

THE IMPACT OF RISK AND PROTECTIVE FACTORS ON MESSAGE BIAS

by

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(Under the Direction of Jennifer L. Monahan)

ABSTRACT

This study examined the relationships between seven risk and protective factors and perceptions of bias in anti-smoking messages among an adolescent sample (N = 392; mean age = 14.78 years). Repeated measure analyses were conducted. Parental monitoring was the only protective factor associated with lower perceptions of bias; whereas three of four of the risk factors (number of family/peer smokers, tobacco receptivity, and smoking behavior) were associated with greater perceptions of bias. Both interpersonal variables examined (parental monitoring & number of family/peer smokers), but only two of five individual variables (tobacco receptivity & smoking behavior) were associated with bias. Results indicate that factors external to the self do influence perceptions of message bias, and that those who are a heightened risk for smoking are more likely to perceive messages as biased. Messages should be carefully designed and disseminated to minimize the potential for message bias and rejection.

INDEX WORDS: Message bias, Message perception, Ecological Theory, Risk and protective factors, Defensive motivation, Anti-smoking messages

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DEDICATION

This thesis is respectfully and humbly dedicated to my two greatest role models – Mom and Pop. You have encouraged me to be a life-long learner, and have sacrificed much to provide me with a solid foundation in my faith, relationships, education, and life. Additionally, to my vibrant and loving grandparents who never had the opportunity to embark on the educational journey in which I am involved, yet are the wisest individuals I know, thank you for your inspiration and being part of the movement that has placed me here in this place today.

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CHAPTER 1

INTRODUCTION

Cigarette smoking is the single most preventable cause of premature death in the United States (CDC, 2006a). Yet, nearly 1 out of 5 deaths each year are the result of the adverse effects of smoking. Although the number of smokers in the U.S. is declining, the number of deaths and smoking related illnesses (i.e. cancer, atherosclerosis, hypertension, vascular disease, and stroke) is still large, accounting for approximately 438,000 deaths each year (CDC, 2002). Smoking also contributes strokes, the third leading cause of death in both African Americans and Whites (CDC, 2002). Despite numerous public health campaigns, as of December 2006, 23% of high school students in the United States were classified as cigarette smokers (CDC, 2005). Chassin, Presson, Rose, and Sherman (1996) note that those who do not initiate smoking by age 18 to 30 are unlikely to do so later in life; thus, focusing efforts on reducing the likelihood of smoking initiation among adolescents and young adults is a worthwhile effort in reducing the rates of smoking in the U.S.

One way that health practitioners have attempted to reduce smoking initiation and smoking behaviors among youth is through mediated anti-smoking messages (Grandpre, Alvaro, Burgoon, Miller, & Hall, 2003). Mediated messages have been used in a variety of contexts in efforts to persuade individuals by swaying opinions, changing attitudes, and teaching new behaviors. Health researchers and practitioners, in particular, have used mediated messages in the pursuit of improving public health by informing viewers

about a particular health condition and/or encouraging them to engage or stop engaging in a specific behavior (Noar, 2006). Importantly, some of the more successful health campaigns/interventions have included mediated communication to disseminate the desired message (Wallack & Dorfman, 2000). However, not all health campaigns that include a mediated message component have been successful for a variety of reasons (i.e. hard to change health behavior, poor messaging, etc.) (Atkin, 1981; Wallack & Dorfman, 2000).

Communication scholars have examined various aspects of mediated messages in an effort to understand why some work and others do not. Researchers have typically studied message perception by examining how individuals respond emotionally, cognitively or behaviorally to a message. Much of the message perception literature takes one of two perspectives (Chen & Chaiken, 1999; Lang, et al., 2005; Palmgreen, Stephenson, Everett, Baseheart, & Francies, 2002; Petty & Cacioppo, 1986). Examining message perception as a function of individual differences of the receiver (e.g., need for cognition and sensation seeking needs) or as a function of differences in the messages themselves (e.g., use of affective appeals, type of arguments, etc., e.g., Chen & Chaiken, 1999; Lang, et al., 2005; Palmgreen, et al., 2002; Petty & Cacioppo, 1986). While it is not surprising that most studies have focused on either the effect of message characteristics or on cognitive/motivational individual differences in message receivers, it is surprising that risk and protective factors predictive of the behavior in question (smoking in this case) are rarely, if ever, examined as predictors of message perception. As will be discussed, risk and protective factors are important in predicting behavior.

Thus, in this thesis, I suggest that such factors likely also influence attitudes and related cognitions about the behavior which may then impact message perceptions.

Fraser (2004, p.4) defines risk factor as “any influence that increases the probability of harm (the onset), contributes to a more serious state, or maintains a problem condition.” While usually expressed as probabilities, risk factors are often used in health contexts to predict future outcomes (Jenson, 2004). Individuals with many risk factors are often said to be at ‘high’ risk for some outcome, while those with few risk factors are said to be at ‘low’ risk. However, being at ‘high’ risk for some outcomes, such as alcohol abuse, does not guarantee one’s fate as an alcoholic. In fact, it is this finding that being “at risk” for an outcome, does not guarantee such an outcome, that led researchers to question, how do some individuals who are at high risk and have a high probability for a certain outcome, avoid that fate. Individuals who possess risk factors for a particular health outcome, yet do not succumb to the expected outcome are said to be *resilient* (Fraser, 2004). Resilient individuals have some strengths that are internal and/or external that aid in the achievement of positive outcomes, and these strengths are called protective factors.

Risk and protective factors can come from multiple systems; personality dispositions, genetic traits, family structure, neighborhood and more. Indeed, research using Ecological Theory assumes that interactions occur between such systems and between factors within a system (Skara & Dent, 2001; Wilcox, 1998). Since research demonstrates that risk and protective factors are important predictors of risky behaviors, I suggest that these factors should also exert their influence on other *related* cognitions. Using ecological theory, the proposed study will examine how certain risk and protective

factors that influence the likelihood an adolescent will become a smoker may affect the way individuals perceive anti-smoking messages.

There are several known risk factors that contribute to the likelihood that an adolescent will initiate smoking and/or become a smoker including, for example, receptivity to tobacco messages and familial and social group smoking behavior (i.e. Gardiner, 2001; Cohen, Richardson, & LaBree, 1994; Kogan, Luo, Murry, & Brody, 2005). Similarly, several protective factors have been identified as reducing the likelihood of an adolescent smoking including factors such as parental monitoring and religion. Various risk and protective factors have been found to be reliable and strong predictors of behavioral and attitudinal health outcomes (Franklin, Corcoran, & Harris, 2004; Thomlison, 2004). For example, religiosity has been demonstrated to serve as a risk protective factor for adolescents such that higher religiosity is often correlated with lower risky behavior (Sinha, Cnaan, & Gelles, 2007). Risk and protective factors have the potential to not only impact behavior but also attitudes, which can shape the way that one views messages. It is important to consider the role of risk and protective factors in message perception because of the consequences that may result from such an association.

Protective factors serve to buffer individuals from engaging in certain risk behaviors, while risk factors make individuals more prone to engage in risk behaviors (Franklin, Corcoran, & Ayers-Lopez, 1997; Jenson, 2004). The following examples of risk and protective factors refer to factors that have had a main effect on smoking behavior, not in combination with one another. For instance, adolescents who are African American (Gardiner, 2001), have parents who monitor their behavior (Cohen,

Richardson, & LaBree, 1994), and/or are religious (Kogan, Luo, Murry, & Brody, 2005), have a decreased risk of engaging in smoking. However, those who are more receptive to tobacco advertising (Biener & Siegel, 2000) and have friends and family who smoke (Abroms, Simons-Morton, Haynie, & Chen, 2005) are more likely to smoke than those without such characteristics. Thus, certain risk and protective factors already serve to create a disparity between those more likely to smoke from those less likely to smoke. If these factors also have similar effects to the way individuals perceive anti-smoking messages, such that those with the protective factors are more accepting of the message, but those with the risk factors are more likely to reject the message, then such messages may only be furthering the disparity.

Discovering that certain protective factors both protect adolescents from smoking and help them be more receptive to anti-smoking messages is beneficial; however, the reverse would be detrimental. If the risk factors that put adolescents at greater risk also make them less accepting of anti-smoking messages, then such messages should be reconsidered as they may be making the vulnerable (those with such risk factors) more vulnerable as they reject attempts to inform them of the dangers of smoking. If the messages distributed by public health professionals and academics, are only beneficial to reinforcing the beliefs of those who already hold such anti-smoking beliefs, and do nothing or even have adverse effects on those most at risk for smoking, then the development, design, and testing procedures of such messages needs to be reevaluated and refined.

The risk and protective factors examined in this thesis have been demonstrated to influence smoking behavior. Additionally, these factors are useful in that they are

identifiable characteristics, which can be distinguished in a community setting more easily than internal personality traits/characteristics (which are typically studied in message effect studies). For instance, within a community, after-school program workers and others that work with adolescents likely will be able to gauge to some degree, the predominant race in the community, the amount of parental monitoring of the adolescents, and the religious devotion of the students in their setting. While receptivity to tobacco advertising is less identifiable, it may be more identifiable than many other internal traits. For instance, tobacco receptivity has identifiable behaviors such as wearing or owning merchandise with tobacco advertising on them (Feighery, Borzekowski, Schooler, & Flora, 1998). Examining risk and protective factors that are somewhat identifiable adds a practical dimension to this study, as communities could use the knowledge gained about message acceptance or rejection based on identifiable factors in their community to determine which and whether or not to disseminate such messages in their community.

This thesis uses Ecological Theory (Fraser, 2004) as a framework to examine how individual and interpersonal level factors affect how young adolescents perceive anti-smoking messages; and thus, affect their behavior. Towards that goal, in Chapter 2 I review Ecological Theory and its relevance for health behavior and message perception. Second, I describe the types of reactions adolescents have to anti-smoking messages that are relevant for the proposed thesis--specifically perceptions of message bias and message resistance. Third, based on Ecological Theory and the literature on adolescent smoking, six risk and risk protection factors are explicated and predictions are generated for how such factors will affect how adolescents perceive messages as biased. Finally,

Chapter 3 describes a secondary analysis of data collected in a field experiment with adolescents and the method for testing the hypotheses derived in Chapter 2. Chapter 4 explains the results; and Chapter 5 synthesizes the results and provides implications based on the findings and makes suggestions for future research.

CHAPTER 2

LITERATURE REVIEW

Communication scholars typically study message perception and message processing by examining factors internal to a message such as message effects perspectives (which examines the elements from which the message is composed and how they can be used to predict attitude, cognitive, and behavior change) (Lang, et al., 2005; Palmgreen, et al., 2002) or by examining responses produced by the message such as affective, behavioral, and cognitive responses (see, e.g., Chen, Duckworth, & Chaiken, 1999; Dillard & Peck, 2001; Petty & Cacioppo, 1986; Witte, 1994). Rarely are factors external to the message, such as individual risk and protective factors, examined as they affect perceptions of messages. Yet, various risk and protective factors have been found to be reliable and strong predictors of attitudinal and behavioral health outcomes (Fraser, 2004). Since risk and protective factors have the ability to impact individuals' attitudes, behavior, and behavioral intentions, I propose they also should affect how individuals perceive messages about a health behavior.

Ecological Theory

In an effort to better understand human behavior and adaptation, developmental theorists studied both atypical and normative development with the assumption that knowing the “etiology of problem behavior could inform efforts to promote or to enhance adaptive functioning” (Fraser, Kirby, & Smokowski, 2004, p.13). Similarly, epidemiologists also examine factors associated with the presence or absence of disease

and illness. From an epidemiological perspective, if one could change the factors associated with populations being at higher risk for an illness, then one could potentially decrease the spread of and/or possibly eliminate the illness. Thus, understanding the factors that contribute to health and illness is an integral component of improving public health.

Ecological Theory (Fraser, 2004) is a heuristic perspective which suggests that a multiplicity of factors (both risk and protective) within different systems may be at play simultaneously or may create interactions to influence human behavior. Ecological Theory offers an elegant way to frame risk and protective factors as they can come from and/or exert their impact in a variety of contexts such as the family, school, peer group, neighborhood, and the community. Fraser's system classification for Ecological Theory includes the options to consider risk and risk protective factors on three levels: 1) individuals' psychosocial and biological characteristics such as depression and race, 2) interpersonal such as family, school, and neighborhood conditions, and 3) broad environmental conditions such as the amount of opportunities for education, employment, and achievement which are often influenced by community conditions like poverty and racial discrimination. McLeroy, Bibeau, Steckler, and Glantz (1988) note that the Ecological Theory offers a multisystem transactional perspective in which factors within those systems can exert influence on one another and interact in manners as to affect human behavior, and can be applied to smoking behaviors.

Chaloupka (1998) notes that prior work has demonstrated that adolescent tobacco use is affected by several contextual factors. The success of prevention efforts in reducing the smoking rate in the U.S. has come from interventions that cover a variety of

those factors (USDHHS, 2000). For example, the reduction in smoking in the U.S. did not result just from individual messages, but from strategies that affected all levels of the ecological classification scheme – the individual (through media messages), the interpersonal level (smoking cessation programs), and the community level (smoking bans, school health programs, and enforcement of cigarette sale laws). Caffray and Schneider (2000) note that historically, researchers have tended to focus on one factor in relation to some outcome in isolation of any others. However, researchers now know that “individuals live in multiple social contexts simultaneously, whether they be family, peer, neighborhood, school, or work contexts” and it is likely that multiple forces impact behavior and interact to impact health perceptions, decisions, and behaviors (Cook, 1998, p.151). Thus, I suggest that an Ecological perspective is a proper way to examine the multiple risk and protective factors that influence not only smoking behavior, but also perceptions of anti-smoking messages.

Models of Risk within Ecological Theory. Fraser et al. (2004) offer two models for examining the role of multiple risk and protective factors on behavior within the Ecological perspective. The first of these models is an additive model where factors have a main or additive effect on an outcome, such that protective factors can directly increase the chance of a positive outcome and a risk factor increases the likelihood of a negative outcome. For example, research has long demonstrated that alcoholism runs in families, although it is not clear whether such link is genetic or from observational learning (Cotton, 1979; Goodwin, et al., 1974). Regardless, growing up *without* an alcoholic parent has been demonstrated to decrease one’s risk for developing alcoholism. One’s risk is also lowered if one’s close friends do not drink (Musher-

Eizenman, Holub, & Arnett, 2003). Thus, a protective factor (close friends not drinking) can potentially have additive effects on the effects of another protective factor (parents not drinking). If there is a continuum of risk from a low risk to a high risk of a negative outcome, the additive model explains that a protective factor will have consistent effects in “adding protective value across all levels of risk” (Fraser, et al., 2004, p.32). Thus, one may be at a low risk due to some protective factor; however, another protective factor can still decrease one’s already low risk level (from the initial protective factor); thus serving as an additive or promotive factor. Such could also be true for risk factors. For example, one who is at an increased risk for drug use because he/she lives in a high drug trafficking neighborhood (risk factor) could experience an elevated risk if exposed to another risk factor for drug use (e.g., family drug use pattern). According to the additive model perspective, that additional risk factor should have an effect above that of living in the high drug trafficking neighborhood.

A second model type within the Ecological perspective is an interactive one in which risk/protective factors are examined as moderators (Fraser, 2004). For instance, protective factors may not add any additional protection if one’s stress level is low. It may be that only when stress is high that there is a demonstrable benefit of a protective factor. The interactive model suggests that a protective factor can weaken or strengthen the relationship between some risk factor and an outcome.

Protective factors can interact with risk factors in three specific ways to influence behavior (Hawkins, Catalano, & Miller, 1992; Masten, 1987). First, protective factors may serve to buffer potential risk factors. For example, parental monitoring can serve to buffer individuals from hanging around peers that smoke or going to events in which

smoking is the norm – both risk factors. Second, protective factors can interrupt what is described to be a “risk chain”. For instance, a risk chain could include being receptive to tobacco advertising, having peers who smoke, and having experimented with smoking. While these risk factors substantially increase one’s likelihood to smoke, a protective factor such as parental monitoring could break the chain by restricting the child’s association with friends who smoke. Third, protective factors can prevent the occurrence of a risk factor. For example, anti-smoking socialization by a family or extended family network may protect one from even thinking seriously about a tobacco advertisement.

While this interactive model is a useful way to example multiple dynamics influencing behavior, there are often difficulties in detecting such interactions (see, e.g., Luthar, Cicchetti, & Becker, 2000) and if such interactions are found, they typically explain little variance (Ladd & Burgess, 2001). Such interactions are difficult to find because researchers often end up with a small number of individuals that fit have the criteria necessary to find significance. Regardless of methodological limitations, the interactive model is still useful and promising in identifying theoretically important subgroups. As noted by Fraser et al. (2004), interactive modeling “allows investigators to identify potentially malleable factors that, if fostered by a program, could reduce social and health problems in high-risk children—precisely the children with whom social workers and other professionals often work” (p.33).

Ecological Theory & Smoking. Ecological Theory has been used to examine risk and protective factors within multiple systems for a variety of health-related issues regarding children and adolescents, such as alcohol and other drug use (Jenson, 2004), preventing sexually transmitted infections (Rounds, 2004), adolescent pregnancy

(Franklin, Corcoran, & Harris, 2004), childhood depression (Gilbert, 2004), and suicide (Macgowan, 2004). Wilcox (1998) reviewed the smoking literature and proposed the Ecological framework as the best way to examine the variety of factors that impact smoking behavior, and presented an integrative Ecological approach to understand youth smoking trajectories. Wilcox (1998) noticed some interesting patterns emerge in youth smoking rates and noted that individual and interpersonal-level characteristics (i.e. race, parental smoking, peer smoking, etc.) associated with smoking cannot fully explain the smoking behavior seen in these patterns. Her proposed model describes community and institutional forces that impact smoking behavior beyond the main-effects found at the individual level. Such community-level forces include school characteristics, neighborhood demographic characteristics, religious culture, media influence, economic context, and health services. In this theoretical piece, Wilcox suggests that such community level forces predict smoking outcomes and may moderate the effects of individual level characteristics on smoking. In her review of the smoking literature, she also suggests that processes such as socialization and monitoring should mediate the main effects of the community level forces.

An Ecological framework was also used by Skara and Dent (2001) to examine social, behavioral, and intrapersonal factors that predict the transition from experimental to regular cigarette user. Prior work suggests forming the habit of being a smoker can be divided into four stages; preparatory, trial, experimental smoking, and finally a regular smoking stage (Mayhew, Flay, & Mott, 2000). Skara and Dent (2001) wanted to determine which level of influence (intrapersonal or interpersonal) exerted the greatest impact in the transition to higher smoking stages; the community level of influence was

not included. To do so, they examined a sample of 1,041 adolescent high school students in a longitudinal study. They found that intrapersonal factors (intention to smoke in the next year, violence perpetration, perceived stress, sensation seeking, and male gender) played a dominant role in the transition from an experimental to a regular smoker. The only two social variables that showed significance were family conflict and perceived prevalence.

Wright and Fitzpatrick (2004) also examined substance use through an Ecological perspective. They conducted a cross-sectional study of 1,494 African American adolescent students in grades 5-12. Wright and Fitzpatrick examined cigarette, alcohol, and marijuana use by analyzing the influence of individual, family, and school factors. Instead of specifying a level of influence (i.e. individual, interpersonal, community) as predictive of smoking use (as did Skara & Dent), Wright and Fitzpatrick used the Ecological framework to identify which specific risk and/or protective factors within each level were predictive of cigarette use. They found that associating with peers that had relaxed attitudes about substance use was the most salient risk factor for smoking cigarettes while the predominate protective factors were academic achievement and parental monitoring.

The abbreviated literature review above demonstrates that several studies have used Ecological Theory to examine risk and protective factors for adolescent smoking behavior. Wilcox (1998) used Ecological Theory to predict smoking trajectories, Skara and Dent (2001) to examine which level of influence (intra or interpersonal) had the predominant influence on the transition of smoking stages, and Wright and Fitzpatrick (2004) used the levels of influence to identify specific risk/protective factors that were

predictive of cigarette use. However, as noted in Chapter 1, to the best of our knowledge, no one has applied this perspective to perceptions of anti-smoking messages, the purpose of the present thesis.

The selected risk and protective factors for the proposed study are encompassed within two of the three levels of influence as identified in ecological theory 1) individual (psychosocial and biological characteristics), and 2) interpersonal (family, school, and neighborhood conditions, Fraser, 2004). Broad community influences (the third level of influence in the Ecological Theory) have not been included in this study for two reasons. For one, this is a secondary analysis and, unfortunately, there were no risk or protective factors in the primary study that could be justly classified as broad community level influences. Additionally, the population from which the sample was drawn shares many of the same broad community factors. For instance, the sample was recruited from low-income, rural, high schools in one southern state. That the sample was selected based on similar criteria; there is likely little variance in the broad community level factors included that could influence individuals in this community.

The individual factors to be examined for their influence on message processing are religion, race, and receptivity to tobacco advertisements. The interpersonal factors include parental monitoring, family smoking behavior, and peer smoking behavior. In sum, the proposed study encompasses the Ecological framework by examining individual and interpersonal level factors that may affect message perception.

Message Perception and Bias

Researchers know that simple exposure to a message rarely results in direct behavior change (McGuire, 1976). McGuire's Hierarchy of Effects Model, explains that

there are at least six steps that occur from exposure to a message to behavior change with behavior change being the most difficult stage to achieve. These six steps include attention, comprehension, belief, retention, and adoption of the action the message proposes. I propose that risk and protective factors can influence message perception, because such factors may influence any one of the steps in McGuire's Hierarchy of Effects Model such as the attention given to particular messages, how messages are understood, and whether messages are retained and/or result in behavior change. For instance, a parent could choose to show their child certain videos about smoking and through discussions and answering questions, the parent could make sure the message was comprehended by the child; thus, reinforcing the message. Additionally, one may believe a message because it aligns with one's religious beliefs, or one may perceive a message as biased and overblown because the message is offering contradictory evidence to an individual's reality. For instance, a message may say that smoking kills, but the individual may have healthy parents who smoke, so they dismiss the message.

Prior to explicating the risk and protective factors and their influence on message perception, I describe the type of message perceptions that are examined in this thesis. As noted previously, communication researchers examine how messages result in attitude (e.g., I like the message), belief (I believe that message) and behavioral intent (that message makes me want to change my behavior, Dillard, Weber & Vail, 2007). In addition, researchers also examine affective reactions (e.g., the message made me sad, angry, outraged, Nabi, 2002), perceived effectiveness (e.g., this message effectively made its point, Shen & Dillard, 2007), message rejection, third person effects (e.g., this message would affect my friends (Paek & Gunther 2007); and perceptions of own risk

(Brown & Smith 2007), etc. In this thesis, I focus specifically on how adolescents perceive anti-smoking messages as being *biased*, as message bias has been linked to message effectiveness which predicts attitude and behavioral outcomes (Shen and Dillard, 2007). The next section introduces the term bias and describes the literature on message bias. Specifically, I propose that adolescents may reject anti-smoking messages by perceiving such messages as biased using Psychological Reactance Theory.

Psychological Reactance Theory argues that a major motivation that affects how individuals, and especially adolescents, perceive the world around them is their desire to maintain their own freedom (Brehm & Brehm, 1981). At this theory's core is the assumption that people want control over their fate. When this sense of autonomy is threatened, they experience reactance toward whatever is causing such a threat (Grandpre, et al., 2003). While reactance theory has been used to explain a variety of behavioral responses, its relevance to this thesis is how it relates to message perception. Brehm and Brehm (1981, p. 4) noted, "individuals will sometimes be motivated to resist or act counter to attempted social influence, such as in mass persuasion or in psychotherapy" due to this innate need to maintain their freedom. Reactance theory explains that threats to one's freedom often make the freedom seem more attractive and thus, individuals are more prone to exercise that freedom. Thus, one may never think about his or her freedom to smoke, but once someone threatens that freedom via a message, then the individual may see his or her rights to smoke as attractive. Further, he or she may choose to engage in that behavior not necessarily because they want a cigarette, but rather because they want to exercise and maintain their freedom.

Grandpre et al. (2003) noted that due to the cognitive nature of personal freedoms, reactions to threatened freedoms vary depending on the context and content of the situation. Since “persuasive communication poses a potential threat to freedom,” mediated messages to influence health behavior (among other things) may be met with reactance and if perceived, will likely be perceived as biased (Grandpre, et al., 2003, p.351). When a clear attempt is made to restrict or eliminate individuals’ freedoms to engage in certain behaviors, research demonstrates reactance causes message rejection in a myriad of ways including (a) an increased liking for the activity or choices that were threatened, (b) derogation of the source, (c) denial of the threat, and (d) a boomerang effect (see Rains & Turner, 2007 for a review of these findings).

While reactance theory suggests messages that reduce one’s choices can be met with rejection, people typically do not reject a message without any reasoning or logic to support their claims. As Kunda (1990, p. 483) noted, “People will come to believe what they want to believe [but] only to the extent that reason permits.” Kunda argues that people have an innate sense of obligation to themselves and others to construct a warranted justification for their beliefs. Thus, one who supports smoking will likely not respond to an anti-smoking message by simply stating that it is wrong, but will rather find some fault in the message’s argument and/or will provide other information to support his or her current belief. Kunda (1990) notes that prior knowledge and bias in accessing that knowledge from memory are often used to support attitude-consistent beliefs.

Witte (1994) describes specific modes of biased perceptions of messages and proposes that in developing a legitimate reason for message rejection (as noted by Kunda, 1990), individuals engage in source derogation, perception of manipulation, and message

minimization. Source derogation occurs when individuals make negative claims about the source to discredit the validity of the information (Ahluwalia, 2000). Similarly, Witte argues that source derogation involves discrediting the validity of the message by discrediting the competency of the source. Perception of manipulation resembles reactance as previously discussed: when one feels that someone is trying to manipulate him or her and/or take away his or her freedom, he or she is more likely to experience reactance to the information and resist persuasion (Brehm & Brehm, 1981; Umphrey, 2004; Witte, 1994). Message minimization is an attempt to discredit the message itself rather than the source. Witte (1994) operationalizes message minimization by assessing whether viewers perceive a message as ‘distorted,’ ‘overblown,’ or ‘boring,’ etc. These three mechanisms, source derogation, perceptions of manipulation and minimization, are often used by communication scholars to conceptualize biased perceptions of messages.

Shen and Dillard (2007) suggest that the conceptualization of message bias as source derogation and perceptions of manipulation and minimization can be considered as the opposite of perceived effectiveness in that when one minimizes message content, perceives a message as manipulative and in general, discredits a message, the effect is that they perceive the message as ineffective. Since perceived message effectiveness is a direct and positive predictor of attitudinal and behavioral change, understanding the mechanisms surrounding biased perceptions will be useful in developing health information and mediated messages, as biased perceptions leads to perceived ineffectiveness of the messages, which ultimately leads to message rejection, preventing the opportunity for behavior change (Umphrey, 2004). Moreover, perceptions of message bias can result not only in “null” effects, but also can result in dangerous

boomerang effects such that an individual's likelihood of engaging in the behavior increases as compared to what would happen if he or she had never seen the message. For example, consider the findings from a public service announcement (PSA) campaign from the National Youth Anti-Drug Media Center. In the PSA, "Responsibility, Your Anti-Drug," a little girl was hit by a group of stoned adolescent drivers in one ad and in another ad a little boy drowned because his older brother was getting high instead of babysitting (Office of Drug Control Policy, 2006). Intentions to use marijuana for the 14- to 18-year-old subgroup actually *increased* in the post-campaign period for those who saw these messages. Thus, of importance to health practitioners and scholars is how individuals resist persuasion attempts, as such knowledge will be integral in the development of effective mediated messages, campaign materials, and intervention activities.

Croyle, Sun, and Hart (1997) argue that the health context is appropriate for examining message bias because, in part, health is of personal importance to individuals. This reasoning is also found in the dual-process theory literature (e.g., the Elaboration Likelihood Model and the Heuristic-Systematic Model), as they acknowledge that personal relevance affects the perceptions of messages (see e.g., Liberman & Chaiken, 1992). Defense motivation occurs as one attempts to perceive information that reinforces existing or self-related beliefs that are important to the individual. Zuckerman and Chaiken (1998, p. 633) define defensive motivation as "the desire to hold attitudes and beliefs that are congruent with existing self-definitional attitudes and beliefs." Defense motivated biased perceptions have been demonstrated in several health studies (Croyle, 1990; Umphrey, 2004). Croyle (1990) found that individuals that were told that they

have high blood pressure regarded this health threat as less serious than those told that they had low blood pressure. In this instance, individuals minimized the threat of the health condition if they were at a higher risk for the condition (personal relevance). Croyle, Sun, and Louie (1993) also found that people who had their cholesterol checked and were given higher than desired results, were more likely to question the validity of the instrument used to test their cholesterol (minimization of tools). From these studies, it is evident that health messages must be carefully constructed as there are many obstacles to presenting such potentially threatening information in a way that would be well received by an audience. In this thesis I follow Witte's (1994) work to examine how adolescents perceive messages as biased, with perceived manipulation and message minimization as indicators of message bias.

Any health message that attempts to encourage an individual to adopt and/or reject some behavior will likely be met with some degree of reactance as such a request inherently threatens one's freedom (Brehm & Brehm, 1981). Thus, some reactance and perception of message bias will likely follow from any such message. However, reactance does not necessarily always lead to message rejection, rather reactance and perceptions of message bias is best considered in terms of degrees (or amount of bias) rather than absolutes (e.g., biased or not). Since all anti-smoking messages (like most public service announcements) will potentially threaten someone's freedom, such messages can be perceived as ranging from messages that evoke minimum bias to those that evoke strong reactions of bias in a given population.

Such distinctions in degree of message bias have been operationalized in the present study. To evaluate how risk and protective factors influence perceptions of

message bias, participants will view three anti-smoking messages. Half of the participants will be shown three anti-smoking messages that were demonstrated as having low amounts of bias while the others view three anti-smoking messages that were perceived as having moderate amounts of bias by a similar sample (see Shen, Monahan, Roskos-Ewolsden, & Rhodes, in press). Those messages included in the low-bias condition include three personal testimony PSAs in which individuals describe how smoking has resulted in negative consequences in their own lives. For instance, one man discusses how his wife died from his second-hand smoking, and in another, a lady talks about how her smoking to look older and cooler resulted in severe medical consequences that unfortunately made her look much older than her actual age. In the third message a man is talking about how he loved the Marlboro cowboy ads when he was younger, but now that his brother who was the Marlboro cowboy suffered severely due to smoking-related illnesses, he no longer sees those commercials or smoking in the same way. The messages that are classified as moderately biased include messages that attack the tobacco industry and discuss the effects of second hand smoke. For instance, in one PSA, a business man representing the tobacco company is driving a car and running over people as he talks profits on the phone saying that all he cares about is the profits to be gained. In another PSA, hundreds of baby dolls crawl on the street demonstrating that babies cannot protect themselves from second hand smoke. In another PSA, the negative effects of second hand smoking are highlighted as a family in a SUV where the dad is smoking, complain about his smoking and the message is that you should not “pass gas” (gas being the fumes from a cigarette).

Although these last three messages did evoke higher degrees of bias than the personal testimony ads in a previous study, they still did not evoke high degrees of bias. As noted by Umphrey (2004), biased perceptions leads to perceived ineffectiveness of the messages, which ultimately leads to message rejection, preventing the opportunity for behavior change. Thus, a conscious choice was made not to include anti-smoking messages that had been demonstrated to produce high levels of bias with a similar sample the previous year. Although all of the messages used for both last year's study and the current study were aired nationally and created for a teen population, the researchers chose not to expose students to messages that they knew would likely be met with strong resistance, as such messages may potentially be harmful rather than helpful to the sample exposed to the messages. The researchers preferred that all of the messages did "as little harm as possible," and thus messages with either low or moderate amounts of bias were selected for viewing in the present study, since we know that biased perceptions can lead to message rejection. It was hoped that the messages would promote the anti-smoking message as opposed to creating much bias against the anti-smoking message, thus those low or moderate in message bias were chosen.

Since the two message conditions were carefully constructed to differ in perceptions of bias, I expect that the participants will perceive one group of messages as having low levels of bias. I also expect that there will be more (although still limited) variability in perceptions of message bias in the other three anti-smoking messages. It is from the second group of messages (previously identified as being moderately biased with a similar sample) that I expect to see a stronger association between perceptions of

message bias and the risk and protective factors, simply as there is more variance in bias to predict.

To summarize thus far, several risk and risk protective factors have been demonstrated to affect the likelihood of an adolescent becoming a cigarette smoker. The thesis's purpose is to extend prior work to demonstrate how these factors that affect adolescent smoking affect perceptions of anti-smoking messages as being biased. Individual characteristics and interpersonal characteristics are factors I hypothesize affect not only smoking behavior but also perceptions of bias in anti-smoking messages. Ecological Theory models assume that these individual and interpersonal level factors can be identified as risk factors having negative effects on risk outcomes or as protective factors have positive effects on risk outcomes (Fraser, 2004). I will provide rationales for each of the proposed factors by separating them into risk and protective factors. The protective factors are race (individual), parental monitoring (interpersonal), and religion (individual); and the risk factors are family/peer smoking (interpersonal) and pro-tobacco receptivity (individual). The justification for these protective and risk factors follows below.

Protective Factors

Parental Monitoring. As Ecological Theory explains, an individual does not exist in a vacuum but rather is influenced and shaped by multiple systems such as one's school, neighborhood, community, and family. The family, in particular, is important in the socialization of a child in that the "family unit is the primary source of transmission of basic social, cultural, genetic, and biological factors that may underlie individual differences in smoking" (Avenevoli & Merikangas, 1998, p.1). Parents, an integral

component of the family unit, play a significant part in their child's smoking behavior whether through modeling of their own smoking status, their child-rearing techniques, and/or through their communication (or lack thereof) about smoking (Engels & Willemsen, 2004). One aspect of parenting that has received much attention in the smoking literature is parental monitoring (Engels & Willemsen, 2004; Simons-Morton & Haynie, 2003; Wright & Fitzpatrick, 2004). Although operationalized in several different ways, conceptually, parental monitoring refers to the degree to which parents actively seek to be aware of their child's whereabouts and social groups, for instance, their child's whereabouts after school and on weekends, and their knowledge of their child's peer network and peer activities (Griffin, Botvin, Scheier, Diaz, & Miller, 2000).

Parental monitoring has proven to be a significant *protective factor* to smoking in several studies. Cohen, Richardson, and LaBree (1994) conducted a longitudinal cohort study of 1,034 5th graders who were assessed for four years. Cohen, Richardson, and LaBree (1994) found that for the cohort of 5th graders who were assessed two year later (in 7th grade), parental monitoring proved to be a protective factor for smoking and drinking by predicting non-smoking status. Parental monitoring remained to serve as a protective factor for smoking when the students reached 8th grade. Parental monitoring has also been demonstrated to impact smoking behavior in cross-sectional studies. Mott, Crowe, Richardson, and Flay (1999) analyzed data from 2353 9th graders and found that the more a parent knew about their child's after-school whereabouts, the less likely he/she was to engage in cigarette smoking. Parental monitoring has also been found to be significantly correlated with smoking intentions (Engels & Willemsen, 2004; Simons-Morton & Haynie, 2003). In a sample of 973 students surveyed at the beginning and end

of 6th grade, it was found that parental monitoring was negatively associated with an increase in smoking stage (Simons-Morton & Haynie, 2003). There are several other studies demonstrating a negative association between parental monitoring and smoking behavior that provides sufficient evidence that parental monitoring is a salient protective factor for smoking (Huebner, et al., 2005; Sullivan, Kung, & Farrell, 2004; Wright & Fitzpatrick, 2004).

Importantly, parental monitoring not only affects behavior but also influences other factors that, in turn, affect smoking behavior. For instance, Ary, et al. (1999) conducted an 18-month longitudinal study of 523 adolescents and found that parental monitoring directly affected subsequent problem behavior (including tobacco use) and *indirectly* affected smoking behavior due to its effect on the child's association with deviant peers. Similarly, in another longitudinal study of 8012 adolescents, parental monitoring was negatively associated with adolescent substance use and peer group association (Rodgers-Farmer, 2000).

That parental monitoring impacts smoking and peer group association is explained by researchers by noting that parental monitoring may limit one's exposure to problematic situations and/or smoking peers (see e.g., Dishion, Capaldi, Spracklen, & Li, 1995). However, beyond its relationship to substance use and peer group association, parental monitoring influences other cognitive and emotional experiences. For instance, Engels and Willemsen (2004) examined a sample of 116 Dutch families and found that parental monitoring acted as a type of anti-smoking socialization such that kids with higher parental monitoring had changes in smoking-related cognitions, such as negative attitudes to smoking, lower intentions to start smoking, and higher self-efficacy. Parental

monitoring has also been shown to be a protective factor by serving as a buffer between witnessing violence and smoking initiation among a sample of 1,282 adolescents (Sullivan, et al., 2004). Parental monitoring likely has this buffering effect because 1) it may keep children from witnessing violence altogether and 2) the support that may result from a parent being involved in their child's life may be helpful in the process of coping and dealing with issues related to witnessing violence. Thus, one does not turn to smoking to cope but to his/her parent for support. These studies demonstrate that parental monitoring is more than just supervision of one's child, but rather such monitoring seems to provide some deeper level of support or sense of care and commitment felt by the child, which results in the child being more receptive to the parents' involvement in and messages about their lives.

These extended influences of parental monitoring on a child's perceptions and actions are not a new phenomenon. Bandura's Social Cognitive Theory (1977) has long argued that one's perceptions and tendencies concerning risk behaviors are a learned process often influenced by family. Therefore, considering the effect that parental monitoring has on smoking behavior and the role that parental monitoring has on smoking-related cognitions and feelings of support, it seems likely that parental monitoring should also affect how an individual perceives smoking messages. Simons-Morton and Haynie (2003) note that some parenting behaviors place parents in a position where they "compete with other social influences and media that promote smoking, and parental monitoring may provide both immediate and cumulative effects providing long-term, indirect effects on teen behavior," thus it is possible that parental monitoring may have an indirect effect on smoking behavior through its relationship to message

perception (Simons-Morton & Haynie, 2003, p. 600). Parents can instill beliefs in children that can be reinforced by mediated messages and can reinforce anti-smoking messages such that it will be difficult for a child to forget the message. Since poor or inadequate parental monitoring is associated with increased smoking stage, smoking behavior, and smoking intentions, and parental monitoring has been demonstrated to offer a wider spread influence including smoking-related cognitions, I hypothesize a negative association between parental monitoring and message bias, such that as one's level of parental monitoring increases, their perception of message bias decreases.

H1: Parental monitoring and an adolescent's perception of anti-smoking message bias are negatively associated.

Religiosity. Similar to parental involvement, religiosity has been conceptually and operationally defined in a variety of ways. Religion has been defined on an individual-level as the frequency of church attendance (Mott, et al., 1999), by belonging to a religious tradition (i.e. Catholic, Protestant, see Engs & Mullen, 1999), and as the perceived importance of religion in one's life (Jessor & Jessor, 1977). While prior research demonstrates a consistent relationship between increased religiosity and a reduction in adolescent risky behavior, researchers note it remains unclear how this happens (Jessor, Chase, & Donovan, 1980; Wills, Yaeger, & Sandy, 2003). For instance, religion can serve as a buffer by providing individuals with self-confidence and faith in themselves (Maton, 1989). Religion might also be preventative in that engaging in smoking or other risky behavior would be contradictory to one's religious beliefs, such that one would not smoke as it violates his or her belief that his or her body is a temple of God (Beech & Scarinci, 2003). Religiosity also affects smoking behavior indirectly by

its influence on peer affiliation and positive life orientation (Kogan, et al., 2005) that are associated with a decrease in smoking and other risk behaviors in adolescents.

In a study of 614 African American university students, the non-smokers noted that their spirituality was one reason they chose not to smoke (Hestick, Perrino, Rhodes, & Sydnor, 2001). When asked about potential reasons that African American adolescents do not smoke at the same rates as their Caucasian counterparts, 118 low-income African American young adults reported in a qualitative study that they felt that the significance of God and religion in the African American community kept them from smoking as it would be seen as disrespectful to God and their families (Beech & Scarnci, 2003). The frequency of church/religious attendance has also been demonstrated to have an inverse relationship with alcohol and other substance uses (Amey, Albrecht, & Miller, 1996; Juon, Ensminger, & Sydnor, 2002). In a cross-sectional study of 2,352 9th graders, Mott, et al. (1999) found that African Americans, Asians, and adolescents who frequency attended religious services were less likely to smoke cigarettes. In a national survey, Amey et al., (1996) found that religion serves as a protective factor for drug use among adolescents. Another study analyzed a random sample of 13,250 adolescents and found that not only are those who are religious less likely to use drugs, but that they were also less likely to be associated with friends who are drug-users (Bahr, Maughan, Marcos, & Li, 1998).

However, such considerations of religion as an individual factor, neglect the potentially large role that family and community have on shaping religion. At age 14, church attendance may not be an individual factor, but more of an influence of parental expectations and norms. Additionally, the importance of religion may also seem to be an

individual level factor, but depending on the community in which one grows up the significance of religion in the community may impact the importance of religion in one's life. For instance, the African American culture typically places religion as an essential aspect of life; and thus, this community influence may manifest itself in individual perceptions of religious importance (Hestick, et al., 2001). Engs and Mullen (1999) examined religion as a broader community level influence that was beyond one's own religious practices such as prayer time; rather, they viewed religion as a collective community identity. In that study, they found smoking rates and drinking use were higher among Catholics and those with no religious preference than among Protestants. Francis (1997) found that even when personal religiosity is controlled for, those that attended Protestant churches were less tolerant of substance use than Anglicans, Roman Catholics, and mainline Protestants. Religious affiliation was also found to interact with individual-level religiosity to predict alcohol use (Cochran, Beeghley, & Bock, 1988).

The measurement of religious importance used for this study examines the individual nature the concept. Due to the varied influences that religion has both directly and indirectly on adolescent smoking behavior, I suggest that religiosity may also influence the way an adolescent views messages about smoking. Notably, religion certainly helps shape one's beliefs, which one has to examine or reexamine when viewing a message.

Similarly to parental involvement, I hypothesize that increased importance of religion may make an adolescent more open to anti-smoking messages as being consistent with the general messages preached in most religions that the body is a temple (not to be violated), that young people should obey the law (and not smoke), etc. Thus,

H2: Religiosity and perception of bias in anti-smoking messages will be negatively associated.

Race. Understanding race as either a risk or protective factor is complex and, can depend on what one means by race. For example, while race predisposes individuals to certain genetic risks, such as malignant melanoma or sickle cell anemia, race is typically not the *cause* of the many health disparities that exist (Department of Health, 2007). Such health disparities as a function of race/ethnicity often come not from genetics but from broader social, economic, political, and cultural dynamics involved in shaping environments, resources, and access. In addition, whether race is a risk or protective factor depends on which race/ethnic group is examined. For example, if one is Hispanic then race is a risk factor as Hispanic adolescents are significantly more likely to smoke than are white adolescents, however, if one is African American, then race becomes a protective factor as African American adolescents smoke less than Whites or Hispanic adolescents (CDC, 2006a).

The CDC (2006a) notes that ethnicity is one of the most important predictors of adolescent cigarette smoking. As of December 2006, for high school students, the CDC reports that 26% of Whites and only 13% of African Americans are current smokers. This pattern has remained fairly consistent over the years, as African American ever-smoking prevalence lags behind that of Whites during adolescence (Gardiner, 2001). However, the rate of smoking among African American males increases to match that of their White counterparts around the ages 17-24. There are several risk and protective factors that vary as a function of ethnicity that may explain why African Americans are less likely to smoke in adolescence than are Whites.

One factor that may explain the racial differences is family support, including smoking socialization and parental monitoring. For instance, Clark, Scarisbrick-Hauser, Gautam, and Wirk (1999) examined data from a sample of 311 parents of children aged 8 to 17 and found that African American parents were more likely to engage in anti-tobacco socialization at home and felt more empowered to impact their children's smoking behavior than were White parents. Mermelstein and The Tobacco Control Network Writing Group (1999) examined data from 178 focus groups with more than 1,000 adolescents and found that African Americans perceived harsher consequences of smoking from parents, saw smoking as more disrespectful of parents, and reported more varied sources of anti-smoking messages (from immediate and more distal family members and their larger community) as compared to White adolescents. Also using focus group data, Mermelstein, et al. (1999) reported that African American youth believe they are less susceptible to the negative influence of friends' smoking behavior than do White adolescents.

Religion has also served as a prominent protective factor in the African American community (Hestick, et al., 2001; Wills, Gibbons, Gerrard, Murry, & Brody, 2003). In a community sample of 297 African American adolescents, Wills et al. (2003) found that religion had a direct negative influence on substance abuse. From a qualitative study, Beech and Scarinci (2003) reported that a sample of 118 low-income African American men and women report religion as a major factor that helped keep them from smoking. While other risk and protective factors may explain some of the racial differences in smoking behavior among adolescents, they will not be reviewed here. What is important to note is that there is no evidence to suggest that Whites smoke more due to biological

traits associated with race. Rather, larger ecological issues affect African Americans and Whites differently, which results in differences in smoking rates. Since African Americans smoke at lower rates than whites, typically have more anti-smoking socialization in their families, and, perceive themselves as less susceptible to peer pressure to smoke, I hypothesize they have less motivation to view anti-smoking messages as biased. Instead, since such messages are more likely to reinforce messages received at home and in the community and can be seen as supportive of their current behavior, African Americans should be more receptive to these attitude-consistent messages. Indeed, in work with a similar population, Shen, et al. (*in press*) found that even when controlling for their smoking status, African American teens perceived all nine anti-smoking messages shown in the study as less biased than did White teens.

Thus, I propose:

H3: African American adolescents will be more likely to perceive messages as less bias than will White adolescents.

Extant research suggesting that African American kids are more likely to be influenced by religion and family stems primarily from qualitative focus group studies (e.g., Mermelstein, et al., 1999) or from work that looks exclusively at African Americans (e.g., Kogan, et al., 2005; Li, Feigelman, & Stanton, 2000). Rarely are race and these two factors simultaneously examined to allow us to tease out, for example, whether highly religious African American and White adolescents smoke at different rates. Moreover, to date no work has examined how race and religiosity and/or race and parental monitoring might interact to effect perceptions of message bias. While associations between risk behaviors and religiosity and parental monitoring among both

African American and White adolescents have been demonstrated in the literature (Bahr, et al., 1998; Mott, et al., 1999), there is a great deal of supporting evidence that these protective factors play a larger role in explaining the smoking rates of African Americans (Beech & Scarinci, 2003; Kogan, et al., 2005). For instance, Juon, et al. (2002) found in a longitudinal study of African Americans from adolescent to adulthood, that non-smokers in adulthood were more likely to have strict parental rules and were more likely to attend church frequently compared with current smokers and late adopters of smoking.

Religion plays a distinctive role in the traditions, cultural identity, and lives of the African American community. It serves as both a spiritual dwelling place and a socializing agent for the community and has throughout U. S. history. Ellison, Hummer, Cormier, and Rogers (2000) note that “the Black Church has served as a symbolic center of African American life” (p. 632). Thus, the church has been influential in the economic, political, physical, and mental well-being of the African American community. Such influence may also extend into behavior and even the way in which one views a message. Research demonstrates that frequency of church attendance and participation, religious practice, and subjective religiosity are significantly higher among African Americans than among their White counterparts (Levin, Taylor, & Chatters, 1994; Taylor, Chatters, Jayakody, & Levin, 1996). Sinha, Cnaan, and Gelles (2007) also found from a national random sample of 2,004 youth aged 11-18, that African Americans reported being more religiously active. Thus, since religion has served as a possible protective factor against smoking for African Americans, and religion appears to be influential and at the core of life in many African American communities more so than

Whites, I propose that African American's religious beliefs may have a greater effect on how one views a message than among White counterparts. Thus, I propose that:

H4: Highly religious African American adolescents will perceive messages as less biased than highly religious White adolescents.

Similar to religion, there is a wealth of research that has demonstrated the influential role of family in the lives of African American adolescents. Parental influence has been shown to serve as a strong protective factor against smoking among African American adolescents suggesting that such influences could potentially contribute to the ethnic differences in adolescent smoking behavior (Clark, et al., 1999). Such familial influences include that positive parenting reduced the likelihood of smoking among African Americans (Griesler & Kandel, 1998) and that respect for parental rules decreased one's likelihood of smoking initiation among African Americans (Beech & Scarinci, 2003). Additionally, African American parents viewed anti-smoking socialization as more important than Whites, felt they could influence their child's smoking behavior, and were more likely to restrict household smoking to adults compared to their Whites counterparts (Koepke, Flay, & Johnson, 1990). Taking these findings into consideration and the low smoking prevalence rates among African Americans, it seems possible that parental influences, such as parental monitoring, may have a greater effect as a protective factor in the African American community compared to Whites. Since African American parents seem to have a wealth of parenting practices that shape anti-smoking beliefs in their youth and larger extended networks that reinforce such messages, such effects may also appear in how African Americans view anti-smoking messages. Such messages may already be in line with the information they

receive from their parents and extended families, and due to a sense of obligation to respect their parents (Beech & Scarinci, 2003), African Americans may adopt such beliefs and see such messages as less biased than their White counterparts. Thus,

H5: African American Adolescents with high parental monitoring will view anti-smoking messages as less biased than white adolescents with high parental monitoring.

Risk Factors

While parental monitoring and religion have been identified as factors *protecting* adolescents from engaging in smoking and race is risk protective for African American adolescents, there are many risk factors that have increase adolescent smoking risk. In this thesis, I propose examining tobacco receptivity and family/peer smoking behavior.

Tobacco Receptivity. One such risk factor for smoking among adolescents is their receptivity to tobacco advertising and promotion (Lee, Taylor, & McGetrick, 2004; Pierce, Choi, Gilpin, Farkas, & Berry, 1998; Tercyak, Goldman, Smith, & Audrain, 2002). Peter and Olson (1990) define receptivity to tobacco advertising as some degree of connection to or involvement in tobacco-related advertisements. The various degrees or stages of involvement, include “awareness of, and interest in, and attitudes toward a product; desire and intentions to use product; experimentation with the product; and regular use of the product” (Audrain-McGovern et al., 2003, p.500). Tobacco receptivity is typically operationalized by the individual recognizing tobacco-related advertisements, having a favorite tobacco advertisement or brand, and/or owning and/or using promotional items (such as a t-shirt or hat) that have tobacco-related advertisement on them; thus, this construct is considered to be an individual level factor (Evans, Farkas,

Gilpin, Berry, & Pierce, 1995; Feighery, et al., 1998). The tobacco industry has devoted considerable time, effort, and money into creating such advertisements and promotional items, fully aware of the impact and principles of persuasive communication (USDHHS, 2001; USDHHS, 1998).

McGuire (1985) outlined three requirements for persuasive communication, 1) proper exposure to message, 2) comprehension of message, and 3) some type of affective or cognitive response to the message. McGuire asserts that for one to be persuaded by some communication effort, he or she must internalize some positive affect or cognition toward the message, which could be demonstrated through the purchase of a product or attainment of a promotional item. Thus, the tobacco-industry has not only poured millions into advertising on various mediums to ensure proper exposure and comprehension, but they have also tried to maximize their attempt at persuasion to adopt smoking, by the production of promotional and free items with tobacco advertisements on them (Pierce et al, 1998).

Several decades ago, the deleterious effects of smoking were discovered and in 1971, cigarette ads were banned from U.S. television and radio (Arbitron Multi-Media Service, 1993). Despite those limitations, the tobacco industry was the twentieth largest advertiser in 1992, spending approximately \$381.4 million. The 1998 Master Settlement Agreement (MSA) imposed even more limitations on the tobacco industry's advertising and promotions efforts, yet again, the tobacco industry has found ways around the restrictions and they continue to promote tobacco use through a strategic and integrated marketing approach (Lee, et al., 2004). In 2002, the CDC reports that the "average" American child between the ages of 6 and 14 sees approximately \$20 billion dollars

worth of tobacco advertising and promotion (CDC, 2002). Thus, although restrictions have been imposed, the tobacco industry, works around those restrictions by switching to other allowed mediums for advertisement (USFTC, 2001).

Tobacco companies devote money toward such efforts because they, along with health researchers, have found that receptivity to tobacco advertising is strongly associated with smoking status. Earlier studies found that there were significant increases in adolescent smoking rates that coincided with effective promotional campaigning by tobacco companies (Pierce & Gilpin, 1995; Pierce, Lee, & Gilpin, 1994). Biener and Siegel, (2000) conducted a longitudinal study of 529 adolescents and found those who at baseline were able to name a cigarette brand whose advertisements stood out to them and those who owned a tobacco promotional item were two times more likely to become regular smokers in comparison to those who did not. Another 3-year longitudinal study of a sample of 1,641 twelve to fourteen year-olds found that receptivity to tobacco advertising and promotions was an important predictor in determining which adolescents would pick up smoking (Pierce, Distenfan, Jackson, White, & Gilpin, 2002). Another longitudinal study (N=1,752) demonstrated similar effects (Pierce, et al., 1998). Specifically, Pierce, et al. (1998) found that individuals who were willing to use a promotional item (high level of receptivity) were approximately 3 times more likely to become a smoker. Also, among those that had a moderate level of receptivity (meaning they had a favorite advertisement but were unwilling to use promotional item) they were 82% more likely to progress toward smoking than those who had a minimal level of receptivity. It is clear that as receptivity to tobacco use increases, likelihood to smoke increases.

One argument could be made that those who are more receptive to smoking messages may also be more receptive to anti-smoking messages if, it is the case that receptivity is somehow measuring openness towards messages in general. However, given the amount of advertising, the repetition of messages seen on little league fields, billboards in poor SES communities, free hats, shirts and other promotional items, it is more likely that the sheer amount of advertising will predispose adolescents to view anti-smoking messages as biased. As stated previously, McGuire's (1985) layout of persuasive communication contends that one becomes persuaded by a message which they achieve some cognitive or emotional response toward the message. Having a favorite advertisement or purchasing a product produced by tobacco companies can create such a response, solidifying one's beliefs toward the message. Thus, an anti-smoking message would offer contradictory information to that which one has embraced through the purchase/receipt of a promotional product or having a favorite advertisement. In an effort to maintain attitude-consistent beliefs, such individuals will likely reject the anti-smoking message and see it as biased since it does not fit with their current beliefs. Thus, I hypothesize that as receptivity to tobacco advertising and promotions increase, perceptions of message bias will increase. The more one is open to the tobacco industries message, the less likely they are to be open to anti-smoking/tobacco messages; thus, they will be more prone to perceive the message in a biased manner.

H6: As receptivity to tobacco promotions increase, perceptions that anti-smoking messages are biased will increase.

Family & Peer Smokers. Another risk factor identified to predict smoking behavior is the number of smokers in the adolescent's immediate environment,

specifically in their family and close friendships. Having family members who smoke or close friends who smoke has been positively associated with adolescent's own smoking in a variety of studies (Abroms, et al., 2005; Landrine, Richardson, Klonoff, & Flay, 1994). For example, Unger, Sun, and Johnson (2007) found that smoking by parents and friends was associated with an increased risk of smoking among an ethnically diverse sample of 8th grade adolescents. Landrine et al. (1994) found that for White adolescents, smoking among peers was the best predictor of smoking. Abroms, et al., (2005) also found that having friends who smoked was associated with an increased likelihood of being an intender, early experimenter, and early user of cigarettes compared to a never smoker.

Having friends or peers that smoke may do more than predict smoking behavior it may also influence how one views a message. Such role model and peer influences may create an idea of smoking as a social norm. Thus, messages that are counter to one's belief in smoking as an acceptable social norm may be met with bias. In addition, if one has friends or family who smoke that can provide a powerful motivation to maintain attitude-consistent beliefs about smoking. If one's beliefs are that smoking is acceptable, then a message that says otherwise may be rejected as it counters one's previously established beliefs (Rains & Turner, 2007). Additionally, even if one does not smoke, but has family or friends that smoke, he/she has motivation to perceive an anti-smoking message as biased. Such defensive motivation would stem from an individuals' desire to maintain his/her beliefs that the parent or friend is not doomed to the fate of a smoker as described in some anti-smoking messages. Especially if the parent or friend that smokes has had no problems associated with smoking thus far, individuals may not want to freely

accept the fact that their parent or friend's behavior is putting them at risk for lung cancer and related illnesses or death. If this is the case, individuals will not receive the protection created by the message because of the fear of accepting that their friend/family member might die from smoking, and the difficulty of accepting that the family/friend is putting the adolescent him or herself at risk of dying from second hand smoke. The more people that smoke around an individual, the more likely that one will see smoking as a social norm, which increases their motivation to maintain attitude-consistent beliefs.

Thus,

H7: As number of family and/or friends who smoke increases, perceptions of bias in anti-smoking messages will increase.

Smoking status as a predictor of message bias. As noted above, this thesis is a secondary analysis of baseline data from a larger project designed to be a prevention study (preventing adolescents from engaging in smoking). While there are some smokers or experimenters in this sample, no attempt was made to recruit actively for smokers and, thus, based on the low percentage of 9th grade smokers in the population; it is highly likely the sample will have enough power to test hypotheses about smoking status.

However, due to the need to maintain attitude-consistent beliefs and assuming a sufficient sample size, I would predict that smokers and smoking intenders would perceive anti-smoking messages as more biased than non-smokers and non-intenders. If there is enough power to run such analyses, they will be included. Figure 1 presents a heuristic model of Ecological theory as applied to message bias by showing the predictions for this study.

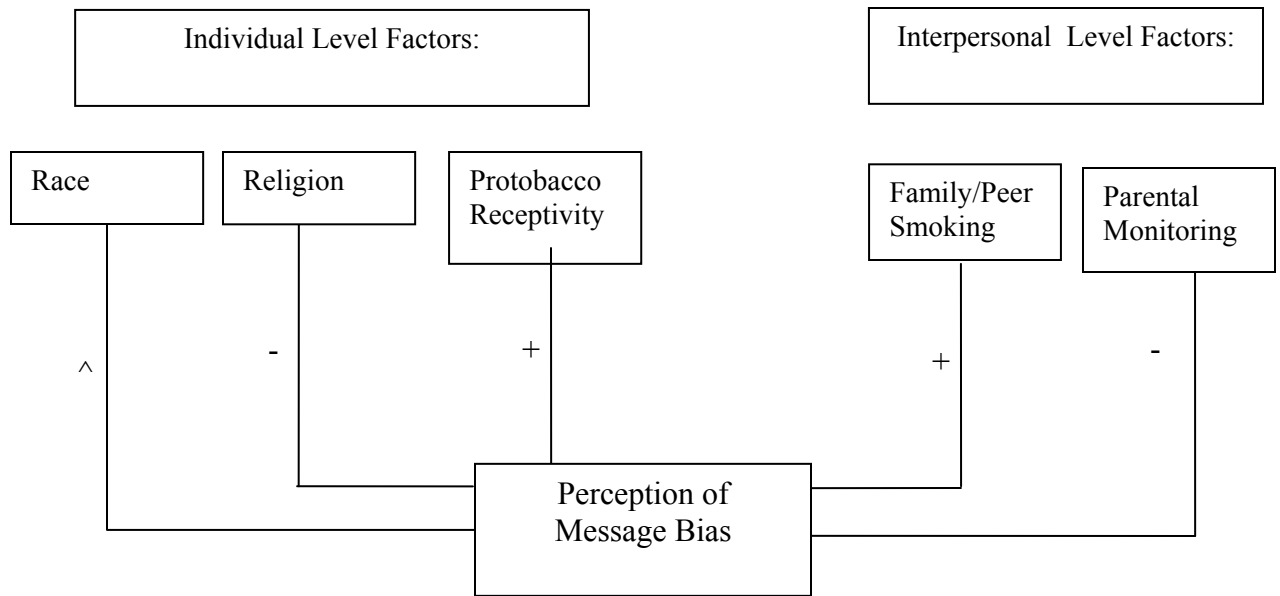


Figure 1: Heuristic Model of Ecological Theory and Message Bias.

Note. A “+” represents a predicted positive association, “as X goes up, Y goes up.”

A “-“ represents a predicted inverse association, “as X goes up, Y goes down.” The “^” represents a predicted association such that African Americans are less likely to view the messages as biased compared to White adolescents.

Endnotes for Chapter Two

In the literature, the terms message “perception” and “processing” are often used interchangeably with processing however usually subsumed under the larger umbrella term of perception. Message processing is usually used when the researcher takes a cognitive perspective and/or a physiological perspective. For example, most message processing studies ask participants to write down everything they can remember about a message, write down what they were thinking during the message, or a similar task that demonstrates the type of cognition (e.g., message relevant/irrelevant) the valence of the cognition (positive, negative) and the structure of the thoughts (e.g., which thoughts come first to mind). Or, participants watch messages while researchers monitor physiological reactions to the message. Message perception encompasses these tasks as well as scaled responses about how positive, biased, persuasive, etc., respondents found the message. I shall use the term “message perception” in the present thesis as it better represents the type of tasks in which the participants will engage.

CHAPTER 3

METHODS

The proposed study is a secondary analysis of baseline data from a larger project that examines smoking, TV messages, and decision making. The larger study is the second year of a field experiment in which participants are exposed to either messages that were found to be perceived with little bias by similar adolescents or exposed to messages that were perceived with significantly more bias. After the baseline exposure condition, the effects of message exposure condition on attitudes, cognitions, and smoking behavior and intent will be assessed in a 3-month follow up for the larger study. The data used for this thesis will be the baseline data from that larger project and no analyses require the use of the follow-up data to be collected in May, 2008.

Experimental Design

The larger study was a 2(Gender: Male vs. Female) X 2(Race: White vs. African American) X 2(Condition: Low vs. Moderate Bias) between subjects design with the first two factors measured and the third factor manipulated. No hypotheses regarding gender differences were proposed for this thesis; however, gender effects will be examined and reported as appropriate. As PSAs for the two message conditions were purposefully chosen to reflect differences in biased perceptions, it is expected that message condition will be an additional independent variable in each analysis reported.

Participants

Participants are 392 low-income 9th graders from 6 rural high schools throughout Georgia. Efforts were made to get at least 75 individuals in each gender/race category (75 White Males, White Females, 75 African Americans Males, & 75 African American Females). Such efforts were accomplished except in the African American male case, in which there were 70 participants. While 9th graders may not be as likely to smoke as older high school students, they present an ideal population for the larger study as its' intent was to *prevent* the onset of smoking rather than to convince smokers to stop (CDC, 2000).

The schools selected to participate were identified as (a) having enough white and black students so comparisons could be made within schools if necessary, and as (b) serving a primarily low-income population, which was assessed by having at least 60% of the students qualified for the free lunch program. Other selection criteria include that the county (each county has only 1 high school) had a significant percentage of both White and African American children under the age of 18 living in poverty and that median family income for both Whites and African Americans were significantly below the median for Georgia. Selection of appropriate schools was based on data collected from the Department of Education Web sites and information from the Carl Vinson Institute at the University of Georgia. The search included examining demographic and economic breakdowns of the schools in each county of interest. The six rural schools used are Manchester High School, Greenville High School, Swainsboro High School, Berrien County High School, Oglethorpe County High School, and Hart County High School.

Procedures

Schools were recruited by the thesis author and another staff member of The Southern Center for Communication, Health, and Poverty (SSCHP). In each case, the recruiter called and/or met with the high school principal to discuss the project and the school's proposed participation. The high school principal then met with his or her school board to gain permission. At this point, each principal turned the project over to a lower level contact (e.g., the 9th grade vice-principal at one school, a 9th grade counselor or teacher at the other schools) to interact with the SSCHP team members for the rest of data collection.

Once principals identified a contact person, the team mailed 2 copies of parental consent and 1 copy of student assent to the contact person approximately a week prior to the data collection. The contact person was charged with getting the forms to teachers to hand out to the students. Returned parental consent forms were collected by the local contact person and were then given to the research team the first morning of data collection, prior to any data collection. The parental consent form asked for one phone number for the 3-month follow-up and required a parental signature. The parental consent and youth assent forms can be found in Appendix A, along with the debriefing statement. The contact person also located a space for the researchers to use for the data collection that would be quiet, cool, and free from distractions. In three schools, the teacher instructional rooms were used which were located adjacent to the library. Researchers arranged the room to maximize space and give each participant as much privacy as possible when responding to the questionnaire. Large privacy boards were also placed between students to keep them from distracting one another or looking at one

another's screen. Other schools had a large computer room that allowed the researchers to spread the students around the room to ensure privacy. The contact person was responsible for scheduling students each hour and was responsible for getting students to the data collection room.

Participants were scheduled in sessions of 10 students at a time. The school contact person brought students to the data collection room each hour during normal school operating hours. Once students arrived at the data collection room, they were divided into small groups of 3 to 4 students to complete the assent process. Three researchers each worked with a small group of teens to orally review the youth assent form and procedures. Once the assent was read aloud and all questions were answered, 2 copies of the form were given to each student (one to sign and one to return). After signing the youth assent form, participants were assigned to a computer for data collection. All data were collected via the computer.

Students were not randomly assigned to the low or moderate bias condition. Rather, at the start of each session, the researchers alternated between low bias and moderate bias messages. After the researcher started the program for each student, all instructions, questions, and response options were both printed on the screen and read aloud (through headphones) by a male or by a female voice. Participants first completed reaction time measures of attitude and norm accessibility not reported in the present study. Second, measures of smoking behavior and various risk and protective factors were completed in the following order; need for cognition, family/peer smoking, personal smoking behavior, sensation seeking, protobacco receptivity, smoking knowledge, religion, and parental monitoring. Next, students were offered the chance to take a short

3 minute break if they needed one. Then, they reactivated the computer program and viewed three public service announcements (PSAs) and answered questions following each one. These questions included the message bias scale, and questions concerning cognitive responses, and emotional responses to the messages. Finally, participants completed demographic information and read the debriefing statement.

When students finished reading/hearing the debriefing statement they raised their hands and were directed to step to the front of the room to receive their gift cards. Students took on average 35-45 minutes to complete the measures, read/hear the debriefing statement, and sign for their gift card. After receiving their gift cards, students were thanked for their time and were asked by a research member for alternate phone numbers to reach them for the 3-month follow-up, in addition to verifying the number that was already put on the parental consent form.

The classroom teacher and the school received a monetary donation for each student that participated for the use of their facilities and recruitment efforts. The school was provided with \$25 for each student recruited while the teacher was provided with \$10 for each student that participated in the study. In addition, students received a \$10 gift card to a local fast food restaurant and will receive another \$10 gift card if they complete the 3-month follow-up.

Measures

All measures were both shown on a computer screen and heard aloud via headsets. A copy of the measures can be found in Appendix B. The list of measures below includes only those measures that are examined in this thesis and is not a complete list of all measures used in the larger study.

Dependent Measures

Biased Message Perception. Biased message perception was measured by 9 items on a 7-point Likert scale that were derived from Witte (1994). Witte (1994) proposes that these items measure two bias subscales, message minimization and perceived manipulation of the message. Other researchers, however, find that the items often form one reliable factor rather than two related factors (see, e.g., Shen, et al., *in press*). Thus, I will examine the factor loadings in an exploratory factor analysis to assess whether I have a single measure of message bias or two subscales assessing minimization and perceived manipulation.

In the Witte scale, sample items included that relate to message minimization include, “The message was overstated,” and “The message was boring.” Witte (1994) found that for message minimization alpha reliability was .78. The second possible factor, perceived manipulation, included questions such as “I thought the ad tried to manipulate my feelings,” and “While watching the ad, I felt it was not very truthful” (posttest $\alpha = .66$ and follow-up $\alpha = .81$). The response options ranged from 1 (strongly disagree) to 7 (strongly agree). This measure will be completed by each respondent a total of three times, once after viewing each PSA. These two reactance subscales that make up the message bias scale have been validated through a content analysis of cognitive responses (Witte, 1991).

Shen, et al. (*in press*) conducted a study with 325 freshmen high school students who also completed measures of message bias after seeing three types of anti-smoking appeals (personal testimony, second-hand smoke, and informative ones) as well as an anti-alcohol PSA. Seven 5-point Likert scale items adapted from Witte (1994) were used

to measure perceptions of message bias. The items used in Shen et als. (in press) study were "The message was boring, overstated, exaggerated, distorted, untrue and overblown", and "I feel I was taken advantage of." Two items on manipulation of feelings were dropped for the scale to achieve unidimensionality in confirmatory factor analyses. The same factor structure was obtained across the four message types, with minimal variations in factor loadings. Alpha reliabilities were good across four types of public service announcements tested (ranging from .86 - .89). This study also demonstrates this scale's predictive validity in that the findings regarding message bias were consistent with the fact that Whites smoke more than African Americans (CDC, 2006a), such that Whites perceived the messages as more bias than African Americans.

Independent Measures

Parental Monitoring. Parental monitoring was measured by Li, et al. (2000) Parental Monitoring Scale (PMS) which was modified from the work of Silverberg and Small (1991). The scale has six items including "When I go out at night, my parent(s) know where I am" and "If I am going to be home late, I am expected to call my parent(s) to let them know." Responses ranged from 1 (never) to 4 (always) and higher scores indicate a higher degree of parental monitoring. The PMS has been used with adolescents and higher levels of parental monitoring have been found to be associated with a decrease in various health risk behaviors (Borawski, Ievers-Landis, Lovegreen, & Trapl, 2003). The alpha reliability of the scale was .88 in Borawski et als. study of 692 adolescents in 9th and 10th grades. Li, et al. (2000) conducted three cross-sectional surveys; one in 1992 (n = 455), one in 1994 (n = 355), and one in 1996 (n = 349). Internal reliability (Cronbach α) for each wave was .70, .77, and .73 respectively. All

three surveys were conducted with individuals from low-income areas between the ages of 9-17; making it a good fit for the current study's sample. These surveys revealed that low levels of parental monitoring were associated with engagement in several risky behaviors. A composite scale score was used in these surveys by averaging the responses to the six items. In a longitudinal study that assessed parental monitoring using this scale, a categorical composite scale was created by defining cutoff values that created a "low," "medium," and "high" parental monitoring group due to a skewed scale score at baseline. For this study, I will examine the distribution of scores to determine whether to examine parental monitoring as a continuous or a level (low, moderate, high) variable.

Religiosity. Religiosity was assessed with Jessor's Value on Religion Scale (Jessor & Jessor, 1977). This scale consists of four items and the stem for the four items is "How important is it for you" Examples of items include "To believe in God" and "To be able to turn to prayer when you are facing a personal problem." Responses are given on a 5-point Likert scale, with 1 being not at all important and 5 being very important. Items will be coded so that higher scores will be indicative of a higher perceived importance of religion and, based on Jessor's instructions, items will be summed to form the scale. This scale has been demonstrated to predict inverse relations with the use of various substances, including tobacco (Wills, et al., 2003; Jessor, Chase, & Donovan, 1980). Wills, et al. (2003) used this scale in a longitudinal study of 1,182 adolescents in 7th through 10th grade. Cronbach's alpha over the two assessment was .78 - .81 in Wills, et al. (2003) study.

Race. Race was assessed at the end of the measures with the other demographic information. Respondents had the option to select from a range of races and an "other"

option which provided a place to insert a race if not listed. I used the categories for race suggested by the National Institutes of Health. These categories include; African American, Caucasian, Asian, Hispanic, American Indian, and Other.

Receptivity to Tobacco Advertising and Promotions. Receptivity to tobacco advertising and promotions was measured by Pierce, et als. (2002) modified Index of Receptivity to Tobacco-Industry Advertising and Promotions. The scale was condensed for this study due to time constraints and computer programming limitations. For instance, I was not able to do free recall that asks participants to list their favorite brand, since they would not have been able to type into the computer program in that section.

This scale assessed how open the participants were to tobacco advertising and promotional items. An example item is “Do you have a piece of clothing or something else that has a tobacco brand name or logo on it?” Responses were given by answering yes or no. Next five popular cigarette brands were named and students were asked if they had seen any ads for those brands. The brands chosen for this study were found to be some of the most popular brands among youth. Marlboro, Newport and Camel are by far the leading youth brands, with Parliment and Kool following close behind according to the National Survey on Drug Use and Health (USDHHS, 2007). Similar to Pierce et als. (2002) measure, being willing to use an item with a brand image or having an item with a brand image qualified one as having a high receptivity to tobacco advertising and promotions. Being aware of at least 4 of the tobacco brands but not being willing to use a promotional item would classify one as moderate in terms of receptivity to tobacco advertising. Finally, a low level of protobacco receptivity would be those that only recognized 3 or fewer brand advertisements. This scale (in the non-condensed version)

has been used in a longitudinal study of 1,641 adolescents and among those with more-authoritative parents, those that scored high on protobacco receptivity were more likely to smoke (Pierce et al., 2002). Pierce, et al. (1998) also used this scale in a longitudinal study of 1,752 adolescent and found a causal relationship between protobacco receptivity and onset of smoking, demonstrating the scales predictive validity.

Family/Peer Smoking. There were four items pertaining to family/peer smoking taken from the work of Pierce, et al. (1998). Family smoking was assessed by asking “Do any of your parents or step-parents smoke cigarettes?” and “Do your older brothers or sisters smoke cigarettes?” Response options included 1 (yes), 2 (no), 3 (refuse to answer), and 4 (don’t know). Similarly, peer smoking was assessed with two items, “Of your close friends who are male, do any of them smoke?” and “Of your close friends who are female, do any of them smoke?” Response options for the peer smoking questions included 1 (yes), 2 (no), and 3 (refuse to answer). These items will be summed to form a scale ranging from 0 (no family/peers) to 4 (answered yes for all 4 items). Prior work with this type of measure of family/peer smoking has demonstrated good predictive validity as adolescents with family or peers that smoke are more likely to smoke themselves (Abroms, et al., 2005; Landrine, et al., 1994). There are no reliability statistics to report for these four items as they are measured with a yes/no response set rather than an interval or ratio level scale.

Cigarette Use. As noted above, since smokers are not purposefully recruiting as the study is a prevention one, it is likely I will have an insufficient sample of smokers to test smoking as a predictor of message bias. However, in the case that a sufficient sample is drawn, cigarette use items were derived from the Global Youth Tobacco Survey

(GYTS) (CDC, 2006b). Cigarette use ever was assessed with the item, “Have you ever smoked a cigarette, even one or two puffs?” with response options yes or no. Cigarette use frequency was assessed with two items, one was “During the past 30 days (one month), on how many days did you smoke cigarettes?” with response options 0 days, 1 or 2 days, 3 to 5 days, 6 to 9 days, 10 to 19 days, 20 to 29 days, and All 30 days. Another item was “During the past 30 days (one month), on the days you smoked, how many cigarettes did you usually smoke?” with response options, I did not smoke cigarettes during the past 30 days, Less than 1 cigarette per day, 1 cigarette per day, 2 to 5 cigarettes per day, 6 to 10 cigarettes per day, 11 to 20 cigarettes per day, or more than 20 cigarettes per day. The last two items will be used to determine smoker status as done by Shen et al. (in press). Intentions to smoke are measured by the two items, “Do you think you will smoke a cigarette at any time during the next 12 months” and “Do you think you will be smoking cigarettes 5 years from now?” These two items are measured on a 4-point Likert scale where 1 is definitely not and 4 is definitely yes. The Global Youth Tobacco Survey from which these items were derived was created in 1999 by the World Health Organization and the Centers for Disease Control and Prevention in an effort to create a school-based survey that could be used world-wide to track tobacco use among young people. This survey was created for students aged 13-15, making it appropriate for use with this sample. Brener, et al. (2002) found that items used on the Global Youth Tobacco Survey have shown good test-retest reliability.

Condition. As part of the larger study, students were assigned to view three anti-smoking public service announcements. Students in the low bias condition viewed three messages that our prior work found that adolescents this age viewed as having low bias

and as effective. Students in the moderate bias condition viewed three messages that same age students in the prior year viewed as less effective and more biased.

Descriptions of the message content, the message length, and the source of the message are found in Appendix C. To manipulate message condition, researchers altered the condition number on a specific computer each time a new participant took a seat. Within each condition, each student was randomly assigned to the *order* in which they saw the 3 low bias or the 3 moderate bias messages.

CHAPTER 4

RESULTS

Preliminary Data Analyses

Scale and Indices Construction. The first set of preliminary analyses included generating the scales and indices for the measures based on the scale creator's instructions and assessing each for acceptable internal consistency reliability (e.g. $\alpha > .70$). Table 1 shows the reliabilities, means, and standard deviations for all measures. For scales, Cronbach's alpha (α) was used to assess reliability.

Parental Monitoring. This scale has been used both as an interval level scale and as a categorical variable (see, Li, et al., 2000). Follow directions from Li, et al. (2000), the parental monitoring scale was initially created by summing all of the items and then dividing that sum by the total number of items. As shown in Table 1, the overall reliability was quite good; however, the mean was quite high considering the response option ranged from 1 to 4. In examining the distribution of the scale it had a negative skew with most cases on the high end of the scale (indicating stronger parental monitoring). Since the scale did not meet the requirements of the general linear model (GLM) I attempted to transform the scale so it would approximate normality (e.g., using a square root, log, etc) analyses with little success. After examining the distribution and the quartiles, I elected to break the cases into three categories: low (18.9%, n = 74), moderate (43.4%, n = 170), and high (37.8%, n = 148) parental monitoring. Note the

“high” category includes only those adolescents who averaged a four (e.g., said their parents “always knew” where they were for all six scale items).

Religion. The religion measure was created by summing all items and dividing that by the number of items as directed by Jessor and Jessor (1977). As demonstrated in Table 1, although religion had good overall reliability it had a high mean (indicating the sample had a disproportionately high number of highly religious individuals) and a high negative skew making the distribution unfit for GLM. After attempting to transform the scale so it would approximate normality (as for parental monitoring), I examined the frequencies, quartiles and other descriptive data to split the data into groups that appeared to best capture the distribution. From such examination, 3 categories of religiosity were created – low (16.6%, n = 65), medium (36.7%, n = 144), and high (46.7%, n = 183) religiosity. Note the “high” category includes only those adolescents who averaged a five (e.g., said religion was very important to them on all four scale items).

Index of Receptivity to Tobacco-Industry Advertising and Promotions. Pierce, et als., (2002) Index of Receptivity to Tobacco-Industry Advertising and Promotions was used with minor modifications (as noted under method, I could not do the free recall item). Three categories of receptivity to tobacco advertising (low, medium, and high) very similar to Pierce et als., (2002) Index were created. High receptivity (35.2%, n = 138) was comprised of those who reported that they would be willing to use a tobacco branded item and/or those that reported owning such an item. The moderate level of receptivity (34.2%, n = 134) consisted of those who recalled seeing 4 or more cigarette advertisements, but reported that they would not use an item with a tobacco brand or logo. Finally, low receptivity (30.6%, n = 120) included those who recalled three or

fewer cigarette advertisements and do not use and would not use items with a tobacco brand or logo.

Family/Peer Members who Smoke: To create the family/peer member variable, response options were recoded such that 1 represented “yes” responses to the 4 questions that asked if they had a family/peer member who smokes, and 0 represented “no” responses for those that responded that they did not have a family/peer member who smoked. I summed the “yes” responses across the four items resulting in a scale ranging from 0 (no family/peer smokers) to 4 (yes for all four items about family/peer smokers) ($M = 1.79$, $SD = 1.25$).

About 19% reported having no family or friends who smoked, 24% reported having one family member or friend who smoked, 24% reported that 2 individuals smoked, 23.7% reported 3 individuals in those 4 groups smoked, and 8.9% reported that all four smoked. After running some preliminary analyses it was clear that the differences in the data reflected having no family/friends who smoke (0) versus having *some* family/friends who smoked (1 -4). There were no significant differences when comparing participants who had 1, 2, 3 or more smokers. Thus, this variable was recoded into a dichotomous variable accordingly.

Message Bias. An exploratory factor analysis was conducted to assess whether the data best represented a unidimensional bias scale (as found by Roskos-Ewoldsen, Nabi, & Carpentier, 2003; Shen et al., in press) or 2 subscales for perceived manipulation and message minimization (as reported by Witte, 1994).

There were six messages and thus six measures of message bias. An initial exploratory factor analysis (Principal Components Analysis, Varimax rotation) examined

the message bias measure for each PSA. Results suggested the measure of message bias is best represented as a unidimensional scale. Reliability statistics for each measurement period are found in Table 1. All measures had acceptable reliabilities.

Race. In the original data set ($N = 392$), race was measured using all five ethnicity/race categories recommended by the National Institutes of Health. The sample is comprised of 48.5% African American ($n=190$), 44.9% White ($n=176$), 2.8% Hispanic ($n=11$), 1% Asian or Pacific Islander ($n=4$), 1% American Indian ($n=4$), and 1.8% classified themselves as other ($n=7$). Three hypotheses use race (African American vs. White) as an independent variable, and for those hypotheses, only participants who self-reported themselves as White or African American were selected.

Smoking Behavior and Intent. Both smoking behavior measures (number of cigarettes per day and number of days smoking cigarettes) were skewed and both had a considerable number of individuals who selected '0' (no smoking). Following the work of Shen, et al., (in press), these two measures for smoking behavior were multiplied and then transformed by square root to create a frequency of smoking measure. Smoking behavior and behavioral intent (likelihood of smoking in the next 12 months) were highly correlated ($r(391) = .73, p < .0001$). In preliminary analyses, both smoking behavior and intent were significant covariates when examined in separate analyses. However, when both behavior and intent were entered as covariates in the same analysis, only behavior was a significant covariate. Thus, when testing hypotheses, I enter in smoking behavior only as a covariate to control for the variance associated with smoking behavior.

Comparing Within Message Condition. To examine differences within message condition (e.g., within the low message bias set of messages and within the moderate

message bias set), paired sample t-tests compared message bias scores. For the low bias condition, all three messages ($M = 2.37$, $SD = 1.36$, $M = 2.56$, $SD = 1.47$, and $M = 2.07$, $SD = 1.30$ for messages 1-3 respectively) were significantly different (paired sample t -tests, $p < .05$). For the moderate bias condition, there were no significant differences between PSA4 ($M=3.30$, $SD=1.63$) and PSA5 ($M=3.27$, $SD=1.72$); however, PSA5 and PSA6 were both significantly different PSA4 ($M=2.91$, $SD=1.46$). Since significant differences are obtained when examining the 3 messages within message condition, PSA (representing the 3 messages) was added as a variable in all analyses reported below.

Comparing Between Message Conditions. The next analysis examined whether participants exposed to messages with low bias and those exposed to messages with moderate amount of bias differed on the message bias measure. Message bias was examined using between subject t-tests with message condition (low vs. moderate bias condition) as the independent variable. As demonstrated in Table 2, all messages in the low bias condition were perceived as significantly less biased than those in the moderate bias condition. Thus, as expected, the variable of message condition will be entered as an independent variable in the test of the hypotheses.

Gender and Message Bias. No hypotheses related to gender were proposed, however in preliminary analyses to assess for gender effects that may affect the test of the hypotheses, I examined the message bias scores in a repeated measures analysis of variance. The design was a 3 (PSAs) x 2 (Condition: Low vs. Moderate Bias) x 2 (Gender) analysis with the first factor within subjects and the last two between subjects. In addition, cigarette smoking was used as a covariate. As noted above, there is a main effect for PSA, Wilk's $\Lambda = .96$, $F(2, 385) = 7.86$, $p < .0001$, partial $\eta^2 = .04$.

Table 1.

Internal Consistency and Descriptive Statistics for Scaled Measures

<u>Independent Measures</u>	<u>Cronbach's alpha (α)</u>	<u>Mean (m)</u>	<u>Standard Deviation</u>
Parental Monitoring (scaled)	.82	3.59	.54
Religion (scaled)	.88	4.44	.84
Family/Peer Smokers	---	1.75	.44
<u>Dependent Measures</u>			
<u>Low Bias Condition</u>			
Bias for PSA 1	.81	2.37	1.36
Bias for PSA 2	.85	2.56	1.47
Bias for PSA 3	.83	2.07	1.30
<u>Moderate Bias Condition</u>			
Bias for PSA 4	.87	3.30	1.63
Bias for PSA 5	.87	3.27	1.72
Bias for PSA 6	.89	2.91	1.47

Note. N = 392 for analyses except for bias measures. For bias measures PSA 1 -3, n = 199; for bias measures for PSA 4-6, n = 193.

Also as noted above, the main effect for condition was significant, $F(1, 386) = 42.37, p < .001, \text{partial } \eta^2 = .10$ such that moderate bias messages were perceived as more biased than low bias messages. The effect for smoking behavior on bias was also significant, $F(1, 386) = 9.17, p < .01, \text{partial } \eta^2 = .02$.

Table 2.

Mean Comparisons of Bias between Message Conditions

	<u>Low Bias Condition</u>		<u>Moderate Bias Condition</u>		
	<u>Mean</u>	<u>Standard Deviation</u>	<u>Mean</u>	<u>Standard Deviation</u>	
PSA 1	2.37	1.36	PSA4	3.30	1.63
PSA 2	2.56	1.47	PSA5	3.27	1.72
PSA 3	2.07	1.30	PSA 6	2.91	1.47

Note. For low bias condition $N=199$ and for high bias condition $N=193$. Message bias scores for PSAs in the low bias condition were always significantly lower than the means for messages in the moderate bias condition using independent sample t-tests ($p < .0001$).

Additionally, a main effect for gender was obtained, $F(1, 386) = 10.77, p < .01, \text{partial } \eta^2 = .03$ such that males ($M = 3.0, SE = .10$) perceived more bias in the messages than did females ($M = 2.58, SE = .08$). Importantly, gender did not interact with PSA or

with message condition. Since gender does have a significant effect on the message bias measures, I will run each hypothesis with gender in it. When gender interacts with independent variables in the hypotheses to affect the results they will be reported, otherwise they will not. Correlations of the independent variables are presented in Table 3. As expected from previous research all independent variables (with the exception of parental monitoring) are correlated with smoking behavior.

Table 3.

Correlations of Independent Measures.

	Parental Monitoring	Religion	Race	Smoker Receptivity	Family/Peer Smokers	Smoking Behavior
Parental Monitoring	1	.22**	.03	-.22**	-.17**	-.07
Religion			-.16**	-.08	-.15*	-.10*
Race				.07	.27**	.22**
Smoker Receptivity					.22**	.24**
Family/Peer Smokers						.24**
Smoking Behavior						1.00

Note. ** Correlation is significant at the .01 level (2-tailed). * Correlation is significant at the .05 level (2-tailed).

Main Data Analysis

Hypothesis 1: Parental Monitoring. H1 states that parental monitoring and perceptions of message bias will be negatively associated. To test H1, a 3 (PSA) x 2 (Condition: Low vs. Moderate Bias) x 3 (Parental Monitoring: Low, Moderate, High) x 2 (Gender) analysis with the first variable within subjects and the other variables between subjects was conducted. Smoking behavior was entered as a covariate. As reported above under preliminary analyses above, there is a multivariate main effect for PSA, Wilk's $\Lambda = .97$, $F(2, 377)=6.50$, $p < .01$, partial $\eta^2 = .03$; and a main effect for condition, $F(1, 378)= 43.43$, $p < .0001$, partial $\eta^2 = .10$. In addition, a main effect for gender, $F(1, 229)=10.01$, $p < .0001$, partial $\eta^2 = .08$, and the smoking behavior covariate were also significant, $F(1, 378) = 8.61$, $p < .01$, partial $\eta^2 = .02$.

As hypothesized in H1, the main effect for parental monitoring was significant, $F(2, 378)=7.37$, $p < .01$, partial $\eta^2 = .04$. As shown in Figure 2, there was a simple linear effect where the more parental monitoring a child reports, the less bias he/she saw in the messages. The three means representing the three levels of parental monitoring (high, moderate low) were all significantly different (using LSD post hoc test, $p < .05$), thus, H1 was supported.

The significant main effect for parental monitoring is qualified by a 4-way interaction between PSA, condition, parental monitoring and gender, $F(2, 380)= 3.05$, $p < .05$, partial $\eta^2 < .05$. The interaction effect was straightforward. As shown in Table 4, for females, the effect of parental monitoring was not significant in the low bias condition (only 1 mean comparison significant out of 9) whereas the effect for effects for parental monitoring was much stronger in the moderate bias message condition (with 5 of 9

comparisons significant, post hoc LSD analyses). Similar to the females as see in Table 5, for males in the low bias condition, the effect of parental monitoring was only significant for 1 mean comparison out of the 9. However, unlike the females, parental monitoring was not significant in any of the 9 mean comparisons for the moderate bias condition. That within the moderate bias message condition, 5 of the 9 mean comparisons were significant for females and 0 of the 9 mean comparisons were significant for the males, it is evident that the effect of parental monitoring on bias is explained by females in the moderate bias message condition.

Hypothesis 2: Religion. H2 hypothesized that religiosity and perception of bias in anti-smoking messages will be negatively associated. The same 3 (PSA) x 2 (Condition: Low vs. Moderate Bias) x 3 (Religiosity: Low, Moderate or High) was conducted. There is a multivariate main effect for PSA, Wilk's $\Lambda = .97$, $F(2, 383)=6.45$, $p < .01$, partial $\eta^2 = .03$; and a main effect for condition, $F(1, 384)= 39.40$, $p < .0001$, partial $\eta^2 = .09$. The smoking behavior covariate was also significant, $F(1, 384) = 10.15$, $p < .01$, partial $\eta^2 = .03$. Counter to hypothesis, the effect for religiosity on message bias was not obtained, $F(2, 384)=1.65$, *ns*, nor did religiosity interact with PSA message or condition. Thus, H2 was not supported.

Hypothesis 3: Race. H3 stated that African American adolescents will be more likely to perceive messages as less biased than will Whites. To test this hypothesis a 3 (PSA) x 2 (Condition: Low vs. Moderate Bias) x 2 (Race) analysis with the first variable within subjects and the other variables between subjects was conducted. Smoking behavior was entered as a covariate. There is a multivariate main effect for PSA, Wilk's $\Lambda = .96$, $F(2, 359)=6.62$, $p < .01$, partial $\eta^2 = .04$; and a main effect for condition, $F(1,$

360)= 47.46, $p < .0001$, partial $\eta^2 = .12$. The smoking behavior covariate was also significant, $F(1, 360) = 12.02$, $p < .01$, partial $\eta^2 = .03$. The main effect for race was not obtained, $F(1, 360) = .04$, *ns*, nor did race interact with message or message condition.

Thus, H3 was not supported.

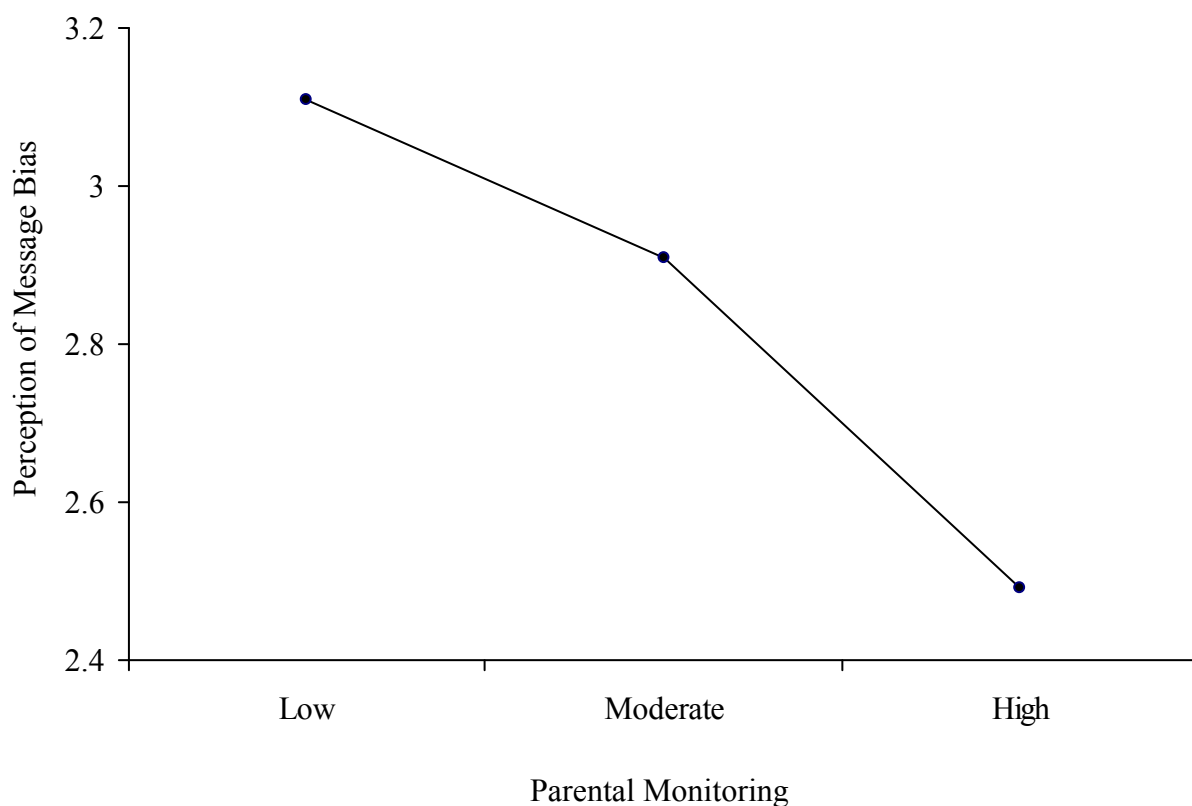


Figure 2. Relationship between Parental Monitoring and Perceptions of Message Bias.

Note. The means for perceived message bias were significantly different across all three categories, such that “low” was different from “moderate” and “high,” and the latter two were also significantly different. ($N = 391$, post hoc $p < .05$).

Table 4.

Mean Comparisons of Bias by Condition and Parental Monitoring for Females

	<u>Females</u>		
	<u>Low Monitoring</u>	<u>Moderate Monitoring</u>	<u>High Monitoring</u>
<u>Low Bias Condition</u>			
PSA1	2.40 (1.15)	2.23 (1.02)	1.91 (1.19)
PSA2	2.84 (1.44) _a	2.49(1.27)	2.06(1.35) _a
PSA3	2.10 (1.29)	1.98 (1.19)	1.62 (1.01)
<u>Moderate Bias Condition</u>			
PSA4	4.15 (1.72) _{ab}	3.14 (1.40) _a	2.75 (1.65) _b
PSA5	3.77 (1.72) _a	3.14 (1.53)	2.66 (1.53) _a
PSA6	3.56 (1.58) _a	3.06 (1.30) _b	2.31 (1.34) _{ab}

Note. N = 235. Shared subscripts indicate means within gender that are significantly different on a line, $p < .05$.

Hypothesis 4: Religion and Race. H4 states that highly religious African American adolescents will perceive messages as less biased than highly religious White adolescents. Selecting only those who are in the highly religious condition, a 3 (PSA) x 2 (Condition: Low vs. Moderate Bias) x 2 (Race) x 2 (Gender) analysis of variance was conducted with the first variable within subjects and the other variables between subjects. There is a multivariate main effect for PSA, Wilk's $\Lambda = .92$, $F(2, 165)=7.53$, $p < .01$, partial $\eta^2 = .08$; a main effect for condition, $F(1, 166)= 13.82$, $p < .0001$, partial $\eta^2 = .08$;

and a main effect for gender $F(1, 166) = 10.81, p < .01$, partial $\eta^2 = .06$. When examining only the highly religious adolescents, a main effect of race was not obtained, $F(1, 166) = .02, ns$.

Table 5.

Mean Comparisons of Bias by Condition and Parental Monitoring for Males

<u>Low Bias Condition</u>	<u>Males</u>		
	<u>Low Monitoring</u>	<u>Moderate Monitoring</u>	<u>High Monitoring</u>
PSA1	3.18 (1.87)	2.78 (1.57)	2.25 (1.41)
PSA2	3.43 (2.00) _a	2.87 (1.40)	2.23 (1.49) _a
PSA3	2.36 (1.36)	2.49 (1.49)	2.20 (1.50)
<u>Moderate Bias Condition</u>			
PSA4	3.18 (1.82)	3.78 (1.50)	3.45 (1.58)
PSA5	3.44 (1.93)	3.95 (1.70)	3.38 (1.89)
PSA6	3.28 (1.56)	2.90 (1.17)	3.14 (1.78)

Note. $N=157$. Shared subscripts indicate means within gender that are significantly different on a line, $p < .05$.

While the hypothesized main effect was not found a race x gender interaction was obtained, $F(1, 166)=7.88, p < .01, \text{partial } \eta^2 = .05$. For females, findings were opposite of prediction. Specifically, African American females who reported high religiosity ($M = 2.65, SE = .16$) report more bias than White females ($M = 2.07, SE = .21$). Supporting the hypothesis, African American males ($M = 2.74, SE = .23$) did view messages as significantly less biased than did White males ($M = 3.30, SE = .21$). Thus, H4 was supported for highly religious males, but the opposite was found for highly religious females¹.

Hypothesis 5: Parental Monitoring and Race. H5 states that African American adolescents with high parental monitoring will view anti-smoking messages as less biased than White adolescents with high parental monitoring. To test H5, I selected only for adolescents who report high parental monitoring. A 3 (PSA) x 2 (Condition: Low vs. Moderate Bias) x 2 (Race) x 2 (Gender) analysis of variance with the first variable within subjects and the other variables between subjects was conducted, with smoking behavior entered as a covariate. As expected, there is a multivariate main effect for PSA, Wilk's $\Lambda = .91, F(2, 128)=6.24, p < .01, \text{partial } \eta^2 = .09$; and a main effect for condition, $F(1, 129)= 18.01, p < .0001, \text{partial } \eta^2 = .12$. There was no main effect for race on bias when controlling for those that report high parental monitoring, $F(1,129) = .28, ns$. Thus, H5 was not supported².

H6: Tobacco Receptivity. H6 hypothesized that as receptivity to tobacco promotions increase, perceptions that anti-smoking messages are biased will increase. To examine this hypothesis, a 3 (PSA) x 2 (Condition) x 3 (Tobacco Receptivity: Low, Moderate, High) analysis of variance was conducted with the first variable within

subjects and the other variables between subjects. Again, there was a multivariate main effect for PSA, Wilk's $\Lambda = .90$, $F(2, 385)=21.66$, $p < .0001$, partial $\eta^2 = .10$; and a main effect for condition, $F(1, 386)= 41.98$, $p < .0001$, partial $\eta^2 = .10$.

As hypothesized, there was a main effect for tobacco receptivity $F(2, 386)= 2.85$, $p = .059$, partial $\eta^2 = .02$. Thus, hypothesis H6 was supported. As shown in Figure 3, the overall trend is significant such that those that are highly receptive to tobacco advertisements and promotions were more likely to view anti-smoking messages as more biased. Those who reported “low” tobacco receptivity were significantly different than those who reported “high” tobacco receptivity; yet, the “moderate” to “high” levels of tobacco receptivity and the “low” to “moderate” levels of receptivity are not significantly different in predicting bias.

In addition, the main effect for tobacco receptivity was affected by the smoking status of participants. Specifically, when smoking behavior was entered as a covariate then tobacco receptivity was no longer a significant predictor of message bias. Smoking behavior has a significant main effect when added into the analysis $F(1, 378) = 6.63$, $p < .05$, partial $\eta^2 = .02$; and tobacco receptivity is no longer a significant predictor of message bias $F(2, 378) = 1.37$, *ns*.

Hypothesis 7: Influence of Friends and Family. H7 states that as the number of family and/or friends who smoke increases, perceptions of bias in anti-smoking messages will increase. To test this hypothesis a 3 (PSA) x 2 (Condition: Low vs. Moderate Bias) x 2 (Family/Peer Smokers: No smokers vs. 1 or more smokers) analysis of variance was conducted with the first variable within subjects and the other variables between subjects, and smoking behavior entered as a covariate. Again, there was a multivariate main effect

for PSA, Wilk's $\Lambda = .97$, $F(2, 385) = 5.46$, $p < .01$, partial $\eta^2 = .03$; and a main effect for condition, $F(1, 386) = 31.74$, $p < .0001$, partial $\eta^2 = .08$. The smoking behavior covariate was also significant, $F(1, 386) = 8.75$, $p < .01$, partial $\eta^2 = .02$.

As hypothesized, there was a main effect for family/peer smokers $F(1, 386) = 6.07$, $p < .05$, partial $\eta^2 = .02$. H7 was supported in that adolescents who had family/friends who smoked viewed anti-smoking messages as more biased ($M = 2.82$, $SE = .07$) than those who had no family or peer smokers ($M = 2.43$, $SE = .14$) in their lives.

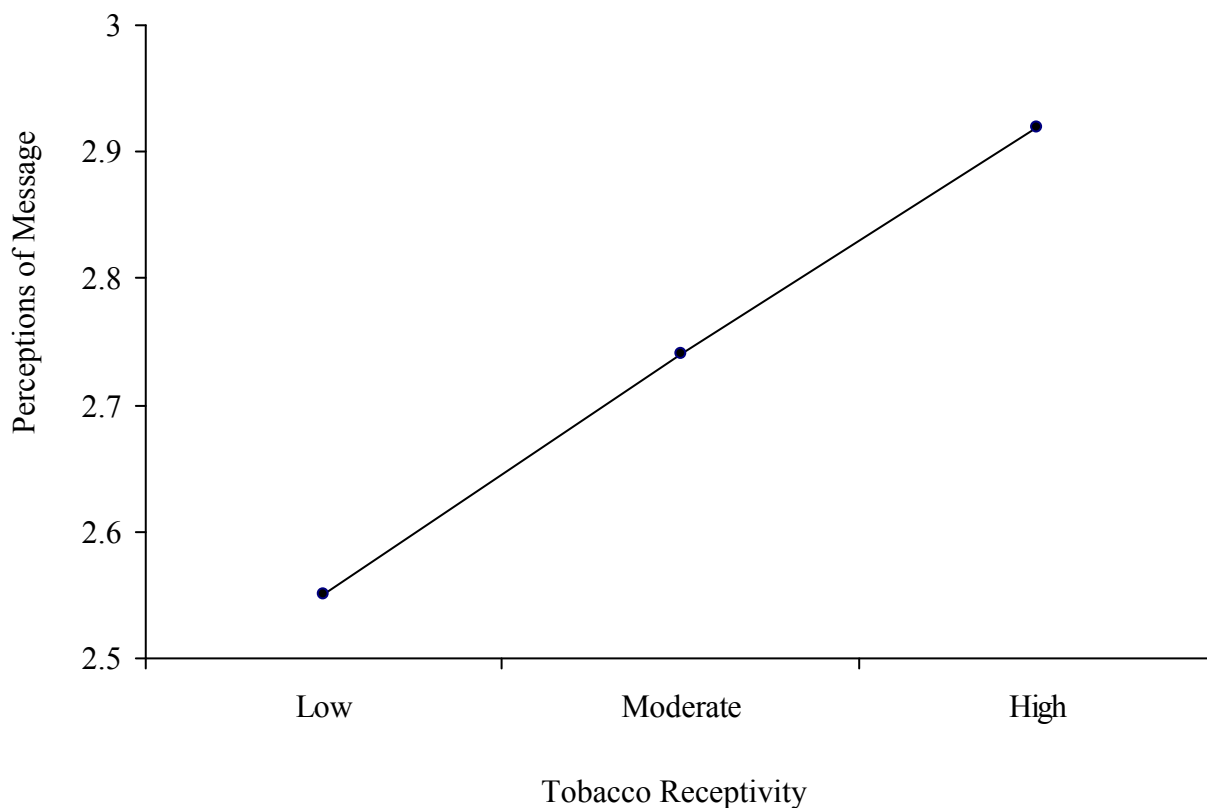


Figure 3. Relationship between Tobacco Receptivity and Perceptions of Bias. The means for perceived message bias were significantly different between “low” and “high,” but not between “moderate” and either of the other categories ($N = 392$, post hoc $p < .05$).

CHAPTER 5

DISCUSSION

Interested in learning more about what factors influence message acceptance or rejection, this thesis examined the relationships between risk and protective factors and perceptions of message bias regarding anti-smoking messages. Messages that had previously been identified by a similar sample as having low or moderate amounts of bias were selected for viewing in this study. Since increased perceptions of message bias may result in message ineffectiveness and ultimately message rejection, I chose not to use messages that had been previously demonstrated to have high bias. The intent was to do as little harm as possible by not exposing the adolescents to messages that evoked high biased perceptions and would not likely be effective. However, having both low and moderate biased messages provided the variance needed to analyze how certain risk and protective factors influenced message perceptions. Parental monitoring was the only protective factor (out of three) to be associated with lower perceptions of message bias whereas all three risk factors (number of family/peer smokers, tobacco receptivity, and smoking behavior) were associated with greater perceptions of message bias. The discussion section begins with an analysis of the risk and protective factor findings and makes recommendations for future work. Second, practical implications for health researchers and public health professionals will be discussed as well as how the findings are supported by the message perception literature. Third, ecological theory will be

examined as it provides insight into the findings. Finally, limitations to the present research and recommendations for future research will be provided.

One way to consider the findings is to consider the effects of risk and protective factors as they influence perceptions of message bias. As discussed in Chapter 2, risk factors increase the likelihood of a negative behavioral outcome (such as increased use of alcohol) and protective factors increase the likelihood of a positive outcome (such as decreased smoking rates). The risk and protective factors used in this study were previously demonstrated to be important predictors of smoking behavior (Abroms, et al., 2005; Biener & Segel, 2000; Cohen, Richardson, & LaBree, 1994; Gardiner, 2001), however, there has been little to no research that examines how such factors might affect message perceptions. The basic argument made in this thesis is that those with protective factors that likely already protect them against smoking would view the anti-smoking messages as less biased, as the messages would potentially reinforce their current beliefs about smoking. Similarly, it was expected that those with risk factors, which heightened their likelihood of smoking, would view anti-smoking messages as more biased in an attempt to maintain attitude-consistent beliefs about smoking.

Protective Factors

The results for protective factors were discouraging. Except for parental monitoring, no hypotheses testing protective factors as predictors of message bias were supported. That, with the lone exception, the argument that risk protectiveness might result in individuals seeing messages as less biased and, thus, be more open to the message content was not validated. Thus, the anti-smoking messages do not seem to serve as reinforcement for anti-smoking beliefs for those with protective factors.

Why might parental monitoring work as predicted while the other hypothesized protective factors failed? There is a large body of literature that has shown parental monitoring is negatively associated with a variety of risk behaviors, including smoking (Ary, et al., 1999; Dishion, Capaldi, Spracklen, & Li, 1995). Baumrind (1987) noted that parental monitoring is associated with decreases in problem behavior because adolescents are moderately controlled in their activities (kept from certain risk behaviors and/or friends engaging in risky behaviors), and more importantly to our discussion, adolescents receive emotional and behavioral support from their parents in their activities within the family unit and beyond. Thus, parental monitoring is not simply an act of monitoring behavior, but through such monitoring the adolescent receives support, nurturing, and becomes familiar with the expectations, beliefs, and values of the parents. Parents who are high in parental monitoring, communicate their expectations and value. This process of exchange and support through monitoring likely explains why increased parental monitoring was associated with a significant decrease in perceptions of message bias as it provides opportunities for discussion of the values that the parents want to uphold which may resonate with the child. In support of this claim, Engels and Willemsen (2004) found parental monitoring was not only associated with smoking behavior but also smoking-related cognitions suggesting that parental monitoring served to affect cognitions adolescents held about smoking.

Parental monitoring is not necessarily a static process of strict rules, but rather a dynamic opportunity for parents to express their concerns about certain events or friends due to expected behaviors that may occur in such circumstances in which they do not want their child to participate. Thus, through limiting a child's attendance at certain

functions and association with certain peers, parental monitoring has the opportunity to affect the physical location of the child, but also provides an opportunity for open discussion about values and beliefs. Such discussions and rules have the potential to influence an adolescent's thoughts and beliefs about such behaviors, which then, as demonstrated in this study, also influence how they view messages about the behavior. Thus, as demonstrated in this finding, parental monitoring is an important aspect in an adolescent's behavior and cognitions, and should be encouraged.

It would be interesting to examine the relationship between parental monitoring and perceptions of message bias as the sample ages, as one would expect that parental monitoring decreases as individuals get older and gain more freedoms. Smoking rates among adolescents increases as they move from 9th grade to 11th and 12th grade (CDC, 2000) and similarly, parental monitoring also changes as one progresses from 9th grade to 10th, 11th, and 12th grades. Thus, it would be interesting to explore whether the impact of parental monitoring on perceptions of message bias that is prevalent in 9th grade would have any lasting effects as individuals progress to higher grade levels and parental monitoring decreases.

Unlike parental monitoring, the protective factor of religiosity did not have an effect on perceptions of message bias. One reason might be that messages about tobacco smoking are not necessarily a focal point of one's religion or religious training (Kogan, et al., 2005). While many religions have indirect messages about health (e.g., 'your body is a temple') whereas, as mentioned above, parents have the opportunity for more direct communication about views of smoking (Engels & Willemsen, 2004). For example, a parent might explain to a child that smoking results in lung cancer or a parent might

explain that a child can't hang out with a certain friend because he/she disapproves of the friend's smoking habit.

Because of limitations associated with this sample, it is important that these findings are replicated with other adolescent samples before one can say with any certainty that religiosity is not an important protective factor for adolescents. This particular sample proved to be highly religious. A ceiling effect for the religiosity measure was obtained such that the overwhelming majority of the participants classified themselves as highly religious, thus, leaving little variance in the variable to predict variance in perceptions of message bias. People have various reasons and beliefs that motivate them to smoke (Tate & Stanton, 1990). In past work, religiosity has been demonstrated to have important effects on individual's beliefs, values, and behaviors; most importantly for this thesis, smoking behavior (Beech & Scarinci, 2003; Wills, Yaeger, & Sandy, 2003). Thus, it seems only fitting that since religiosity has been shown to shape one's view of the world and one's smoking behavior, it seems likely that it also would shape how an individual views smoking messages. While the relationship between religiosity and perceptions of message bias was not demonstrated in this study, the relationship should be tested again with a sample that has a better distribution in religiosity, before the claim is dismissed.

That the other protective factor, race, was not associated with perceptions of message bias was quite unexpected. An earlier study with some of the same messages and similar participants (as participants were recruited from one of the same schools that were used in a previous year's study), found that there was a significant overall effect for race for 9 messages, such that African Americans viewed the messages as less biased

than White adolescents (Shen et al., in press). In addition to the previous year's findings, the literature suggests that race should matter since African Americans report receiving significantly more antismoking messages and anti-smoking socialization than do Whites (Gardiner, 2001; Mermelstein, et al., 1999); and thus, anti-smoking PSAs would reinforce the messages received from such sources. However, as reported above, no simple main effect for race was found in terms of affecting message bias. Confused by the findings, I compared the current findings with the findings from the previous year's study in which the race effect was found. Last year 4 of the 6 messages used this year were also used, and the analyses found that for 3 of those 4 messages there were no significant differences by race for either year of data collection. Thus, the lack of findings based on race in this study can more easily be accepted as at least half of the messages used in this study also did not prove to have any significant race differences in a prior study.

Although not reported in this thesis, in other analyses with the larger data set, I did find that race was a significant predictor of other message perceptions such as not wanting to think about the PSAs and measures that examine whether a PSA made the adolescent think about the bad parts of smoking. Moreover, while a simple main effect for race was not obtained, race did interact with religiosity. When analyzing those participants who self reported as highly religious, as hypothesized, African American males reported less message bias associated with the PSAs than did White males. However, *counter* to the hypothesis, highly religious White females reported less bias than African American females. That race mattered for some measures of message perception, but not consistently for message bias, suggests that race may have more

complex effects on message perceptions and responses than expected, and needs further examination.

In terms of the protective factors, only parental monitoring was demonstrated to affect message bias. The null effect for race was perplexing given previous literature, but is somewhat qualified by the comparison to the previous year's study, and deserves further attention. Poor distributions may explain the lack of findings for religiosity, since with no variance in the measure it is difficult to use it to predict variance in another measure. Or, it may simply be that religiosity is an important predictor of smoking behavior but not of message perception. I suspect the first is the more appropriate explanation given that religiosity was a non-significant predictor of smoking *behavior* in the present study as well.

The skewed distributions for religion and parental monitoring shed light on some present sample characteristics. The high religiosity scores for this sample may be due to the fact that religion is traditionally an important part of southern culture, especially the rural south (Wilson, 2005). Since the participants were selected from rural Georgia communities, the high scores in religiosity may just be a reflection of the importance of religion in rural southern communities. Given at least 1 school we had almost 100% turn out of 9th graders, we assume that this population may be simply higher in religiosity than one might find in urban areas or out of the south. Also, in terms of parental monitoring, the students were in ninth grade and 14 and 15 years old, thus, there would be more parental monitoring at that age than when one turns 16 and is legal to drive which would increase their freedom from their parents. Another explanation for the skewed distributions is that there may have been some experimenter effect resulting in the

students answering in a socially desirable way. For example, thinking that the experimenter might think worse of a participant if he or she was not highly religious. In summary, due to restricted range in the variables, the findings for religiosity and parental monitoring should be replicated using other adolescent samples to further assess the importance of these factors as they relate to message processing.

Risk Factors

While results for the protective factors were disappointing, a much clearer pattern was observed for risk factors. All risk factors (number of family smokers/number of peer smokers, tobacco receptivity, and smoking behavior) were associated with greater perceptions of message bias. The more adolescents that were at risk for smoking behavior (e.g., had peer smokers, family smokers and were receptive to tobacco messages), the more they perceived anti-smoking messages as biased, even when controlling for smoking behavior. Recall that perceptions of message bias were measured by Witte's (1994) scale, which includes feelings of perceived manipulation and message minimization (measured by message being overblown, exaggerated, etc.). When controlling for one's own smoking behavior, when participants had close friends or family who engage in smoking then he or she was more likely to see the message as manipulative and full of exaggeration. Similarly, when one smoked, one perceived the messages as more biased. This increased perception of message bias as a function of being a smoker or having smokers in one's life may be a way of protecting themselves against the belief that their loved one's smoking behavior could result in the death of their loved ones or even themselves, if they are smokers or exposed to second hand smoke.

Smokers or those with smokers in their family or personal friendship networks are important audience segments that anti-smoking messages attempt to target, as we want them to change their behavior, or provide an alternative message to their family/friends. However, if this segment is resistant to these messages then the very group we need to reach is dismissing the messages due to bias evoked from the message. More research such as this should be conducted to figure out more about how risk and protective factors influence message perception so that such information can be translated appropriately into the design and strategic dissemination of anti-smoking messages.

These risk factor findings are significant in that they highlight a potentially serious problem. If messages with the intent to reduce smoking behavior are being met with bias (being seen as manipulative) by those most at risk for smoking, then such messages may be having no effect, and may potentially have detrimental effects. As noted by Brehm and Brehm (1981), reactance stems from messages that threaten one's freedom, and such persuasive attempts may motivate an individual to resist and even act counter to the attempted persuasive tactic. Thus, in the attempt to protect such individuals from smoking through anti-smoking messaging, such messages may actually be pushing them toward engagement in that behavior by disseminating messages that create reactance and a boomerang effect.

For instance, a boomerang effect was found when Rains and Turner (2007) conducted an experiment with college students where messages about a potential ban on alcohol on campus and in the community were presented to one group in a threatening manner and to another group in a nonthreatening manner. Reactance was largely felt by those in the threatening condition, which resulted in an increased favorability of alcohol

consumption. The findings from this example, in addition to the finding from the present study, suggest that public health officials need to spend more money and time pilot testing messages. It is not the case that these messages are having no effect on young people, on the contrary, they may create adverse effects.

Although there is no causal evidence of adverse effects from the messages in the present study, the findings do suggest that null or adverse effects could result from biased perceptions of anti-smoking messages. To demonstrate that biased perceptions of messages could result in harmful boomerang consequences, one could design a pre-test/post-test control group design. This study design would provide the opportunity to evaluate whether attitudes about smoking change as a result of viewing messages that produce high versus low bias. One would be able to see in the post-test if those exposed to high biased messages had attitudes that shifted in the direction of supporting smoking, thus, resulting in a boomerang effect. Future research should take on this task to support findings such as those found in this study which suggest that certain messages may be doing more harm than good.

Additionally, public health officials should be concerned with the finding that those who are receptive to the advertising and promotions of the tobacco industry are more likely to perceive anti-smoking messages as biased. That finding, combined with Pierce et al., (1998) longitudinal findings that tobacco receptivity is *causally* related to the onset of smoking suggests that much more attention needs to be focused on tobacco receptivity. The findings heighten concern because those with higher tobacco message receptivity were viewing the anti-smoking messages as more manipulative and more exaggerated. Thus the tobacco industries effects appear to be twofold: increase the

number of smokers and make individuals more resistant to anti-smoking efforts. Not only do public health officials need to combat individuals' beliefs in their messaging strategies, but they must compete with the large marketing efforts of the tobacco industry as such industries are shaping the beliefs of many individuals through their advertising by making anti-smoking messages appear biased.

Although many mechanisms and mandates have been put in place to restrict the amount and types of tobacco advertising allowed (mostly overt media campaigns), the tobacco industry has simply refocused their efforts into more low-key indirect marketing strategies such as promotions and sponsorships. Such indirect marketing strategies may be as good or better than overt "you should do" smoking messages since, since as demonstrated in this study, those who are receptive to tobacco promotions and advertising such as wearing or owning a hat with a tobacco brand are more likely to reject anti-smoking messages. The indirect advertising approach may not put a cigarette in the hands of an adolescent but it can plant a seed in their mind that smoking is okay since they have cool products or receive their basketball team uniforms from tobacco companies. An acceptance of indirect advertising (receptivity to tobacco promotions) has been demonstrated to result in a rejection of anti-smoking messages, so while one may not directly go buy a cigarette because they have a tobacco-branded hat, they will be less likely to accept any message that tells them of the dangers of smoking, which could be more harmful than overt "you should smoke" messages as indirect messaging could foster and build a general resistance to any anti-smoking messages.

Message Bias & Defensive Motivation

As discussed, the three risk factors, family/peer smoking, one's own smoking behavior, and tobacco receptivity, all led to increases in perceptions of bias. Not only is this an important finding to address in regards to the potential harm that could result from disseminating such messages to such individuals, but these findings support the literature on defensive motivation and maintaining attitude-consistent beliefs. The three risk factors are similar in that they can all create a social norm of smoking. When smoking is a norm for an individual, as Zuckerman and Chaiken (1998) note, individuals will have a defensive motivation to counter or attack any messages or information that threatens their norm. However, individuals do not typically dismiss a message without warranted justification (Kunda, 1990). Thus, as demonstrated in the findings, those who adopted smoking as a norm (whether through their behavior, the behavior of close others, or through receptivity to tobacco advertising and promotions) dismissed the anti-smoking messages and maintained attitude-consistent beliefs by minimizing the message and suggesting that it is manipulative; thus, perceiving it as biased (Kunda, 1990; Witte, 1994).

Practical Implications to Avoid Message Rejection

Any health messages with the attempt to get one to adopt and/or stop a behavior may evoke perceptions of bias (Grandpre et al., 2003). However, as demonstrated in this study, some messages produce a greater degree of perceived bias than others. Messages were carefully selected to evoke either minimum or moderate amounts of bias based on pilot work done with similar adolescents (Shen et al., in press), and, indeed I found that the low bias messages were perceived as significantly less biased than the moderate bias

messages. Thus, these findings highlight the need and importance of pre-testing materials before being distributed and strategically disseminated to the public. Messages can and should be pre-tested before being disseminated as they may be ineffective and/or cause a boomerang effect. While one may not be able to avoid messages that produce some degree of bias, this study has shown that messages have varying degrees of bias. Since bias can be identified, and perceived bias has been linked to message ineffectiveness (Shen & Dillard, 2007), which has been linked to message rejection, lower bias messages should be created and pre-tested to demonstrate low bias before being disseminated, to avoid such rejection of the messages. Of additional importance is that while there were significant differences within message condition, all of the messages which were classified as low-bias messages were all personal testimony messages. As for the moderate biased messages, there was a mix of second hand smoke and tobacco industry attacks. Thus, our findings suggest that personal testimony ads may be more effective and create less reactance among adolescents and should be used in campaigns.

This study not only demonstrates a need to pre-test messages, but also the need to pre-test messages for biased perceptions. Fishbein, Hall-Janierson, Zimmer, von Haefen, & Nabi (2002) established that it is necessary to conduct evaluative research before airing messages to prevent airing PSAs that could have a negative impact. Pre-testing involves making sure that prior to distribution, the target audience comprehends the message, interprets it as intended, and responds to the message (Lapka, Jupka, Wray, & Jacobsen, 2008). Typically, focus groups or individual interviews are conducted to assess if the materials meet the necessary objectives of the campaign and are effective in

a variety of areas such as relevance, comprehension, noticeability, memorability, credibility, acceptability, attractiveness, and whether or not they are effective in changing knowledge, attitudes, or beliefs (National Cancer Institute, 1989; Lapka, et al., 2008). The significant findings in the present study suggest that examining biased perceptions of messages is also a worthwhile effort in testing messages. While it is essential to pre-test for comprehension, relevance, etc., it is also critical to determine whether the messages are evoking high degrees of reactance and being viewed as biased. Thus, the present findings demonstrate the need to include message bias as a factor when pre-testing messages for effectiveness and determining whether it is suited for distribution.

Additionally, the present findings support other work that has noted that some PSAs can have no effect and potentially produce harmful boomerang effects (Cho & Salmon, 2007; Fishbein, et al., 2002; Yzer, Cappella, Fishbein, Hornik, & Ahern, 2003). That a variety of researchers have found that messages intended to be beneficial may also be producing negative unintended effects, suggests that such researchers need to gather to discuss methodologies and nuances found in their studies to see what, if any, patterns emerge that could shed light onto this phenomenon. One study, such as this one, is not enough to understand how to best create effective messages; however, it does add to the larger picture.

Thus, a symposium of researchers, each with a different perspective on the end result would be beneficial to discuss and synthesize findings to be able to construct practical recommendations for message development. For instance, Fishbein, et al, (2002) discussed that PSAs should point out the negative consequences of a risk behavior as opposed to messages stating “just say no.” Yzer et al. (2003) was more specific in

stating that a certain message “that marijuana is a gateway drug” should not be used in anti-drug interventions. Additionally, Paek (2008) conducted a comparative analysis between younger and older adolescents and found that media campaigns were more effective for older adolescents and school-based anti-smoking education more effective for younger adolescents. The present study suggest found that those with risk factors for smoking are more likely to perceive messages as biased and thus, the influence of risk factors should be taken into consideration when developing messages. Additionally, this study found that messages have varying degrees of bias and that the three messages that were perceived as having the lowest amounts of bias were personal testimony PSAs, suggesting that personal testimony ads may be an effective messaging strategy to avoid message rejection. Thus, although each of these studies present different pieces of information, they are all relevant to understanding why some messages are not effective and could produce harmful boomerang effects. Thus, a symposium or special journal edition dedicated to this topic could be fruitful in addressing an important issue from a variety of perspectives.

Ecological Theory

Ecological Theory notes that individuals are shaped by a variety of factors and experiences, some individual factors, some interpersonal factors, and some broader community level factors (Fraser, 2004). There is a wealth of literature that demonstrates the role that multiple levels of influence (such as those proposed in the Ecological Theory) have on behavioral outcomes such as alcohol and drug use (Jenson, 2004), sexually transmitted infections (Rounds, 2004), suicide (Macgowan, 2004), and smoking behavior (Skara & Dent, 2001). However, little work examines how the multi-level

systems of influence proposed by the Ecological Theory influence perceptions of messages, which may then influence behavioral outcomes.

While not examining community factors, the findings from this thesis suggest that the interpersonal factors' measures (parental monitoring and number of family and peer smokers) were as important as the individual factors. Indeed only one individual factor (tobacco receptivity) was found to be significant. Interpersonal factors may have worked better than individual factors simply because the individual factors measured in this thesis were not the cognitive factors that have been proven predictors of perceptions of anti-smoking bias, such as need for cognition and sensation seeking. However, these results do suggest that message designers do not have to rely so exclusively on individual level measures and that more interpersonal measures are important predictors of how adolescents perceive messages. The more practitioners and message designers know about the factors that impact and influences message rejection or acceptance (both at an individual and interpersonal level), the better equipped they will be at designing messages to reduce bias, and choosing which messages should be disseminated to which communities based on such identifiable characteristics of the members in the community.

Limitations

Community Level Factors. There are limitations in this study that should be addressed to better contextual the findings. As discussed, this study was framed within the Ecological Theory, a theory that posits three primary levels of influence – individual, interpersonal, and the broader community level. However, the study only addressed two of those levels (individual and interpersonal). This study could have been strengthened by examining broad community level factors, in addition to the other two levels, as they

relate to message perceptions. As far as broad community level factors, it must be noted that our sample had distinguishing broad community level factors (i.e. low income population, rural areas in the South), however with no comparison groups (i.e. high-income population, urban or suburban area), such broad community level influences could not be determined. Such community level factors may be important and should be considered for future research examining perceptions of message bias.

Another broad community level factor that deserves attention is the amount of tobacco advertising and promotions in a community. As discussed in the risk factor portion of this study, receptivity to tobacco advertising and promotions (as an individual level construct) has been demonstrated to be causally predictive of smoking behavior (Pierce et al., 1998). As demonstrated in this thesis, individuals receptive to tobacco advertising and promotions were more likely to see anti-smoking messages as biased, meaning they were less receptive to anti-smoking messages.

Research has documented that certain groups, particularly women, racial/minority ethnic groups, and low-income communities have been specifically targeted by tobacco companies who spend more money and implement more targeted advertising approaches in such communities (USDHHS, 2001; USDHHS, 1998). That certain communities are heavily targeted by the tobacco industry and such exposure will likely lead not only to smoking behavior, but also to the dismissal of anti-smoking messages (as demonstrated in this study), suggests that such groups are an extremely vulnerable segment. Thus, it is important to examine whether individual's exposed to more frequent and intense tobacco advertising and promotions will perceive anti-smoking messages as significantly more biased than those exposed to lower levels of tobacco advertising. If this is the case,

health practitioners and public health officials must redesign how to go about addressing anti-smoking in such communities that have been overwhelmed with tobacco advertising and have bought into the advertising and promotions of the tobacco industry.

Measurement. One measurement limitation is that the findings were all centered on perceptions of message bias rather than examining other outcomes such as affective responses to messages (e.g., the message made me sad or scared) or behavioral responses to messages (e.g., this message made me never want to start smoking). Prior work with message bias measures has demonstrated that perceptions of message bias are strongly correlated with behavioral outcome measures however undoubtedly our findings would be richer and more in depth if I had reported on a wider variety of message perception measures.

A second measurement concerns is the measure of religiosity and parental monitoring, both of which were highly skewed indicating that a majority of participants reported high parental monitoring and being very religious. Despite efforts to normalize the distribution, the variables had to be transformed into categorical variables to test the hypotheses. Due to the ceiling effect, in which the majority of the participants were high on one end, results should not be extrapolated to populations with lower religiosity and/or parental monitoring. Thus, there may be some relationship between religion and bias that was not demonstrated because of the sample's highly skewed distribution. Thus, such relationships should be reexamined with other adolescent samples to see if the relationships found in the present thesis are supported.

Future research might also consider broadening our conceptualization (and operationalization) of what Ecological theory calls interpersonal behaviors. Health

researchers often refer to variables that include someone outside of the self as an interpersonal behavior (Fraser, 2004). Thus, parental monitoring and the number of family/peer smokers are considered interpersonal as they refer to a relationship with someone external to the self. However, from an interpersonal communication perspective, interpersonal is not simply defined by the number of individuals involved, but also by the dynamic exchange of messages that result in some shared understanding. Thus, the number of family/peer smokers may indicate exposure to people other than oneself but it does not indicate whether the family/peers advocate that a teen smoke, lecture against smoking or simply provide a passive role model. Perhaps with better measurement we can better understand *how* exposure to peer/family smokers results in an increased probability that one will smoke and an increased perception of anti smoking messages as biased.

Interpersonal scholars might suggest an even richer set of variables one could examine if interested in interpersonal influences. For instance, one could bring in a friend and/or parent who smokes and a child and have the dyad re-enact their typical discussions on a variety of behaviors, including smoking. Such discussion could be coded and analyzed to determine whether there is open communication about smoking going on in the relationship or not, and if so, what type of conversations are being had (i.e. encouragement of smoking, disapproval of smoking, etc.). Thus, I would not have to infer from number of family/peer smokers in life, but can actually get at the core communication exchanges that are more likely to directly affect smoking beliefs and behaviors. In addition, it would be useful to have both parent and child complete several measures such as parental monitoring and amount of anti (or pro) – smoking socialization

to see if that which the parents think they are doing and that which the child thinks his/her parents are doing match up, and whether such perceptions have any influence on behavior and attitudes. Examining the actual communication processes that occur between individuals may provide us with a richer understanding of how interpersonal variables actually influence perceptions of message bias and behavior.

Conclusion

This thesis examined how several risk and protective factors that predict smoking behavior may also affect perceptions of anti-smoking messages. Of the protective factors, a higher level of parental monitoring was demonstrated to be significantly associated with a decrease in message bias. Race and religion did not produce significant findings. The three risk factors (tobacco receptivity, number of family/peer smokers, and smoking behavior), on the other hand, were consistently found to be associated with increases in message bias. The risk factors were a better predictor of message bias than the protective factors, which indicates the need to produce messages that will be more acceptable to those already at risk for smoking. That two interpersonal factors were found to be associated with perceptions of message bias validates the need for future research to examine message perception by looking at interpersonal variables in addition to the traditional individual level variables. Generally, the findings note that public health officials must reexamine their approach to messaging for those at high risk for smoking; and that personal testimony PSAs may be a productive way to translate the anti-smoking message without creating extreme amounts of bias or rejection. Additionally, the dissemination of messages needs to be carefully considered as more harm than good could result from mass distribution. Future research should reexamine several of the

present findings and consider other variables of interest that may likely influence message perception.

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FOOTNOTES

¹ An analysis including all low, moderately religious and highly religious adolescents was run. No differences were found for low and moderately religious adolescents by race, only for the highly religious, as the hypothesis stated.

² A full analysis was run including those reporting low, moderate, and high levels of parental monitoring. No differences were found between race and parental monitoring for this set of analyses.

APPENDIX A

CONSENT FORMS AND DEBRIEFING STATEMENT

Parental Consent Form: "TV and Smoking Messages" Study

I agree to allow my child _____ (please print child's name) to take part in a study titled "TV and Smoking Messages." Dr. Jennifer Monahan, Department of Speech Communication at the University of Georgia, is conducting the study. Dr. Monahan can be reached at 706 542-3257 or by email at jmonahan@uga.edu.

The purpose of this study is to learn more about how teens feel about anti-smoking public service announcements that are shown on TV. This study will have 2 sessions. The first one will take place at school and will take about 1 hour for my teen to complete. My teen receives \$10 in gift cards for this first session. The second session is a follow up phone call to my teen. This follow up phone call will take place three months after the first session. My teen will receive \$10 in gift cards for this follow up session.

In the first session at school, my teen will work on a laptop computer to answer questions about his or her self and about tobacco use in the community. Then, he or she will also watch some TV public service messages about smoking and answer questions about the messages.

In the follow-up phone call three months later, I understand that one of the researchers will call my teen and ask them what they can remember from the messages they viewed during the first session. They will also answer some questions about themselves and their smoking behavior-if they do smoke. I will provide a phone number that I would like my teen to be reached at below.

In signing this form, I understand that:

- A. My teen's participation is voluntary; my teen can refuse to participate or stop taking part at any time without giving any reason and without penalty. He or she can also choose not to answer any questions that he or she feels uncomfortable answering.
- B. Any information my teen may give in the study will be for research purposes only. My teen's answers are *confidential*. What that means is that the researcher can link my teen's name to the responses my teen makes in the study. However, the researchers will not share that information with anyone, including myself or their teachers, unless required by law.
- C. I understand that the risks for my teen are minimal, if any.
- D. My child will receive \$10 in gift cards to local restaurants (such as McDonalds) as a thanks for participating in session 1. My child will also receive \$10 for taking part in the follow up phone call 3 months later. My teen also may learn about smoking risks and his or her personal attitudes toward smoking. The researchers will also give my teen a handout on smoking risks.

E. The researcher can be reached by phone or by email with any questions I might have. Or, I may leave a message with my child's teacher and a researcher will call me back to talk with me. If I have any concerns about the project now or later, I can contact Dr. Jennifer Monahan at 706 542-3257 or email her at jmonahan@uga.edu.

I agree that my teen for whom I am a legal parent guardian may take part in this study. I have been given a copy of this form for my records.

Your relationship to the teen: _____

*Name of Parent or Legal Guardian (print) _____

*Signature of Parent or Legal Guardian _____

Date.

Phone number to reach teen that he or she will be able to talk at in April/May

*The individual above verifies that he/she is the natural parent and/or legal guardian of _____ and as such is legally authorized by the laws of the state of Georgia to sign on behalf of this child.

Researcher: Jennifer L. Monahan

Telephone: 706 542-3257

Email address: jmonahan@uga.edu

Signature

Date

Please sign both copies. Keep one and return the other to the researcher.

Additional questions or problems regarding your child's rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu).

Youth Assent Form: "TV and Smoking Messages"

Dear Teen:

You are invited to participate in my research titled "TV and Smoking Messages." If you decide to participate, the research will have 2 sessions. The first session takes place during class time and takes approximately 1 hour. The second session is a follow up phone call to ask you questions about the first session. It will take approximately 15 minutes and we will call you approximately 3 months later.

The purpose of the study is to learn how teens feel about anti-smoking public service messages that are shown on TV. You will answer some questions and view the public service announcements on a computer. In this study, you will fill out some questions about yourself and about where you see tobacco use in your daily life. Next, you will watch some TV public service messages and tell us what you think about each one. About three months from now, we will call you and ask you some questions about the study and about yourself. At the end of the session you do today at school, we will get your phone number and address so we can call you back in 3 months to do the follow up session.

Your responses will be confidential. That means any answers that you give **will not** be released to anyone. We will not share your responses with your parents, your teachers or anyone else. Instead, your answers are used only for research purposes with out any names attached. The only time we would tell anyone what you said is if we were ordered to by law.

There are no known risks for you in this study. Your participation is *voluntary*. What that means is that you can refuse to participate or stop taking part in the study at any time with out telling us why you want to quit and with out any penalty. If you want to stop participating in the school session, you can raise your hand and let any of the researchers know at any time. If there is a specific question you don't want to answer, you can always skip that question.

You will receive \$10 in gift cards for local restaurants such as McDonalds for taking part in the school session. In addition, you will receive \$10 for taking part in the follow up phone call 3 months from now. You will also learn about smoking risks and your personal attitudes toward smoking.

If you have any questions or concerns you can always ask of the researchers now or at any time during the study. If you have any questions afterwards, you can contact Jennifer Monahan (jmonahan@uga.edu or at 706 542-3257) and she will be happy to answer your questions. If you want a copy of the findings of this project, you can email or phone Jennifer Monahan and she will be happy to send a copy to you.

Jennifer L. Monahan
 Department of Speech Communication
 University of Georgia, Athens, Georgia 30602
 Telephone: 706 542-3257 Email address: jmonahan@uga.edu

I understand the project described above. My questions have been answered and I agree to participate in this project. I have received a copy of this form.

 Your Name (Print)

 Your Signature

 Date

Please sign both copies, keep one and return one to the researcher.

Additional questions or problems regarding your rights as a research participant should be addressed to The Chairperson, Institutional Review Board, University of Georgia, 612 Boyd Graduate Studies Research Center, Athens, Georgia 30602-7411; Telephone (706) 542-3199; E-Mail Address IRB@uga.edu

Debriefing Statement: “TV and Smoking Messages” Study

Thank you for participating in our study. The purpose of this study is to learn about how people view anti-smoking public service announcements (PSA) that are on TV. As you know, smoking remains a major health problem in our country and researchers are trying to find out the best ways to a) prevent people from beginning to smoke and b) getting them to quit if they currently smoke.

The purpose of this study was to better understand people’s decision making process and attitude toward smoking, as well as the effects of media messages. We want to assess what kind of social factors are related to risk behavior intentions. We also want to know your attitude toward smoking. By conducting a phone survey in 12 weeks, we will also want to compare what kind of PSAs created anti-smoking attitudes and affected smoking intentions.

The information you provided us with will help us to understand which types of messages work best for which types of people. We hope to provide this information to people who create these messages. Thus, your participation today was extremely valuable.

Again, we thank you for your time today. If you have any further questions, please contact:

Dr. Jennifer L. Monahan
(706) 542-3257
jmonahan@uga.edu

Elisabeth Bigsby
(706) 542-9360
ebigsby@uga.edu

APPENDIX B

MEASURES

Smoking Status

14. Have you ever smoked a cigarette, even one or two puffs?

1 2

Yes No

15. During the past 30 days (one month), on how many days did you smoke cigarettes?

1. 0 days

2. 1 or 2 days

3. 3 to 5 days

4. 6 to 9 days

5. 10 to 19 days

6. 20 to 29 days

7. All 30 days

16. During the past 30 days (one month), on the days you smoked, how many cigarettes

did you usually smoke?

1. I did not smoke cigarettes during the past 30 days

2. Less than 1 cigarette per day

3. 1 cigarette per day

4. 2 to 5 cigarettes per day

5. 6 to 10 cigarettes per day

How important is it for you

69. To believe in God

1	2	3	4	5
Not at All Important	Rarely Important	A little Important	Pretty Important	Very Important

70. To be able to rely on religious teachings when you have a problem

1	2	3	4	5
Not at All Important	Rarely Important	A little Important	Pretty Important	Very

71. To be able to turn to prayer when you are facing a personal problem

1	2	3	4	5
Not at All Important	Rarely Important	A little Important	Pretty Important	Very

72. To rely on your religious beliefs as a guide for day-to-day living

1	2	3	4	5
Not at All Important	Rarely Important	A little Important	Pretty Important	Very

Race

What is your race...

African American

Caucasian

Asian

Hispanic

Other

Protobacco Receptivity

We would now like to know your opinions.

31. Some tobacco companies offer free promotional items with their brands on them, like t-shirts, and hats. Do you think that you would ever use them?

1 2
yes no

32. Do you have a piece of clothing or something else that has a tobacco brand name or logo on it?

1 2
yes no

33. Have you seen any cigarette ads on billboards?

1 2
yes no

34. Have you seen any cigarette ads in magazines?

1 2
yes no

35. Which cigarette brand's ads have you seen the most? Please try your best to spell, or if you want, raise your hand and a staff member will help you with the spelling.

Have you seen ads for any of the following cigarette brands?

36. Marlboro 1 2
No Yes

37. Newport 1 2
No Yes

38. Camel 1 2
No Yes

39. Parliament 1 2
No Yes

40. Kool 1 2
No Yes

41. Have you seen any anti-smoking messages on TV?

1 2
No Yes

42. Have you seen any TV show characters say that smoking was bad?

1 2
No Yes

Family/Peer Smoking

10. Do any of your parents or step-parents smoke cigarettes?

1	2	3	4
Yes	No	Refused	Don't Know

11. Do your older brothers or sisters smoke cigarettes?

1	2	3	4
Yes	No	Refused	No Older Brothers/Sisters

12. Of your close friends who are male, do any of them smoke?

1	2	3
Yes	No	Refused

13. Of your close friends who are female, do any of them smoke?

1	2	3
Yes	No	Refused

APPENDIX C
PSA DESCRIPTIONS

Moderate-Bias PSAs

Cold Blooded: A white businessman drives a high-end black car. He presses a button in his car marked “Phone” and starts talking. While talking business, he hits a bicyclist. The bicyclist flies over the car, and his bike becomes lodged under the car. The driver keeps talking business and driving. Next, we hear the driver ask, “How’s it going to affect our profits?” Then, he speeds through a crosswalk full of pedestrians. As his car hits around 5 people, he keeps driving and looks in his rear-view mirror. He flashes a frown but keeps driving. He then says, “That’s all I care about.” At the end, the viewer sees the license tag of the black car, and learns that it reads “TOBACCO.” The car drives away and a black screen with the message “Tobacco companies make billions selling a product that killed 4.9 million last year.” This 30-second PSA was produced for the Minnesota Department of Health and is currently owned by the CDC.

Crawling Babies: The number 135 in red-orange is shown. Then you see a mechanical baby crawling and crying on a sidewalk in a large city. The cries and mechanical dolls multiply to hundreds as we see a man putting them on the street. A baby then falls over, and the message on the bottom is exposed: “How do infants avoid second hand smoke?.... At some point they begin to crawl.” We then zoom out to see the hundreds of mechanical babies with about 5 or 6 people standing amongst them. Screen says “Knowledge is contagious.” We can still hear the mechanical babies. The last screen

says “Infect Truth.” This 30-second PSA was produced for the American Legacy Foundation and is now owned by the CDC.

SUV: A four person African American family is riding in their SUV. Two kids (teen boy and a younger girl) are in the back listening to headphones and sleeping. The mother is in the passenger seat, the father is driving. The son makes a face and says, “Whoa Whoa- something’s funky.” An announcer states, “Passing gas can be deadly.” The mom scolds her husband with “ohhhh-ohhhh- honey! Not in the car.” The announcer talks about how gasses are poisonous. “Kids shouldn’t be exposed to second hand smoke.” Dad is driving with a steady stream of cigarette smoke in front of him. He puts out the cigarette and looks shamed. Announcer says, “Don’t pass gas, take it out side.” The last screen has the web address dontpassgas.com and a phone number provided on the screen. This 30-second PSA was produced for the California Department of Health Services and is now owned by the CDC.

Low-Bias PSAs

Cowboy: Cowboy is the first of the three experimental messages. This PSA has an old western feel. A white man states how he used to love the cigarette ads and commercials because they exuded independence, rugged manliness, and freedom. The first screen is of a farm backdrop with a “The Truth” in large letters. This fades away to various photos and video clips that convey the beauty and freedom of the Wild West. We see an emotionally pained man who says “Then the cowboy died. Got lung cancer from smoking.” We find the cowboy was the Marlboro man and was the speaker’s brother. He talks about how the smoking industry used his brother. We see pictures and videos of the cowboy at first healthy, then lying on a hospital bed with tubes in him. He is very fat and

has several tubes attached to his body due to cancer. We are warned to not buy into the smoking company's marketing. This 30-second PSA which is now owned by the CDC was produced for the Massachusetts Department of Public Health.

Pam Laffin: A woman states she started smoking as a young person, and got hooked. She also got asthma, bronchitis, and emphysema. She still did not quit. She did not quit until she had to have a lung removed. She was 24 when all of this happened. Now 26, she tells the viewer that she will be on medication for the rest of her life. The medication gives her a "fat face" and a hump on her neck. In the end, she says she started smoking to look older. She then adds, "...and I'm sorry to say, it worked." This ad starts with her going up an elevator. It progresses by giving a photographic account of her life from healthy and young, to older and smoking, and finishes with her talking to the camera. This 30-second PSA was produced for the Massachusetts Department of Public Health and was intended for a target audience of youths and young adults. The CDC now owns this PSA.

Victim Wife: The PSA focuses on an older man. He talks about how his wife always bugged him to quit smoking. She told him it was bad for him, made the drapes smell, and she even threatened to stop kissing him if he did not stop. He did not quit because it was his lungs and life. He then explains that he was wrong – instead of losing his life, his wife lost hers. The message "secondhand smoke kills 53,000 people every year" is shown. The message ends with the man saying that his wife was his life. He is obviously very upset and starts to cry. This 30-second PSA was produced for the California Department of Health Services and is currently owned by the CDC.