td>0.61835</td>
<td>0.03074</td>
</tr>
<tr>
<td>Q13</td>
<td>0.02582</td>
<td>0.66282</td>
<td>-0.06658</td>
</tr>
<tr>
<td>Q14</td>
<td>-0.01441</td>
<td>0.48617</td>
<td>-0.22571</td>
</tr>
<tr>
<td>Q15</td>
<td>0.12760</td>
<td>0.62133</td>
<td>0.23912</td>
</tr>
<tr>
<td>Q16</td>
<td>-0.02514</td>
<td>0.57700</td>
<td>-0.13449</td>
</tr>
<tr>
<td>Q17</td>
<td>-0.04309</td>
<td>0.59903</td>
<td>-0.17615</td>
</tr>
<tr>
<td>Q18</td>
<td>0.02686</td>
<td>0.53227</td>
<td>0.12927</td>
</tr>
<tr>
<td>Q19</td>
<td>0.21162</td>
<td>0.35911</td>
<td>0.09304</td>
</tr>
<tr>
<td>Q20</td>
<td>0.05197</td>
<td>0.12627</td>
<td>0.74383</td>
</tr>
<tr>
<td>Q21</td>
<td>0.00457</td>
<td>-0.02886</td>
<td>0.59727</td>
</tr>
<tr>
<td>Q22</td>
<td>0.06541</td>
<td>-0.04716</td>
<td>0.84993</td>
</tr>
<tr>
<td>Q23</td>
<td>0.06678</td>
<td>-0.01706</td>
<td>0.78199</td>
</tr>
<tr>
<td>Q24</td>
<td>0.01542</td>
<td>-0.05349</td>
<td>0.74421</td>
</tr>
<tr>
<td>Q25</td>
<td>0.89564</td>
<td>0.04808</td>
<td>0.05485</td>
</tr>
<tr>
<td>Q26</td>
<td>0.94036</td>
<td>0.07787</td>
<td>0.03644</td>
</tr>
<tr>
<td>Q27</td>
<td>0.93795</td>
<td>0.10077</td>
<td>0.00896</td>
</tr>
<tr>
<td>Q28</td>
<td>0.96268</td>
<td>0.04182</td>
<td>0.03662</td>
</tr>
<tr>
<td>Q29</td>
<td>0.95721</td>
<td>0.00987</td>
<td>0.01303</td>
</tr>
<tr>
<td>Q30</td>
<td>0.96233</td>
<td>0.05884</td>
<td>0.00615</td>
</tr>
<tr>
<td>Q31</td>
<td>0.94945</td>
<td>0.06063</td>
<td>0.01489</td>
</tr>
</tbody>
</table>
CHAPTER 5

DISCUSSION

Findings

As a result of this research, we were able to create and validate a dependent measure instrument that can be used successfully in future health education programs. This instrument can now be used by educators to both measure the effectiveness of health education programs targeted to expectant mothers who smoke and to assess their smoking cessation readiness. Also, the results of this study proved that this instrument has the ability to measure the health awareness/beliefs of participants as well as what stage of change they are in, in relation to smoking cessation readiness (according to James Prochaska's Transtheoretical Model).

This information is important for health educators because it will allow them to view test results, assess and differentiate participants who are likely to change (Action) vs. unlikely to change (Precontemplation) and then move participants along from stage to stage via subsequent classes. As a result, when this instrument is used, the success rate of smoking cessation programs should increase. What we have then is an instrument that has both validity and placement.

For instance, most smoking cessation programs are geared to participants who are ready to take action toward that end. However, as previously mentioned and according to Prochaska, only 20 percent of smokers are in that stage of
change at any given time, the rest are either just thinking about quitting smoking or not ready to consider the matter. If a participant is in the Precontemplation stage (not ready to quit within the next six months), the information they receive may move them to the Contemplation stage (possibility of quitting within the next six months). Or if they are in the Contemplation stage, the information may move them into the Preparation stage (ready to quit within the next 30 days and has made at least one quit attempt in the past year) or the Action stage (where a former smoker has been continuously quit for less than six months).

With the information gained from this instrument, the instructor can then customize his or her teaching program to ensure that most of the participants will be successfully moved to the next highest level of change and ultimately to the Maintenance stage (in which a former smoker has been continuously quit for more than six months).

In summary, as a result of this research a theory was put into an application that can be used as a barometer to assess smokers who are ready to quit, and to gradually move along those who aren't, until they too are ready to successfully break the habit. Secondly, this assessment instrument is valid both in terms of application to theory and to its use in the piloted population because it was used on a population some of whom were potential targets.

**Limitations**

While the participants of this study were largely representative in age and gender of the population to be tested in the future, one limitation of this study was that a large enough sample of expectant mothers who smoked was not available for participation at this time.
The second limitation was that while the language in this instrument was basic, the subjects in this study were college students as opposed to the expectant moms in the future study. This future group of subjects may not have advanced educations, or be as up-to-date on information surrounding the risks associated with smoking and pregnancy.

Third, as far as this researcher knows, none of the participants in this study were pregnant, which would influence the experiential and behavioral processes effecting the stages of change. Pregnant smokers are motivated externally (for the baby) to quit. Non-pregnant smokers must experience an internal, intentional process of change to quit (Stotts et al), which, according to Stotts, accounts for the high relapse rates postpartum.

**Recommendations**

Although this particular study did not include any expectant mothers who smoked, this instrument can be distributed to the significant others of expectant moms in future studies, and for use with high school students in health education classes.

Secondly, since the expectant moms who participate in future studies that utilize this instrument may not be as aware of the health risks associated with smoking and pregnancy, subsequent health education classes and smoking cessation programs should be made readily available to these participants.

Third, when this instrument was distributed to participants, it was found that two of the demographic questions located in Part B (#3, #4) each needed to be broken into two separate questions. For example, respondents answering question #4 had to choose between noting whether or not they work or if they are a stay-at-home parent. In question #3, some subjects listed that they were in
college and had already completed a degree.

While this problem only impacted two subjects and did not affect the outcome of this study or the reliability of the instrument, changes should be made for future research. This researcher would suggest breaking down questions three and four in subsequent tests.

Fourth, it is this researcher's recommendation that this instrument is adapted and validated for use in middle school health education classes and for use in prenatal classes for expectant mothers who smoke.

Finally, the next phase of this research project will be to develop the video portion of an oral presentation targeted to expectant mothers who smoke. Two groups will then be presented either the oral or video presentation to see which has a great impact on increasing the health awareness of these participants. The dependent measure instrument which was validated in this current study, can be worded specifically for the expectant moms participating in the study.

Future research geared to middle to high school students could also utilize either the video or the oral presentation (whichever proves to be the most effective in increasing health awareness regarding smoking). This study's dependent measure instrument should prove to an effective tool in measuring those changes in health awareness via pre- and post-testing procedures.
APPENDIX A

DEPENDENT MEASURE INSTRUMENT
### Health Awareness Survey

Please answer the following questions by circling the number that best represents your viewpoint on the effects of smoking on the unborn, newborn, toddler. For example:

I prefer getting up early in the morning rather than getting up later:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

(I disagree. I prefer getting up later.)

Following the above example:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ) The lungs of a pregnant smoker filter out harmful ingredients that could hurt her unborn baby:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2) It is OK for people to smoke around a pregnant mom because her unborn baby can't breathe the smoke:</td>
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<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3) Tobacco smoke is not as harmful to an unborn baby as illegal drugs:</td>
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<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4) It doesn’t matter what a pregnant mom eats or drinks because her unborn baby receives special nutrients from her body:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5) It doesn’t matter if a pregnant mom uses alcohol, tobacco, or drugs because her unborn baby is protected by the placenta:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6) I don’t believe that smoking can hurt an unborn baby:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7) I believe that a pregnant mom can still take drugs or drink alcohol without hurting her unborn baby:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8) Having a low-birthweight baby means that an expectant mom will have an easier delivery:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9) An expectant mom can start smoking again once her baby is born:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>10) A new mom can smoke while she is nursing without hurting her baby's health:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11) A nursing mom can eat or drink anything she wants to without hurting her baby's health:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Cigarette smoke in another room will not affect a newborn's health:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13) Dads can smoke in the house without affecting a newborn's health:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14) I don't believe that smoking around newborns is bad for them:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15) I know other women who smoked when they were pregnant and there is nothing wrong with their children:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16) If smoking was really bad for you, the government would have stricter laws against it:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17) If smoking was really bad for you, magazines wouldn't place cigarette advertisements:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18) The health of a baby will be more the result of &quot;chance&quot; rather than what an expectant mom consumes:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19) My mom smoked when she was pregnant with me, and there is nothing wrong with me:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>20) Smokers are afraid to quit smoking because of weight gain:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>21) Smokers are afraid to quit smoking because friends might not like them anymore:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22) Smokers are afraid to quit smoking because they don't know how else to relieve stress:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23) Smokers are afraid to quit smoking because they might not be successful at quitting:</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Reproduced with permission of the copyright owner. Further reproduction prohibited without permission.
24) Smokers are afraid to quit smoking because the physical discomfort might jeopardize their lifestyle:  

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

**CURRENT OR PREVIOUS SMOKERS ONLY. ALL OTHERS GO ON TO PART B:**

25) I am ready to quit smoking, but don't know how:  

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

26) I am seriously thinking about quitting smoking within the next six months:  

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

27) I am ready to quit smoking within the next 30 days:  

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

28) I would quit smoking around pregnant moms if I knew it was bad for their unborn babies:  

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

29) I would quit smoking if my doctor asked me to:  

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

30) I would try to stay “smoke free” if I knew it would help my children stay healthier:  

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

31) I would quit smoking if I could find a low-cost program:  

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Answer if applicable: If you are a woman who smokes (or smoked in the past), please answer #32 and #33. Others can go on to Part B:

<table>
<thead>
<tr>
<th>Did Not Quit Smoking</th>
<th>Considered Quitting</th>
<th>Quit Smoking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

32) When I found out that I was pregnant, I:  

32a) not applicable

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Slightly</th>
<th>A great deal</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

33) Smoking affects my baby's health:  

33a) not applicable
PART B

DEMOGRAPHIC INFORMATION:

1) I am _______ years of age.

2) Gender: _______ male
              _______ female

3) I:
       _______ am in high school
       _______ completed high school
       _______ am in college
       _______ completed a degree

4) I:
       _______ work full-time
       _______ work part-time
       _______ am not working right now
       _______ am a stay-at-home mom/dad

5) My primary language is:
       _______ English
       _______ Spanish
       _______ Portuguese
       _______ Chinese
       _______ Japanese
       _______ Other (please list)

Current and previous smokers, please complete Part C, all others are finished with this questionnaire. Thank you for your time and feedback.

PART C

WITH THE FOLLOWING QUESTIONS, CHECK ALL THAT APPLY OR WRITE SPECIFIC INFORMATION:

1) I have been smoking for _____ years (how many years)
2) I smoke approximately ____ pack(s) per day
       ____ pack(s) per week

3) What are some of the reasons you smoke? (check all that apply)
I smoke:

   ____ a) to calm me down
   ____ b) to relieve tension
   ____ c) to relieve anger
   ____ d) to reduce work stress
   ____ e) to reduce family stress
   ____ f) because my friends do
   ____ g) to keep my weight down
   ____ h) because it tastes good
   ____ i) because it makes me feel important
   ____ j) because I enjoy it

4) I started smoking when I was:

   ____ younger than 9 years old
   ____ 9-14 years old
   ____ 15 - 20 years old
   ____ 21 - 27 years old
   ____ 28 - 35 years old
   ____ over 35 years old

5) I started smoking because: (check the most important reason for you)

   ____ my friends did
   ____ my family did
   ____ it made me feel more mature
   ____ magazine ads made smoking look glamorous
   ____ my favorite movie stars smoke
   ____ people I admire smoke

6) I’ve quit smoking in the past:

       __________ once
       __________ twice
       __________ several times
7) I started smoking again because (check all that apply):

- I was gaining weight
- I went to a party and everyone there was smoking
- I missed having something to do with my hands
- I felt nervous
- I like to smoke

8) I would considered quitting smoking if (check all that apply):

- I had some help from a health care professional on smoking cessation
- I had available transportation to smoking cessation classes
- My insurance provider would help pay for treatment for myself and my partner

9) I smoked my last cigarette: ____________ (how many hours, days, weeks, months, or years has it been since you smoked your last cigarette)

Your participation in completing this survey is greatly appreciated. Thank you for your time!
APPENDIX B

REVIEW AND APPROVALS
DATE:       October 13, 1997

TO:        Joanna Peccitto-Blockey (COS)
            M/S: 5007

FROM:      Dr. Lawrence Golding
            Chairman, Biomedical Sciences Committee
            of the UNLV Institutional Review Board

RE:        Status of Human Subject Protocol entitled:
"Using Video-Enhanced Presentations to Facilitate
Behavior Change in Expectant Mothers Who Smoke"

OSP #381s0997-076

This memorandum is official notification that the protocol for the
project referenced above has been approved by the Biomedical
Sciences Committee of the Institutional Review Board. This
approval is approved for a period of one year from the date of
this notification, and work on the project may proceed.

Should the use of human subjects described in this protocol
continue beyond a year from the date of this notification, it
will be necessary to request an extension.

If you have any questions or require any assistance, please
Marsha Green at 895-1357.

cc: A. Ferri (COS-5007)
    OSP File
The following information was submitted to the Office of Sponsored Programs in 1997 for approval of a larger program which included expectant mothers. For the purpose of this thesis, however, the decision was made to concentrate on the dependent measure instrument. Verbal approval was requested and received from Marsha Green in the spring of 1998 to downsize the original request.

**BACKGROUND**

Every year in America, one out of every 15 babies born is affected by low birthweight. According to the March of Dimes Birth Defects Foundation, low birthweight is related to 60 percent of infant deaths and those babies who survive face serious health problems during the newborn period, and are at increased risk of long-term disabilities.

While advances in newborn medical science have reduced the incidence of low birthweight deaths and disabilities, a number of these babies are left with problems such as mental retardation, cerebral palsy, and impaired lung function, sight, and hearing (March of Dimes Public Health Education Information Sheet, 1992).

While many factors can influence birthweight, a mother’s behavior during pregnancy may significantly affect her baby if she doesn’t receive early, regular prenatal care — the most controllable factor that prevents low birthweight. Other factors include: eating a balanced diet; gaining enough weight; and avoiding smoking, drinking alcohol, or using unprescribed drugs.

Since smoking is one of the factors that is detrimental to both the mother and her unborn child, the purpose of this paper will be to determine whether or not a video-enhanced presentation will be more effective in facilitating behavior change, than an oral presentation.

This area of study merits attention because the health and economics of
future generations of Americans are at risk. Although the nation's infant mortality rate dropped to an all-time low in 1993, (8.3 deaths per 1,000 live births, down from 8.5 deaths per 1,000 live births in 1992) the rate is still higher than that of 21 other countries. There were also indications of a slight drop in life expectancy of newborns as a result of influenza, pneumonia, and chronic obstructive pulmonary diseases (National Center for Health Statistics).

At Sunrise Children's Hospital and Medical Center in Las Vegas, Nevada, 10 percent of the nearly 7,000 babies born in 1994 fell into low birthweight categories. In Texas, a projected 11,000 babies affected by low birthweight were expected to be born in 1994. Hospital expenses for these underweight infants were estimated to run $400 million ("Viewpoint," 1994).

According to the March of Dimes Birth Defects Foundation, low birthweight is a weight of five pounds, eight ounces (2,500 grams) or less at birth. Very low birthweight is a weight of three pounds, five ounces (1,500 grams) or less. Low birthweight falls into two categories: preterm birth (premature birth) which occurs before the 38th week of pregnancy, and small-for-date babies which are full-term but underweight. Their low birthweight results in part from a slowing or temporary halting of growth in the womb.

According to the March of Dimes Birth Defects Foundation, socioeconomic factors such as low income and a lack of education may place mothers at increased risk of having low-birthweight babies. Low-income mothers may not be able to afford proper health care and nutrition, teenagers may not know about good health habits, and unmarried women are more likely to experience stress and other social, economic, and psychological disadvantages, which can result in having low-birthweight babies.

However, low birthweight can be prevented. Women who receive early and regular prenatal care learn good health habits and ways to reduce having
low-birthweight babies. They learn the basics of good nutrition, as well as the importance of avoiding behaviors that cause low-birthweight, especially smoking, drinking alcohol, and taking unprescribed drugs.

Other health risks associated with smoking during pregnancy include stillbirths, miscarriages, ectopic (tubal) pregnancies, and an increased risk of SIDS (Sudden Infant Death Syndrome) which was reported in Pediatric Report's *Child Health* newsletter (1993) and other studies (Hammack, 1994) and (Clark, J.M., Maclaine, K; 1992).

According to Barbara Ludwig, the director of the Center for Healthy Families at Sunrise Hospital, the "Baby Your Baby" program's media campaign on Channel 3 has been successful in getting expectant mothers to take a greater interest in receiving earlier prenatal care. However, getting those same mothers to understand the detrimental effects of tobacco on their unborn babies has not been so successful.

Similarly, the national office of the March of Dimes has charted a continuing trend in the number of low-birthweight babies born. Karla Damus, MSPH, R.N., PhD., an epidemiologist at the Albert Einstein College of Medicine in New York, noted that by the year 2000, not only will we fail to reach the goal of decreasing the number of low-birthweight babies born to 10 percent, but in fact, the numbers in the African-American community will remain high at approximately 14 to 15 percent.

Therefore, because maternal smoking holds serious health consequences for both the expectant mother and her developing child, this thesis will attempt to determine whether or not a video-enhanced presentation is more effective in increasing the health awareness of expectant mothers, and in doing so, facilitating behavior change, than an oral presentation.

Recognizing the fact that smoking is not only addictive, but an extremely
difficult habit to break, the presentation segment of my study will be geared to educate in a non-threatening manner. Arkin (1989) noted that “communication specialists are often put in the unenviable position of conducting campaigns asking people to give things up, to change comfortable habits, and to refrain from pleasurable experiences.” In some health promotion campaigns, fear appeals are used to gain attention and, facilitate some degree of behavior change. Maibach and Parrott (1995, pg. 79) state that “fear appeals must include a severe threat, evidence suggesting the target is especially vulnerable to the threat, and solutions that are both easy to perform and effective.”

Other campaigns use positive affect (positive messages that trigger an appropriate audience response) to overcome such barriers as selective perception and selective retention. According to Janis, Kay, & Kirschner (1965) and Reeves, Newhagen, Maibach, Basil, & Kurz (1991), several studies have demonstrated that positive affect leads to greater receptiveness of messages. These researchers also note that public service messages that are entertaining, engaging, humorous or dramatic are more likely to succeed. However, Maibach and Parrott (1995, pg. 85) note that “an exception is when the audience feels threatened by an issue. Under these circumstances, positive affect may not promote receptiveness.”

As previously stated, the presentation segment of this study will include facts related to the effects of smoking on pregnancy, which may generate some feelings of fear regarding this health-risk behavior, but the mothers in this study will also be given information, resources, and the intervention strategies needed to stop smoking when they are ready to do so, thereby leaving participants empowered to make informed decisions, as well as the necessary changes in their lives.

Empowering patients to make informed decisions regarding self care has frequently been used in the treatment of diabetes (Anderson, et al., 1991)
(Arnold, et al., 1995), and is equally applicable in the area of smoking cessation.

According to Anderson, “The empowerment philosophy is based on the assumption that to be healthy, people must be able to bring about changes not only in their personal behavior but also in their social situations and the institutions that influence their lives.”

Arnold notes, “The empowerment philosophy assumes that individuals care about themselves and will strive to make decisions they perceive to be in their own self-interest. When patients make decisions that are internally motivated, they will have greater and longer-lasting energy for follow-through than if their decisions are externally motivated. (eg, to please the provider).”

In this current study, it is hoped that the expectant mothers who are ready to quit smoking will be empowered through the information, skills, and resources they receive to reduce or cease their health-risk behaviors and continue this new behavior into the future, for their own health as well as their infants.

Research conducted by Corbo, et al. (1996), Haglund and Cnattingius (1990) and the U.S. Environmental Protection Agency (1989) has shown that smoking during pregnancy and second-hand smoke during the toddler years can directly affect lung function and the bronchial health of children. And as the research by the Texas Prevention Partnership prenatal substance abuse program shows, an estimated $400 million will be spent in their state annually to care for 11,000 drug-exposed, underweight infants.

With the tobacco industry now targeting teenagers and young women as potential consumers to make up for the older Americans who have quit smoking as a result of death or smoking cessation, it is more important than ever to get the message out to women in their child-bearing years to quit smoking as soon as possible, not only for their own health, but for the health of their children (Valbo, A.; Schioldborg, P.; 1991).
Research Question

Will viewing a video-enhanced presentation on the hazards of smoking during pregnancy be more effective in getting expectant mothers who smoke to reduce or quit smoking, than an oral presentation?

It is the expectation of this current study, that once it has been completed, the expectant mothers in the treatment group will choose to quit smoking more readily than those in the control group. Videotape, therefore, having the greatest impact on behavior change. This outcome being supported by the research of Vernot (1988); Yager (1991); Marston and Bettencourt (1988); Pierce, Macaskill, and Hill (1990); Crigler, Just, and Neuman (1994); and others.

Dependent Measure Instrument

IF YOU ARE A SMOKER:

Please answer the following questions by circling the number that best represents your view. For example:

I prefer getting up early in the morning rather than getting up later:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

(I disagree. I prefer getting up later.)

Following the above example:

It doesn’t matter if I use alcohol, tobacco, or drugs because my unborn baby is protected by a special sac inside me:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

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When I smoke, my lungs filter out harmful ingredients that could hurt my unborn baby:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

It is OK for people to smoke around me because my unborn baby can't breathe it:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Tobacco smoke is not as harmful to my unborn baby as illegal drugs:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

It doesn't matter what I eat or drink because my unborn baby receives special nutrients from my body:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Having a low-birthweight baby means that I will have an easier delivery:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I smoked when I was pregnant before, and there is nothing wrong with my other child/children:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I know other women who smoked when they were pregnant and there is nothing wrong with their children:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
My mom smoked when she was pregnant with me, and there is nothing wrong with me:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I can start smoking again once my baby is born:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I can smoke while I am nursing without hurting my baby’s health:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I can eat or drink anything I want to while I am nursing without hurting my baby’s health:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I can smoke in another room without affecting my newborn’s health:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
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<tbody>
<tr>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Others can smoke in the house without affecting my newborn’s health:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I don’t believe that smoking is bad for you:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
I don't believe that smoking can hurt my unborn baby:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I believe that I can still take drugs or drink alcohol without hurting my unborn baby:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

If smoking was really bad for you, the government would have stricter laws against it:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

If smoking was really bad for you, magazines wouldn’t place such pretty cigarette company advertisements:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I would quit smoking, if my doctor asked me to:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
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<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I would quit smoking if I knew it was bad for my unborn baby:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
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<tbody>
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<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I would try to stay “smoke free” if I knew it would help my children stay healthier:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
I would quit smoking, if I could find a low-cost program:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<tbody>
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<td>3</td>
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<td>5</td>
</tr>
</tbody>
</table>

The health of my baby will be more the result of “chance” rather than what I take into my body:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
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<tbody>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I would be afraid to quit smoking because I might gain weight:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
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<td>1</td>
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<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I would be afraid to quit smoking because my friends might not like me anymore:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
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<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I would be afraid to quit smoking because I wouldn't know how to relieve my stress:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
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<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I would be afraid to quit smoking because I might not be successful:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
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<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I would be afraid to quit smoking because the physical discomfort might jeopardize my lifestyle:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
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<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Smoking affects my baby's health:

<table>
<thead>
<tr>
<th>Not at all</th>
<th>Slightly</th>
<th>A great deal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

I am ready to quit smoking, but don’t know how:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
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<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I am thinking about quitting smoking:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
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<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

I am ready to quit smoking:

<table>
<thead>
<tr>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

When I found out I was pregnant, I:

<table>
<thead>
<tr>
<th>Quit Smoking</th>
<th>Considered Quitting</th>
<th>Did Not Quit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

WITH THE FOLLOWING QUESTIONS, CHECK ALL THAT APPLY OR WRITE SPECIFIC INFORMATION:

What are some of the reasons you smoke? (check all that apply)

I smoke:

___ a) to calm me down
___ b) to relieve tension
___ c) to relieve anger
___ d) to reduce work stress
___ e) to reduce family stress
___ f) because my friends do
___ g) to keep weight down
___ h) because it tastes good
___ i) because it makes me feel important
___ j) because I enjoy it
I started smoking when I was:

___ 9-14 years old
___ 15 - 20 years old
___ 21 - 27 years old
___ 28 - 35 years old
___ other age

I have been smoking for _____ years (how many years)

I smoke approximately ______ cigarettes per day
_______ cigarettes per week

I started smoking because: (check the most important reason for you)

___ my friends did
___ my family did
___ it made me feel more mature
___ magazine ads made smoking look glamorous
___ my favorite movie stars smoke
___ people I admire smoke

I am ________ weeks pregnant.

I am _________ years of age.

I:

__________ am in high school
__________ completed high school
__________ am in college
__________ completed a degree
__________ work full/part-time

My primary language is:

__________ English
__________ Spanish
__________ Portuguese
__________ Chinese
__________ Japanese
__________ Other (please list)
I've quit smoking in the past:

_________ once
_________ twice
_________ several times

I started smoking again because:

_________ I was gaining weight
_________ I went to a party and everyone there was smoking
_________ I missed having something to do with my hands
_________ I felt nervous
_________ I like to smoke

I would considered quitting smoking if:

_________ I had some help from a health care professional on smoking cessation
_________ I had available transportation to smoking cessation classes
_________ My insurance provider would help pay for treatment for myself and my partner

Other comments: (for example: what do you remember the most about this presentation; what information did you find most useful for you).

Methodology

Subjects

After receiving approval from the Human Subjects Committee, this study will include two groups of expectant mothers; one group viewing the video presentation and one group viewing the oral presentation. Participants will be members of the “Baby Your Baby” program at Sunrise Hospital, the “Babies & You in the Community” program at local WIC centers (Women and Infant Children), the Healthy Families Project, and Community Health/EOB Centers. If more participants are still needed, expectant mothers involved in the “Babies & You” program at St. Rose Dominican Hospital may also be included in the study.
This researcher is hoping for a minimum 100 participants in this research project, but that number will be dependant on the number of expectant mothers involved in these programs during the summer of 1997. Age range of participants vary between 18-years-of-age and mid-30's. The majority of whom will be Generation Xers (Americans born between 1965 and 1978) with a percentage of Baby Boomers (Americans born between 1946 and 1964) thrown into the mix.

Most of the mothers involved in the WIC, “Baby Your Baby,” and “Babies & You” programs live at home and are free to attend classes at their discretion. The mothers in the Healthy Families Project, however, live at the residence for a period of six months to one year, during which time they are weaned from their substance abuse problems. Up to eight women can reside at the Healthy Families Project during that time period. It is this group situation that may provide the most reliable data regarding the long-term effects of presentations on smoking cessation in future research.

**Dependent Measure Instrument**

This study will include pre-and post-test dependent measures of the subjects’ attitudes and beliefs regarding the effects of smoking on fetal and childhood health. The independent variable is the use of video/print versus audio/print (on a scale of one to 10 with one being not at all likely and 10 being extremely likely). The 13 demographic and lifestyle questions will be used only in the pre-test to primarily determine what stage of change the participants are in according to James Prochaska’s Transtheoretical Model. This study will also utilize the Between Subjects Design from Ken Bordens and Bruce Abbott’s book, “Research Design & Methods.”

This dependent measure questionnaire was distributed to a focus group of
health education and maternal/child health professionals in order to ensure its face validity as well as to garner feedback and additional questions for this study. These health professionals included: David Christy, Dr. P.H., Health and Prevention Specialist, UNR Cooperative Extension Office; Marlene Smith-Hanks; Certified Substance Abuse Counselor, Marriage and Family Therapist, director/Healthy Families Project; Lisa Ashley, B.S. Social Work, Perinatal Substance Abuse Prevention Specialist/Healthy Families Project; and Jody Ruggiero, Program Services director/March of Dimes/Nevada.

The primary purpose of this instrument will be to determine whether or not the video-enhanced presentation has a greater impact on altering the health beliefs of participants regarding smoking and pregnancy, thereby facilitating a behavior change, than the oral presentation.
BIBLIOGRAPHY


Barwick, John H., Kranz, Dr. Stewart, researchers. (1982). Sony Corporation study on cost effectiveness of the Video Medium. 25.


VITA

Graduate College
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Joanna Blockey

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Las Vegas, Nevada 89103

Home Address:
same as above

Degrees:
Bachelor of Arts, Communication Studies, May 1991
University of Nevada, Las Vegas

Bachelor of Science, Health Education, December 1991

Special Honors and Awards:
Phi Kappa Phi Honor Society, junior year
Golden Key Honor Society, senior year
Lamba Pi Eta Honor Society, graduate school
National Dean’s List, graduate school
Scholarships included: Greenspun School of Communication; Milken Family
Foundation; Augustus Society scholarships and a PEO Sisterhood grant
Received Nevada Supreme Court nomination to sit on the Board of Trustees of the
Nevada Law Foundation, 1994-2000
Received Outstanding Service Award from the American Heart Association
Received numerous writing and publications awards from the International
Association of Business Communicators (IABC) and from the Public Relations
Society of America (PRSA), including Bronze Quills, Awards of Excellence,
Awards of Merit, and a Pinnacle Award

Thesis Title: Instrument Development and Validation For Use in a Health Education
Program

Thesis Examination Committee:
Chairperson, Dr. Anthony Ferri, Ph.D.
Committee Member, Dr. Gage Chapel, Ph.D.
Committee Member, Dr. Richard Jensen, Ph.D.
Graduate Faculty Representative, Dr. Charles Regin, Ph.D.