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Factors Influencing Smoking In Adolescents

Jeff J. Mitchell

Mississippi University for Women

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FACTORS INFLUENCING SMOKING IN ADOLESCENTS

by

JEFF J. MITCHELL

A Thesis

Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Nursing
in the Division of Nursing
Mississippi University for Women

COLUMBUS, MISSISSIPPI

August 2000

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Factors Influencing Smoking in Adolescents

by

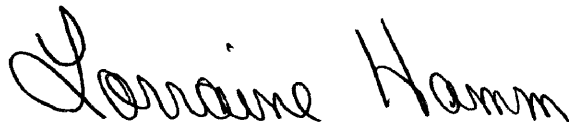
Jeff J. Mitchell



Professor of Nursing
Director of Thesis



Associate Professor of Nursing
Member of Committee



Instructor in Nursing
Member of Committee


Director of the Graduate School

Abstract

Adolescents' use of tobacco products is an ever-growing sector of today's society. Adolescents continue to smoke cigarettes at an alarming rate. Early adolescent cigarette smoking between the ages of 11 and 13 years was found to be related to peer pressure and family role-modeling. Another influence cited was the use of media catering to adolescents. The ease at which adolescents acquire cigarettes is evidence that further restrictions need to be applied to those who sell to adolescents. The purpose of this study was to further explore influencing factors to adolescent smoking. The research question was what are the factors that influence an adolescent to cigarette smoking experimentation? Two theories were utilized to guide this study: Erickson, Tomlin, and Swain's Modeling and Role-Modeling Theory and Erickson's psychosocial development stages. Subjects included the seventh- and eighth-grade students at a rural county school in south Mississippi. Data were compiled using a researcher-developed questionnaire. Data were analyzed using

descriptive statistics, percentages, and frequencies. Findings supported earlier research as males were identified as the strongest influence of these seventh- and eighth-grade boys and girls. Despite the male influence, 84% of the sample acquired their cigarettes from peers. Peers were identified as the strongest overall influence. Adolescent smoking programs must be offered at an earlier age through age-specific program development.

Acknowledgments

I would like to thank my loving wife for her support and patience. Without her friendship and kindness, I would not have been able to complete graduate school. She is a gift from God and proof that angels do live on earth to help guide our daily walk with God.

I would also like to say thank you to my children, Micah and Robin.

Thank you, Mary Pat, for guidance and support.
Behold we count them happy which endure. Ye have heard of the patience of Job, and have seen the end of the Lord; the Lord is very pitiful, and of tender mercy.

James 5:11 (KJV)

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Chapter I

The Research Problem

Adolescent smoking has been cited as a worldwide problem that must be dealt with aggressively to prevent associated health problems (Welshman, 1996). Numerous variables have been identified as influencing adolescent smoking in the United States (Centers for Disease Control [CDC], 1995). Family and peer influences are believed to be among the leading predictors to adolescent smoking (Fergusson & Lynskey, 1995). Additional suspected influences include gender, age, race, ethnicity, and family income (Substance Abuse and Mental Health Services Administration [SAMHSA], 1996). Research designed specifically to identify influential factors related to adolescent smoking is needed to better understand the etiology of the phenomenon and to develop interventions which may deter smoking. Therefore, the focus of this study was to determine factors that are influential in adolescents' choosing to smoke cigarettes.

Establishment of the Problem

Every day an estimated 3,000 adolescents become smokers (Wang & Fitzhugh, 1997). The number of adolescents who smoke tobacco products has continued to rise despite current media coverage that focuses on the detrimental long-term health effects. CDC (1995) statistics indicated that the number of adolescents who experiment with smoking for the first time is 6,000 per day and half of those teens continue to smoke regularly. Additional alarming estimates reported by the CDC indicate that more than 70% of high school students have tried or have smoked a cigarette at least once. Data indicate that at least 21% of eighth graders, 30% of tenth graders, and 34% of 12th graders smoked daily (CDC, 1996). Since the average age of experimentation is 14 years of age, researchers have begun to target seventh and eighth graders to identify predictors of adolescent smoking. Past research supports the premise that the younger experimentation begins, the more likely adult consumption will occur (Fergusson & Lynskey, 1995).

Today adolescents have more time at home without parental guidance, and adolescents also spend more time with peers after school than those of previous decades

(CDC, 1996). Yet family role models continue to be the most persuasive factors in the adolescent's life choices. The family represents the early influences the adolescent will encounter. Family modeling has been the single most dominant factor recognized in influencing long-term habits in adolescents, and parental smoking is believed to have a significant impact on the adolescent choosing to smoke. Although paternal modeling has been identified as a positive predictor, maternal modeling has been cited as the greatest predictor to adolescent smoking in the family setting (Oygar & Klepp, 1995). Sibling modeling appears to dissipate over the adolescent years but may still have a powerful impact on impressionable teens who are trying to decide whether or not to initiate cigarette use. In addition, nontraditional family structures, such as stepparents and foster parents, also have emerged as influences (Oygar & Klepp, 1995).

While family influences on smoking are influential in the early adolescent years, peer affiliation appears to be an even greater influence. Peer modeling has been identified as the single most prevalent predictor of smoking in early adolescent years (CDC, 1996). The need to conform to the peer group is a very important factor as

adolescents search for their identities (Sulkes, 1998). Smoking experimentation is often introduced by friends in the neighborhood school acquaintances, athletic team members, and social events away from home (Kollar, 1998). Such peer influences vary as the adolescent develops and changes friends and associates throughout the junior high and high school years (Patton & Carlin, 1998). Fergusson and Lynskey (1995) determined that a teen's tendency to associate with peer groups who smoke reinforces other preexisting tendencies to smoke.

As the adolescent matures, he or she is searching for a place in society (Sulkes, 1998). Learning to achieve a satisfying and socially accepted role is difficult for many adolescents (Kollar, 1998). Learning to integrate with age-mates who have common interests and personal goals allows for resolution of the developmental stage for each teen. Finding one's self in a peer group and learning to handle one's self in the presence of the opposite sex create enormous pressure on adolescents (Sulkes, 1998). Thus, pressures of early adolescence often bring about new role-playing behaviors such as cigarette smoking.

In addition to interpersonal factors, advertising in the media has had a strong influence on adolescent

smoking. In the most recent published statistics the top three selling brands of cigarettes among the adolescent population were Marlboro, Camel, and Newport, all heavily publicly advertised brands. In 1991, 91% of 6-year-olds surveyed placed Joe Camel in the same category as Mickey Mouse (CDC, 1997). Advertising media most commonly used to sell cigarettes are magazines, TV, and movies; however, these are just a few of the advertising vehicles which target adolescents (CDC, 1997). In 1991, these media campaigns profited the tobacco industry over \$190 million from the sale of cigarettes to adolescents (CDC, 1997).

Legislative efforts have been unsuccessful in deterring adolescent smoking. Present legislation has focused on preventing the sale of cigarettes to minors and halting advertising campaigns aimed toward adolescents (Welshman, 1996). Unfortunately, teens under 18 years of age often still find easy access to cigarettes in local stores without showing proof of age (CDC, 1995, 1996).

With the success of media campaigns and the alarming number of new adolescent smokers, it is evident that research, educational, and legislative efforts have failed. It is, therefore, incumbent upon health care providers to conduct new research that might clarify the

issues surrounding adolescent smoking and to aim resources toward preventing adolescent smoking before it starts. Current research regarding adolescent smoking was conducted primarily in urban areas, thus there is a profound need for research in rural communities. In rural communities there may be influencing factors not identified, especially given the lower socioeconomic status of most rural areas, particularly the Southeastern United States. Additionally, rural area teens are likely to have more access to tobacco because enforcement of laws to deter adolescents from buying cigarettes is difficult because of limited police staff and greater geographic area to patrol (Hu & Lin et al., 1998).

This researcher, who is a health provider and lives in a rural community, developed a concern for adolescents after noting that minimal efforts have been made to deter smoking. By identifying factors that influence adolescents in rural areas to smoke, health care providers can begin to develop age-appropriate and geographically reasonable anti-smoking interventions.

Significance to Nursing

Increasing understanding of the variables influencing adolescent smoking has significance to nursing science in a variety of areas. Significance to nursing practice, education, theory, and research are discussed.

Nursing practice. Increasing the base of nursing knowledge has been one of the primary goals of nursing research. Through research studies nursing has created new and innovative interventions for old problems. A holistic approach to deterring adolescent smoking will be beneficial, particularly for the adolescent and family. Increased understanding of the influencing factors of adolescent smoking will allow nurse practitioners to better assess teen behaviors and to recognize those in need of guidance. Additionally, findings from this study may help nurse practitioners identify the teen and family at risk for adolescent smoking. Finally, nurse researchers may use findings from this study to identify young people at risk for smoking experimentation at an earlier age.

The nurse practitioner could use data from the current study to develop an educational format concentrating on prevention and cessation of smoking that is age specific. The nurse practitioner could play a vital

role in guiding parents toward personal smoking cessation as well as provide education on their influence on adolescents. Programs could be developed by the nurse practitioner to address the gender differences in influences to smoking. By identifying what influences those at risk for experimentation, education and other interventions can begin at the source of the problem.

Nursing education. Based on findings from this study and other research, nursing curricula could be amended to educate both baccalaureate and graduate nursing students to identify the predictors of adolescent smoking behaviors. Collaborative efforts among nurse practitioners, nursing faculty, and student nurses could create teen treatment programs aimed at deterrence and cessation.

Nursing theory. The theoretical framework for this study was Modeling and Role-Modeling by Erikson, Tomlin, and Swain (1997). Theory application aided the nurse practitioner in assessing and recognizing role and role modeling by the adolescent in identifying influences through use of the Mitchell Adolescent Smoking Questionnaire. The goal of the questionnaire was to identify influencing factors and practices so that

modeling and role-modeling can be used more effectively in deterring further smoking experimentation. The theory can aid the nurse educator, clinicians, and nurse practitioners in education development and distribution that will be centered on reducing experimentation among adolescents through the use of role-modeling.

Nursing research. Nursing research is necessary for progression of the profession. Additional research is necessary for the advancement of nursing knowledge. Nurse practitioners make excellent researchers because they spend the time to perform the necessary assessment. From research, new educational approaches and tools are developed with the goal of helping the client. These data provide nurse practitioners with many opportunities to advance research skills in assessing teen behaviors and identifying influencing factors of adolescent smoking in order to create cessation and prevention programs which are age appropriate.

Theoretical Framework

Two theories were utilized for this study. Erikson et al.'s (1997) Theory of Modeling and Role-Modeling provided the nursing conceptual framework. Modeling is defined as a

means by which the nurse can understand and develop an image of the client's perception of the world. Modeling is best achieved through a technique called mirroring. The first step in modeling is to build a relationship with the client that is interactive in nature and is beneficial for the client as well as the nurse practitioner. The client's perspective is accepted for an interpersonal relationship to develop. Modeling was a primary method used during the implementation phase of the current study. A nonjudgmental approach was taken during data collection. Multiple variables were explored to encompass as much of the world of the adolescent as possible. Data were collected to determine predictors to adolescent smoking and on the adolescent's perception of self, peers, and family regarding smoking. The variety variables explored assisted the researcher in understanding the adolescent's world view and allowed for conclusions based on specific influences of adolescent smoking that were identified by the adolescents themselves.

The second major concept of Erikson et al.'s theory is role-modeling. Role-modeling was defined as therapeutics designed for each individual client with unconditional acceptance without experiencing a sensation

of losing one's self due to new ideas or change. This process is commenced once assessments are complete and the nurse practitioner moves into the planning phase of intervention. Data from this study regarding adolescent smoking could be utilized by nursing to create individual programs for smoking cessation or prevention via role-modeling.

Affiliated-individuation is a final unique concept developed by Erikson et al. (1997). The theorists believed that an individual needs to feel dependent on support measures while maintaining independence from those support measures. One needs to maintain a sense of an "I" and a "we" state in order to be individually healthy, which is important because adolescents want to be independent and control their surroundings. This concept is important when assessing the potential influences of family and peers on adolescent smoking. Adolescents are in a developmental stage when they experience a conflictual desire to both bond with family and peers and individuate from them.

Thus, the second theory for this study is Erikson's Psychosocial Development States (Sulkes, 1998). The adolescent is in a transitional stage transforming into a young adult and requires multiple adjustments to meet his

or her ever-changing needs. The adolescent must first learn to cope with his or her own body changing and developing. One of the key concepts for an adolescent is achieving an acceptable social role. Erikson believed that it was important for one to find an acceptable peer group where social skills, such as communication with the opposite sex, could be developed. Peer affiliation often molds the adolescent for young adulthood. Influence from peers is often overwhelming for the adolescent. The consideration of this development stage is important for this study regarding the factors that influence adolescent smoking, as developmental considerations were made as the study was designed and the research instrument was developed.

Assumptions

The assumptions for this study were the following:

1. Adolescents are experimenting with smoking at a younger age.
2. Adolescents are influenced by measurable factors to initiate and continue smoking.
3. Family influences on adolescents occur predominantly in early adolescence.

4. Role-modeling by parents is critical in the social development of adolescents.

5. Adolescents' perception of smoking is a measurable phenomenon.

Statement of the Problem

Smoking in the adolescent population continues to grow more rapidly than in any other age group. Family influences and peer pressure appear to be the strongest predictors for early experimentation with cigarettes. However, many influences and predictors of smoking remain poorly understood, especially in rural areas. No studies identified in the literature review addressed factors that impact adolescent smoking in rural communities. Therefore, the problem addressed in this study was the identification of factors which influence adolescent smoking in a rural community.

Research Question

For the purposes of this study, the researcher sought the answer to one question. That question was as follows: What are the influencing factors in adolescent smoking practices?

Definition of Terms

For the purpose of this study, the following terms were defined:

Influencing factors: Theoretical: action or process of producing effects on others by intangible or indirect means. Operational: actions or processes that produce effects on adolescent smoking practices, which may include family, peer-affiliation, media, accessibility, self-experimentation, and other variables. These actions or processes were defined by responses on the Mitchell Adolescent Smoking Questionnaire.

Adolescent: Theoretical: a male or female in the developmental stage between childhood and young adulthood. Operational: a male or female student in the seventh or eighth grade who resides in a rural southern community.

Smoking practices: Theoretical: action or process of inhaling and exhaling tobacco products. Operational: action or process of inhaling and exhaling tobacco products by adolescents, whether daily use or one-time experimentation. This action or process was determined by responses on the Mitchell Adolescent Smoking Questionnaire.

Summary

Chapter I provided an introduction to the research problem. Adolescent smoking has been a major concern in the United States as well as worldwide. Despite current media campaigns against smoking in general, the prevalence of adolescent smoking continues to rise. Research indicates that perhaps the primary predictive influences in early adolescence are family practices and peer affiliation. Erikson et al.'s (1997) Theory of Modeling and Role-Modeling was described as the framework for the study. In Chapter II, current research related to adolescent smoking and influences on adolescent behaviors will be reviewed and discussed.

Chapter II

Review of the Literature

Addiction to nicotine products in adolescents has received much attention in the media, and research endeavors have intensified to deter and promote cessation of smoking in these youth. A review of current and past research revealed numerous studies on adolescent smoking. The studies reviewed, however, included only one in a southern rural setting. It has been established in urban settings that the family is the primary influence to adolescent smoking in early adolescence and peer affiliation is the major factor in the later adolescent period. Further research is needed in the rural setting to determine whether these variables hold true.

In 1998 Patton and Carlin sought to determine the factors that influence adolescents to smoke. The aims of this cohort study were to examine the uptake and course of smoking practices among adolescents in Australia. The researchers asserted that smoking prevention and cessation

should be the primary focus of interventions once influences on the adolescent are identified.

Patton and Carlin's (1998) sample included 2,032 adolescents with a mean age of 17.4 years. The sample was obtained from a stratified frame of private, Catholic, and government schools. A two-stage process was utilized. First, 45 schools were selected to represent students at each stratum in the state. The second stage consisted of randomly selecting classes to complete questionnaires in the first wave sample. A total of six waves were used at 6-month intervals over 3 years using randomly selected intact classes and schools. Consent from schools, government, and parents was obtained prior to onset of the research. A 7-day retrospective recall was used to detail tobacco consumption. Demographic variables, such as parental smoking, school smoking, and other demographics, were addressed at entry into the study.

Data were analyzed using the SAS and Strata programs. Prevalence and logistic regression estimation procedures were employed to allow probability weights, response rates, and the complex survey design. The researchers determined that at initiation of the study 27% of the sample population fell into the smoking experimentation

group and 10.9% fell into the daily smokers. Teens whose parents were divorced showed a higher tendency to smoke. Over the course of the study, 44.7% of the participants had smoked on occasion and 23.5% were daily smokers for at least one period of time. The transition rates were classified as initiation, cessation, and relapse of smoking between both sexes. On the average, 14% of nonsmokers experimented with smoking cigarettes with no gender bias noted, while only 8% of adolescents became daily smokers. Relapse rates were higher in females (86%) than in males (65%).

Multivariate analysis was utilized to examine predictors of initiation, cessation, and relapse. Incidence of smoking without predictable demographic variables had an adjusted hazard ratio with 95% confidence. Smoking relapse was identified as an alarming 80% with the influence of parental daily smoking. Smoking incidence demonstrated an eight-fold increase in the incident of smoking as predictive factors with parental influences and attending metropolitan schools. Smoking cessation occurred in one third of females versus two thirds among males. Parental smoking was a highly predictive variable, paternal, $r = 0.5$, 95%, CI 0.35-0.8,

and maternal, $r = 0.7$, CI 0.45-1.0. Smoking relapse continued at a tremendous rate with parental influence at the forefront. There was a stronger association with relapse when the male parent figure smoked (unadjusted 4.3, 2.4 to 7.7) than when the mother figure smoked (1.8, 1.0 to 3.3).

Patton and Carlin (1998) concluded that because of low attrition rates a clearer view of early smoking was obtained. The sample tested provided evidence that 45% of adolescents smoked at some point during data collection and 18% were or became daily smokers. Relapse rates were high throughout the study (> 70%). Smoking experimentation at the onset of research was the clearest predictor to daily smoking and later relapse. Parental structures (divorced, separated, stepparents), gender, and daily smoking were high predictors for adolescent smoking. Adolescent females continued to smoke and have higher relapse rates which was consistent with previous research conducted in the United States and the United Kingdom. Patton and Carlin believed that awareness of gender differences in smoking for females could provide the females with psychological benefits. The researchers provided insight into predictors of adolescent smoking and

areas for further research. Patton and Carlin (1998) recommended more detailed research relating to peer affiliation and influence to smoke. The current researcher responded to that recommendation by exploring adolescents' perceptions of a variety of potential influences.

In another study, Fergusson and Lynskey (1995) sought to determine the strength of the relationship between continuity of smoking experimentation and peer affiliation during adolescence. The purpose of the research was to evaluate predictive factors for smoking in middle childhood. The researchers stated that smoking prevention programs should be based on an understanding of the factors that lead to adolescent smoking. Early intervention should be based on changing behaviors that are early predictors of smoking.

Three areas highlighted were continuity in individual behaviors, differential association and peer affiliation, and common social, individual, and contextual factors. Fergusson and Lynskey (1995) hypothesized that all three processes played a part in prediction of an individual's likelihood to smoke and that each of these factors may affect an individual in varying degrees. Although the researchers did not explicitly define the conceptual

framework, the guiding concepts reflected Becker's Health Belief Model.

Fergusson and Lynskey (1995) used data from a 16-year longitudinal cohort study by the Christchurch Health and Development Group. The original sample included 1,265 children from New Zealand who were studied at birth, at 4 months of age, at one year of age, and then at one-year intervals up to 16 years of age. Maternal interviews, child interviews, self-observation, teacher reports, and hospital and police records of the subjects provided longitudinal data. Fergusson and Lynskey employed a retrospective design on a subset of 881 children who were residents in the Christchurch region at age 8; of this subset, 83% had smoking pattern data up to age 16 years. Factors used in evaluating the subjects were maternal age, maternal education, family socioeconomic status, family size, the child's ethnicity, family placement at birth, and gender.

Descriptive statistics were obtained on all variables. HSREL 8 analysis was used to examine the collected data for differences between the variables, and model fit was analyzed using the chi-square goodness-of-

fit statistic, the adjusted goodness-of-fit index (AGFI) and the root mean square error of approximation (RMSEA).

The researchers discovered that cigarette smoking before age 13 was strongly correlated to smoking at age 16, $r = 0.60$. The correlations between age of early smoking and later smoking ranged from $r = 0.32$ to $r = 0.42$. A statistically significant β value of 0.22 for continuity between early smoking before age 13 and continued smoking at age 16 emerged using the AGFI.

Fergusson and Lynskey (1995) concluded that the most influential factor in predicting smoking behaviors was in the subject's association with peer groups who smoked, because this relationship reinforced preexisting tendencies to smoke. Thus, early smoking experimentation was noted as a predictor of later smoking. The researchers determined that prior to the age of 13 years peer affiliation was minimal while at age 15 it accounted for 80% of the variance in smoking behaviors at age 16. The researchers recommended that smoking prevention programs should be developed based on recognition of the factors contributing to early smoking experimentation and peer pressure and that these programs should be age-appropriate and targeted at reducing the effects of childhood factors

that are predictors of smoking. The research aided in helping the current researcher to understand the relationship between continuity of smoking experimentation and peer affiliation during adolescence. This understanding was crucial in the development of selected items regarding peer influences on the research instrument for the current study.

Research to determine the role of family and peer influences on adolescents and young adults classified as daily smokers was conducted by Oygard and Klepp (1995). The purpose of their research was to investigate predictive factors leading to experimentation of adolescents. The researchers hypothesized that family, peer, and selected demographic factors are predictors of the adolescent's likelihood to smoke.

Data were collected from a 10-year longitudinal cohort study of Oslo, Sweden, youth and their parents. Data collection occurred in person or by mail at the study initiation, 2 years, and 10 years. The Oslo sample was derived from Grades 5 through 7. Of the eligible students from six schools, 827 (79.5%) participated in 1979. In 1981, 718 (66.5%) of eligible students enrolled in Grades 5 to 7 participated. In 1989, 796 (74%) returned completed

questionnaires. Five hundred seventy subjects completed the survey at baseline and 10 years, while 533 participated from 1981 to 1989. The mean age in 1989 was 23.4 years. Parents (800 mothers and 622 fathers) completed questionnaires in 1979 and again in 1981. Parental (559 mothers and 456 fathers) educational and smoking status were surveyed in 1979 to 1989, and there were 506 mothers and 420 fathers in the cohort study in 1981 to 1989.

To study attrition and predictive smoking factors at baseline and at 10 years, cross-tabulation and regression analysis were employed. Due to the small sample size, male and female data were combined for multiple logistic regression analysis. Chi-square and odds ratios and 95% confidence intervals also were utilized. Baseline percentages indicated that 8.2% of girls and 9.2% of boys had experimented smoking while a lower percentage were daily smokers at 4.3% for boys and 5.7% for girls. Smoking rates in 1989 indicated that females were influenced by maternal smoking (50.7% vs. 48.9%). Also, females were more likely to smoke than their male counterpart (50.7% vs. 39.9%; $\chi = 6.66, p < .01$). The incidence of daily smoking among young males was lower when influenced by

paternal smoking (39.9% vs. 51.1%). In 1979 peers and siblings who smoked were more influential in male experimentation while the maternal influence was strongest on the female. Multivariate predictors indicated that the mother was the most significant predictor among male and females on the transition from nonsmoker to smoker. Girls were affected by mothers smoking at baseline (9.3% vs. 16.4%; $p = .05$). Maternal smoking remained the most predictable indicator over the course of the study.

The researchers concluded that a diversified sample was taken from Oslo adolescents. In 1989 the smoking rates were higher than the Swedish national average (50% female and 40% male vs. 38% female and 34% male nationally). Predictive behaviors varied from culture to culture with parental smoking emerging as the key to early intervention.

Oygaard and Klepp's (1995) research gives further evidence that early intervention is the key to controlling adolescent smoking. Based on their research and others, adequate educational programs for parental cessation can be developed. The significant findings of the foreign study lent credence to conduction of the current study in a rural area of the United States.

Hu and Lin et al. (1998) sought to examine the relationship among adolescent smoking cessation, academic performance, and smoking. The purpose of this research was to determine the role school performance placed on smoking and smoking cessation efforts. Adolescent smoking has been on the rise since 1991 even though adult smoking is on the decline. The researchers hypothesized that school performance was a key factor in adolescent smoking.

The researchers used the California Youth Tobacco Survey by random-digit dialing telephone interviews. The target population was adolescents ages 12 to 17 years. The total number of adolescents responding was 6,604 with 76.3% (5,040) completing the survey. The final number of surveys analyzed was 5,028. Adolescent subjects were placed into the three following categories: (a) current smokers (one who has smoked within the past 30 days), (b) former smoker (one who has smoked previously but not within the past 30 days), and (c) nonsmoker (one who has never smoked).

Descriptive and multivariate analyses were utilized. Hu and Lin et al. (1998) determined that 72.9% of the sample were nonsmokers, 17.2% were former smokers, and 9.9% were current smokers. Age appeared to be a strong

indicator of likelihood to smoke as 18% of the sample between the ages of 16 and 17 years smoked. The numbers declined with younger adolescents aged 14 to 15 years (8.8%) and 12 to 13 years (3.2%). There was no gender bias identified, and black adolescents showed a lower tendency to be a current smoker. Smoking among adolescents was assessed by attempts at cessation. Of the 496 adolescents who attempted to stop smoking, none were successful at cessation.

Logistic coefficients and estimated odds ratio were calculated for the variables. The chance of being a former smoker among 16- to 17-year-olds and 14- to 15-year-olds was 0.54. Again, race held consistent with nonwhite adolescents more likely to be nonsmokers. Income also was a significant factor in smoking cessation, with incomes > \$75,000 having higher odds (1.43 to 1) of being or becoming former smokers. Academic performance indicated that those students with better than average grades constituted 5.46% of the sample for being a smoker while below average grade student comprised 31.18% of the smoking sample. Smoking cessation efforts during the past 6 months were a failure at 83%. The smokers' cessation attempts were 16.9%, no attempt; 26.7%, one attempt;

31.4%, up to three attempts; and 25%, up to four attempts. The researchers determined that no differences in age or gender existed in cessation attempts among the population in the study. Nonwhite adolescents attempted cessation less frequently. The lower the income, the fewer attempts at cessation made by adolescents (Hu & Lin et al., 1998).

Hu and Lin et al. concluded that academic performance was a significant factor in adolescent smoking. After controlling for sociodemographic and income factors, older adolescents were less likely to cease smoking, academic students with below average grades had a low probability for cessation, and below average students in low income households were less likely to attempt cessation. Further research was recommended to determine whether smoking influences a student's academic performance. Because of the increasing number of adolescents smoking, additional educational efforts should be initiated in the below average student population.

The Hu and Lin et al. (1998) study provided important grounds for comparison to the current study. Additionally, several of the items on the research instrument for the current study were based on findings from the prior investigation.

Another study investigating family and peer influences on adolescent smoking initiation was conducted in the Southern United States. Cowdery and Trucks (1994) hypothesized that the earlier smoking is initiated, the more likely the adolescent is to become an adult smoker. Smoking among southern adults had been determined to be higher than any other region of the country (36%) and among southern adolescents was 13% (CDC, 1995). The researchers sought to update data on adolescent smoking in the South and to explore the influence of family and peer pressure cited in many other studies.

Bandura's Social Learning Theory guided Cowdery and Trucks' (1994) examination of the strength of the relationship between family and peer influences and the initiation of smoking in teens. According to the researchers and Bandura's theory, the more an individual (adolescent) is exposed to a behavior (smoking), the more likely the individual is to model the behavior. Another application of Bandura's theory is that with positive reinforcement (perceived or desired image or actual enjoyment of smoking cigarettes), the more likely the continuing of the behavior. The 1989 Teenage Attitudes and Practice Survey (TAPS) survey had been previously used by

the National Center for Health Statistics (NCHS) to collect data in the South. The National Health Interview Survey initially contained 12,097 responses by adolescents between the ages of 12 and 18 years. Cowdery and Trucks (1994) utilized a retrospective approach to the data from the original survey, pulling only those data from the South (n = 2,336) for their study. Responses from these southern adolescents then were placed into three categories: (a) current smokers, or those who had smoked over 100 cigarettes and continued currently smoking, (b) former smokers, and (c) those who had smoked less than 100 cigarettes and continued to experiment. The researchers excluded from the study those who were unsure about their smoking status. Demographic variables were explored and included social factors, such as family and peer pressure. Data analysis included frequency and odds ratio data analysis. Individuals exposed to smoking versus those with no exposure were analyzed by means of odds ratio. Smoking variables were eventually dichotomized into smoker versus nonsmoker. Family income and race also were evaluated in the study.

Cowdery and Trucks (1994) established that 12.9% of male teens and 10.8% of female teens in the southern

United States were current smokers (11.9% overall). Male smoking patterns increased at greater rates (from 4.3% to 24.1% = 19.2%) than female (from 4.3% to 17.3% = 13%) from the ages of 14 and 18 years. The greater the prevalence of smoking, 18 years versus 14 years, was 6.16 times greater (female, OR = 4.66). Smoking increased among the male population from age 15 (7.1%) to age 16 (14.4%), to age 17 (14.1%), to age 18 (24.1%). These ages were considered significant because 15- to 16-year-old adolescents are now entering high school and ages 17 to 18 are seniors. Smoking among females increased but not at a consistent rate. No intervention via school curriculum appeared to have occurred for this age group. The researchers determined that white males and females had a higher smoking rate, 12.6% and 11%, respectively, than black males (2.8%) and black females (0.7%). Family influences were seen as significant when a family member smoked and indicated that female rates were 37.9% with family influence versus 10.2% without influence (OR = 5.3). Male rates with family influence were 34% versus 12.3% without influence (OR = 3.7). Peer influences retained overall significant ($p < .05$) influence between family and peer pressure. The number of teen smoking friends greatly

increased the risk of adolescent smoking. Females had 107 times greater chance of smoking if they had friends who smoked. Males smoked 67.7% of the time when four or more friends smoked as compared to 1.6% without peer influence (OR = 87.3).

In conclusion, the researchers' evaluation of TAPS data indicated 12.9% of males and 10.8% of females 14 to 18 years old smoked. These data were consistent with national figures published by the CDC. The researchers also determined that southern adolescents initiated smoking at a later time. From age 17 to 18 years, there was an increase from 14.1% to 24.1% in males. Female numbers increased at a lower percentage from 17 years (13.5%) to 18 years (17.3%). Cowdery and Trucks (1994) documented evidence of a void in educational efforts for children between Grades 9 and 12 and recommended further curriculum efforts directed at prevention and cessation for this age group, where peer pressure appears strongest.

The study by Cowdery and Trucks (1994) was germane to the current research because the study was conducted on smoking initiation in the southern states. The current research was conducted in a rural southern community. Additionally, the study provided important data that

specifically related to influences which promote adolescent smoking.

In a related study, Wang and Fitzhugh (1997) examined social factors as indicators of adolescent smoking from initiation to daily smoking. The researchers particularly sought to measure the influence of family, siblings, and friends in a social environment.

The population included a national cohort of adolescents (N = 2,099) over a 3-year span. These adolescents participated in the Teenage Attitudes and Practice Survey (TAPS-I) in 1989 and TAPS-II in 1994. The researchers retrospectively selected those adolescents who were nonsmokers or experimental smokers to create the population. From this group, the sample was randomly selected. A phone interview was utilized in data gathering from the chosen sample. Adolescents were grouped into five categories. The first category consisted of a preparation stage in which the adolescent had not initiated smoking, second was the initiation stage where the adolescent started smoking, third was the experimental stage where the adolescent continued exploring smoking, fourth stage was the habituation stage with the adolescent becoming a daily smoker, and the last stage was the maintenance where

the adolescent became addicted to smoking. Odds ratio (OR) was used for data analysis by sex. The subjects were then listed as regular smokers or those who currently smoked, experimental smokers defined as those who had consumed less than 100 cigarettes, and as a nonsmoker defined as those who never had consumed a cigarette.

In TAPS-I, 25.4% (n = 361) of the adolescents who were nonsmokers became experimental smokers while 8.4% (n = 111) became regular smokers. Males were influenced by male peers who were smokers ($p < .05$) while females were influenced by siblings, boyfriends who smoked, and mothers who smoked ($p < .05$). Twenty-nine percent of experimental smokers (n = 679) from TAPS-I developed into habitual smokers, while the remaining population maintained experimental smoking status during the course of the study.

Wang and Fitzhugh (1997) concluded that the 3-year study predicted factors that influenced adolescents who were nonsmokers or experimental smokers toward developing into habitual smokers. Past researchers have indicated that peer pressure was the overriding influence in smoking experimentation. By utilizing a population of nonsmokers, social selection of peer groups was negated. The

researchers identified fewer variables in starting to smoke as predictable by the Social Learning theory. The Social Learning Theory did hold true for males, who were chiefly influenced by male friends who smoked, from the experimental to habitual stage. Females were influenced by a greater number of social factors. The social influences affecting females were smoking by the mother, boyfriend, or male friends who were all smokers. The research indicated that male (paternal, sibling, or friend) pressure was a stronger influence from initiation to daily smoking by the adolescent. However, the researchers could not find association between social influences and transition to experimental smoking. Further research is needed on the dominance of the male influence in adolescent smoking. The researchers, however, did not find peer pressure to be a factor in the stage of nonsmoker to experimental, which is contrary to previous research. Prior studies indicated that peer pressure was the dominant influence. Findings from the Wang and Fitzhugh (1997) study were crucial in the conceptualization phase and development of the research instrument for the current study.

Engels and Knibbe (1997) sought to determine whether adolescent peer pressure was based on influence or selection. Past researchers had discovered that peer pressure was the key influence or contributor to adolescent smoking initiation. The perspective of peer pressure was based on the premise that adolescents choose relationships based on their own habits and ideas and that peer affiliation throughout adolescence is the key in development. Homogeneity of peer groups occurs through the selection process. The term influence indicates how the individual is affected by the group as a whole, while selection has a twofold approach. Selection is based on adolescents acquiring new relationships that have similar behaviors and give the adolescent freedom to deny or move forward with new relationships. The overall goal of the study was to determine the effect of influence and selection of homogeneity of smoking in peer groups.

The prospective sample was selected from 65 secondary schools in the Netherlands. Consent was obtained from the school boards and parents of those adolescents involved in the research. Data were derived from a three-wave longitudinal study at initiation, 3 years and 5 years. The baseline sample consisted of 1,454 students. The primary

concern of the school board and parents was confidentiality, and this concern was given special attention to protect the students involved. The questionnaires were given directly to the subjects while in school. The 3-year follow-up yielded a 76% return and the 5-year follow-up a 72% return of the questionnaires. Telephone interviews were conducted for those not returning questionnaires. Overall, 73% (n = 1,063) of students completed the questionnaire in all three waves.

Smoking frequency and intensity were analyzed via logical regression. The concern for changes in peer affiliation was addressed by measuring the adolescent at all waves of the study and utilizing cross-sectional analysis. Influence was analyzed by restricting the population to those who reported no changes or only small changes in group/peer affiliation from wave to wave. This process was conducted to prevent interference from changing peer groups. The process of influence was analyzed to indicate the effect of the peer group on each student completing the questionnaire. Selection was measured in those with significant changes or new peer group affiliation. The researchers controlled variables by

analyzing those subjects with stable smoking habits in order to determine selection from influence.

In wave two (T2) selection was further explored by analyzing why peer and friends were deselected or dropped, with special attention to those friends with dissimilar habits. Only adolescents with stable smoking habits were included in this section. The researchers determined that 45% of the population had little or no change in peer groups and 55% had significant changes. Of the original sample, 20% (n = 215) were identified as smokers at wave two and 41% (n = 439) at wave three. Smoking influence by group in wave two was 23% while 63% had nonsmoking peer group affiliation, indicating the majority of peers did not smoke within their social group. The changes in wave three from a nonsmoking peer group (56%) to a smoking peer group (40%) indicated more adolescents were associated with smoking groups later than in waves one and two. Cross-section analysis yielded 89% (T2), and 76% (T3) were nonsmokers if peer group contained nonsmokers. Peer groups with smokers yielded 53% (T2, $r = .52$, $p < .001$) and 67% (T3, $r = .48$, $p < .001$) of the adolescents becoming smokers. Influence percentages at T2 revealed nonsmoking peer groups had only 25% of their members who chose to

smoke. On the other hand, smoking peer groups yielded 35% of new members who started smoking by T2. Influence at T2 point did yield significance ($p = .16$). Engels and Knibbe discovered, when comparing stable and unstable peer groups, that nonsmoking groups yielded 27% smokers (T3) and smoking peer groups yielded 40% smokers (T3) which was statistically significant, $\chi^2(1, N = 715) = 8.36, p < .01$. Both smokers (54%) and nonsmokers (55%) reported making new friends during the study, $\chi^2(1, N = 1,041) = 8.36, p < .10$. Adolescents continued to primarily acquire friends with similar habits, nonsmokers (63%) and smokers (63%). On the other hand, in groups with dissimilar habits, 25% of nonsmokers were in a group with smokers while 70% smokers were in smoking peer groups. Those individuals with a completely new peer group in T3 (none in T2) displayed similar results at 60 to 65% of the population remaining in similar peer groups.

In conclusion, the researchers demonstrated that adolescents were homogeneous in group selection. Peer influences were not significant since peer groups appeared to be selected for like habits. Selection proved to be the strongest indicator in this study as a predictor to adolescent smoking. Alteration in peer alteration was

insignificant in that smoking was not important enough to break off friendships. Engels and Knibbe (1997) recommend that further needs to be conducted with emphasis on group selection and not peer pressure.

The study by Engels and Knibbe (1997) gave further information pertinent to the current study. Peer groups are part of the adolescent's life no matter what region of the world they live. This study gives indications as to the impact on adolescent smoking experimentation based on whether or not their selected social group smoked.

Chapter III

The Method

The aim of this study was to identify factors influencing cigarette smoking among a rural adolescent population. The researcher sought to gain knowledge about these influences with an ultimate goal of developing new antismoking education and treatment programs. The adolescent smoking population has continued to grow each year in the number of new smokers (Center for Disease Control [CDC], 1997) despite a decline in the adult population. Previous studies clearly indicated that adolescent addiction to tobacco is an uncontrolled worldwide issue. The studies document the need for new efficacious antismoking programs based on factors that influence smoking.

Design of the Study

The researcher used a descriptive design, which was an appropriate approach to evaluate the phenomena of interest. Descriptive designs aid in identifying current

trends, such as teen smoking influences. No variables were manipulated.

Variables

The variable of interest for the study was factors which influence adolescent smoking as identified on the Mitchell Adolescent Smoking Questionnaire. The controlled variables were grade in school and school setting. An intervening variable may have included subjects' honesty in responding to questions.

Setting, Population, and Sample

The study took place in the state of Mississippi in a rural county school consisting of 985 students in Grades 1 through 12. The school is located in the southern part of the state. There are 900 people within the city limits and an estimated 1,600 people within the surrounding service area, with rapid growth due to the influence of a larger city moving west toward this small rural town. The primary occupations for the populations of this rural town were farming, offshore oil work, and construction.

The target population for this study consisted of seventh- and eighth-grade students who resided in or around the community. The accessible sample included 150

students whose names were on a list provided by the principal. The final sample (N = 64) was composed of all students who returned parental consents and surveys and represented 43% of the questionnaires distributed to the students.

Method of Data Collection

Instrumentation. A researcher-developed instrument, the Mitchell Adolescent Smoking Questionnaire (MASQ), was utilized to identify factors that influenced adolescent smoking (see Appendix A). The questionnaire included five sections and consisted of multiple-choice, listing, and one optional written response for the last questions.

Section I consisted of seven demographic questions such as sex, race, grade, and family information. Respondents were asked to check or circle the most appropriate responses. Section II consisted of 23 questions designed to ascertain the actual smoking practices of the adolescents and factors influencing those practices. Again, respondents checked or circled the most accurate response. Section III questions included six items constructed to determine the physical effects of cigarette smoking on the teens who had tried smoking and

had a yes/no response format. Section IV included 12 questions which sought to determine knowledge of adolescents pertaining to risks of cigarette smoking. Section V included five items which sought to provide evidence of educational efforts about known risks of smoking. Percentages, ranks, mean, and frequency distributions were used to analyze and describe the data. Finally, one open-ended item, which sought any other information participants wished to share, was included. Since this instrument had not been used in other studies, only face validity, as determined by a panel of expert researchers for use within the confines of this research, was established.

Data Collection Procedure

The researcher conducted several procedural steps prior to implementation. Permission to conduct research was first obtained from the Mississippi University for Women Committee on Use of Human Subjects in Experimentation (see Appendix B). Next, permission from the school board and superintendent were sought. At the first school board meeting, the board requested that a parent group from the chosen school review the

questionnaire and decide if objections existed. The researcher attended the parent group meeting and no objections were raised. The researcher was then granted permission to conduct research at the second school board meeting (see Appendix C). The school principal also consented to have the study conducted in the chosen school (see Appendix D). The final two steps involved the consent of the subjects and their parents or guardians. The students were given consent forms to take home for a parent or guardian to sign (see Appendix E). At the time of data collection all students with parental consent were given a student consent form to sign if they chose to participate in the study (see Appendix F). All students returning a consent form were given a questionnaire to complete with the understanding that at any time prior to turning in the form, one might withdraw from the study. The researcher was the sole collector of data for this study. Data were collected in April and May 1999.

Method of Data Analysis

Demographic data were analyzed and reported using descriptive statistics including frequency and distributions, percentiles, means, and ranks. Scores to

all questions requiring a selection from multiple choices were analyzed, and modes, means, and frequency distributions were tabulated. Responses were analyzed for recurrent themes, especially concerning influences to adolescent cigarette smoking. An open-ended question was posed at the end of the questionnaire, and the responses were subjected to content analysis.

Limitations

Two limitations were identified for this study. One was the setting of one school studied. Further research is indicated in additional rural communities in southern Mississippi as well as other nearby states to establish support for the findings. Also, the questionnaire lacked validity and reliability; however, it was developed from established tools and research with adolescents. Additionally, the tool was nonthreatening to the students; however, some viewed the questionnaire as a test which may have influenced their responses.

Summary

This descriptive study was conducted in an attempt to identify factors which influenced adolescent smoking and to gain additional information regarding adolescent

smoking practices. A researcher-designed questionnaire was utilized to gather these data. In this chapter, a specific description of the procedures used for data collection was presented.

Chapter IV

The Findings

The purpose of this descriptive study was to identify contributing factors influencing adolescents to initiate smoking. The theoretical framework was Erikson, Tomlin, and Swain's (1997) Theory of Modeling and Role-Modeling. Data were ascertained to determine influences and percentages of adolescents who initiate smoking cigarettes. This chapter includes the empiricalization of the study and presents a description of the sample, results of the survey, and additional findings.

Description of the Sample

The convenience sample (N = 64) consisted of 33 (51.6%) seventh-grade students and 31 (48.4%) eighth-grade students. The average age of the students was 13 years. Of the 64 students, 16 were male (25%) and 48 (75%) were female. The majority (92.2%) of students were Caucasian. For the sample, family members who smoked included immediate and extended members. For immediate family

members, biological fathers (n = 21, 32.8%) and uncles (n = 39, 60.1%) had the highest percentage among family smokers. Sibling percentages were the lowest reported overall among adolescents. See Table 1 for details.

Table 1

Demographics of Family Members who Smoke Expressed in Frequencies and Percentages

Member	f ^a		%	
	No	Yes	No	Yes
Biological mother	47	17	73.4	26.6
Biological father	43	21	67.2	32.8
Stepmother	60	4	93.8	6.3
Stepfather	57	7	89.1	10.9
Foster parents	0	0	0.0	0.0
Aunt	32	32	50.0	50.0
Uncle	25	39	39.1	60.1
Grandmother	45	19	70.3	29.7
Grandfather	45	19	70.3	29.7
Brother	56	8	87.5	12.5
Sister	57	7	89.1	10.9

^aN = 64.

Results of Data Analysis

The research question which guided this study was the following: What are the influencing factors in adolescent smoking practices? Data were collected using the Mitchell Adolescent Smoking Questionnaire and analyzed with descriptive statistics. For clarity, smoke influencing factors are presented in five sections: practices, physical, knowledge, education, and additional findings.

Practices. This section's questions focused on whether the adolescents had ever smoked and if they had related data were acquired. Over half (60.9%) of all seventh- and eighth-graders had smoked. Those subjects who had smoked responded to a question reflecting who presented them the first cigarette. The overwhelming affirming response was "a friend" (n = 21, 84%). See Table 2 for details.

Table 2

Practices, Question C (Who Offered you Your First Cigarette?) Presented in Frequencies and Percentages

Source	f ^a		%	
	No	Yes	No	Yes
Biological mother	25	0	100.0	0.0
Biological father	25	0	100.0	0.0
Stepmother	25	0	100.0	0.0
Stepfather	25	0	100.0	0.0
Foster parents	0	0	0.0	0.0
Aunt	23	2	92.0	8.0
Uncle	24	1	96.0	4.0
Grandmother	25	0	100.0	0.0
Grandfather	25	0	100.0	0.0
Brother	22	3	88.0	12.0
Sister	23	2	92.0	8.0
Friend	4	21	16.0	84.0

^an = 25.

The age at which subjects first smoked a whole cigarette ranged from 10 to 13 years with a mean age of 11.16 years. The age at which the adolescent smoked a cigarette daily ranged from 12 to 14 years with a mean of 12.75 years. The average number of cigarettes smoked by

these subjects in the past 7 days ranged from 0 to 80 cigarettes with mean of 7.39. When asked if parents knew they smoked, the majority (65.2%) said no and when questioned if parents minded if they smoked 91.3% answered yes. Friends (n = 19, 76%) was the dominant source for the acquisition of cigarettes (see Table 3).

Table 3

Practices, Question 1 (How do you Get Your Cigarettes?)
Presented in Frequencies and Percentages

Source	f ^a		%	
	No	Yes	No	Yes
Vending machine	24	1	96.0	4.0
Supermarket	24	1	96.0	4.0
Quick Stop	20	5	80.0	20.0
Buy from friends	19	6	76.0	24.0
Parents	24	1	96.0	4.0
Steal them	23	2	92.0	8.0
Other family members	19	6	76.0	24.0
From friends	6	19	24.0	76.0

^an = 25.

The ease of acquiring cigarettes by the sample appeared to be the lack of screening at time of purchase as 23 (92.9%) adolescents admitted to not being carded when making a purchase. Of the sample who smoked, adolescents (85%) believed they would like to stop smoking; however, only 21 (61.9%) subjects would be interested in a free smoking cessation program.

There were five questions on "I smoke because." Only 25% smoked because of friends and family. Other questions on practices yielded the following: When asked about peer influence in the smoking group, subjects reported 54.5% of their boyfriend/girlfriends smoked, and when asked how many of their peers smoked, many marked all or most (see Table 4 for details).

Table 4

Responses to Practices (Questions M-Q) Presented in
Frequencies and Percentages

Source	f ^a		%	
	No	Yes	No	Yes
I smoke because . . .				
M. My friends smoke.	15	5	75.0	25.0
N. People in my family smoke.	15	5	75.0	25.0
O. It makes me look cool.	17	3	85.0	15.0
P. I like the feeling it gives me.	16	4	76.2	23.8
Q. I can't stop.	12	8	60.0	40.0

^an = 20.

Physical. This section sought to elicit information about physical responses to smoking cigarettes. Of the smoking group or those who only puffed on one cigarette, the first cigarette made them cough (n = 15, 62.5%) while 10 (45.5%) subjects became dizzy or sick to their stomach. The next four questions concentrated on physical response during cessation attempts. One question focused on the

urge to smoke while attempting cessation. Twelve (54.5%) adolescents had this strong urge to smoke. Irritability was not a significant factor as only 8 (38.1%) subjects responded yes. Question 5 focused on the sensation of feeling a stronger urge to eat. Nine (45%) subjects acquired the urge to eat more often. One mental health response was depression which was low ($n = 8$, 38.1%) with cessation attempts.

Knowledge. In this particular section the researcher sought to determine what the sample knew about cigarette smoking. The results from the 12 questions follow with one question in table format. The majority (71.9%) of the sample believed the required age to purchase cigarettes was 18 years. The warning label on cigarette packs had been read by 50 subjects (78.1%). The risk listed on the pack as well as others well known to the general public are presented in Table 5.

Table 5

Responses to Knowledge, Question C (Which of the Following Apply to Cigarette Smoking?) Presented in Frequencies and Percentages

Description	f ^a		%	
	No	Yes	No	Yes
Lung cancer risk	2	62	3.1	96.9
Other cancer risk	12	52	18.8	81.2
Pregnancy risk	12	52	18.8	81.2
Heart disease	9	55	14.1	85.9
Carbon monoxide	22	44	34.4	65.6
Emphysema	21	43	32.8	67.2
Lung problems	5	59	7.8	92.2

^aN = 64.

The majority (75%) of the sample believed that smoking has a negative impact on one's quality of life. The adolescents overall were bothered by the smoke itself. In response to whether smoking an occasional cigarette was harmful, only 9 (14.1%) believed not, while 14 (21.9%) subjects believed it was safe to only smoke 1 or 2 cigarettes. In response to the question concerning whether

or not one would become addicted to cigarettes reflected an almost equal response, 58.1% (n = 36) of the subjects replied no. The subjects were aware that smoking was not easy to stop once started as 74.6% (n = 47) believed they could not stop once they started smoking. Chewing tobacco was believed to be as dangerous as smoking cigarettes (n = 55, 93.2%).

Education. The last section of the questionnaire sought to determine the exposure of the participants to educational efforts to deter adolescent smoking. In response to the first question, whether the adolescent had ever taken a class in which the health risk of smoking was discussed, 71.4% (n = 45) said yes. The second question sought to determine if the sample had been warned or educated by those in the medical field (dentist, nurse, or MD). Only 21.9% (n = 14) had been warned or educated by a medical professional. The last three questions dealt with whether the sample was informed/warned about the health risks through various mediums. The mediums chosen were TV (78.1%, n = 50), radio (56.3%, n = 36), and any paper or magazine (50%, n = 32).

Additional findings. The researcher was interested in determining the strength of relationships among responses

to questions. The researcher found eight variables as significant at less than .05 level of significance. The male role model was a significant influence to smoking, $r(62) = .395$, $p = .001$; uncle, $r(62) = .378$, $p = .001$; and male sibling, $r(62) = .278$, $p = .013$. There was a negative correlation between subjects who had been exposed to classes on health risks of smoking and those subjects who had not, $r(62) = -.227$, $p = .037$. Four correlations from the knowledge section emerged as significant. The sample believed that smoking posed as a risk to lung cancer, $r(62) = -.224$, $p = .037$, and that there was harm in smoking an occasional cigarette, $r(62) = -.505$, $p = .000$. The adolescents' perception was that it is not safe to smoke 1 or 2 cigarettes, $r(62) = .429$, $p = .000$. The last correlation emerged as significant as the sample majority believed that one could not smoke a few cigarettes without becoming addicted, $r(62) = .301$, $p = .009$.

Summary

The sample characteristics and data analyses were given in Chapter IV. The item analysis showed the perception of the adolescents to cigarette smoking. The results indicated the majority of the sample had not

experimented with cigarette smoking. However, 39.1% (n = 25) of the subjects had experimented with cigarette smoking prior to or during the study. The researcher determined that the sample is susceptible to educational efforts pertaining to health risks of cigarette smoking. The male role model was noted as the dominant role model whether they smoked or not. In Chapter V, discussion of the outcomes of the findings including implications and recommendations will be presented.

Chapter V

The Outcomes

Adolescent cigarette smoking is a growing problem in today's society. Early adolescent cigarette smoke between the ages of 11 and 13 years has been found to be related to peer pressure and family role-modeling. Media catering to adolescents and easy access to cigarettes have been identified as factors which encourage smoking. This researcher utilized a descriptive study design to further substantiate factors influencing adolescent smoking. Erikson, Tomlin, and Swain's (1997) Theory of Modeling and Role-Modeling provided the basis for this study. The research question was as follows: What are the factors influencing adolescents to smoke? The Mitchell Adolescent Smoking Questionnaire was used to gather data to identify influencing patterns. This chapter discusses the findings as determined by data collection and presents conclusions, implications, and recommendations developed from the findings.

Summary of the Findings

The sample consisted of 64 seventh- and eighth-grade students from a rural south Mississippi county school. The average age of the sample was 13 years, and the majority of the sample were female (75%) and Caucasian (92.2%). The subjects were asked to participate in the study after parental consent had been obtained. Each participant had the opportunity to participate or decline and withdraw up until completion of data collection. The number of male referral family members who smoked was consistent among the sample group.

The Mitchell Adolescent Smoking Questionnaire was utilized to determine practices, physical effects, knowledge, and education as pertaining to cigarette smoking. For adolescent practices, 60.9% of the sample either smoked daily or had tried at least one cigarette. The average age of experimentation was 11.16 years. Subject's first cigarette was most often presented by friends (84%). Adolescents had no problem acquiring cigarettes (92.9%) as they were not being asked for identification at time of purchase. Despite the ease of purchase, 76% of the sample still acquired their

cigarettes from friends of whom 54.5% (boyfriend/girlfriend) smoked.

The physical section data indicated the majority of the sample had admitted to effects from their first cigarette with the most notable side effect being cough (62.5%). Attempts at cessation brought about a strong urge to smoke (54.5%). Depression and the urge to eat more often were not significant factors at 38.1% and 45%, respectively.

The knowledge level of the adolescents is important, especially pertaining to cigarette smoking. The majority (71.9%) of this sample was aware that the minimum age to purchase cigarettes was 18 years. Subjects were aware of several of the health risks involved with smoking cigarettes, including lung cancer (96.9%), heart disease (85.9%), and pregnancy risk (81.2%). Responding to "Can one become addicted to cigarette smoking after only one or two cigarettes?" 58.1% of the adolescents answered no. Almost half of the students have seen school faculty smoking on campus (45.3%). The students also were aware of the punishment if caught smoking on school campus was suspension. Of the total sample, 74.6% believed they could

not stop smoking once use had begun. Chewing tobacco was considered as potent or harmful by 93.2% of the students.

The sample's exposure to educational programs or literature was examined. The majority (71.4%) of the sample had been previously exposed to educational efforts to deter smoking. One disheartening finding was the lack of education/deterrence provided by the medical profession, as only 21.9% of the sample had exposure from the medical profession. The media campaign against smoking had been noticed by this adolescent population, particularly on TV (78.1%).

The researcher determined that the male role model, especially the father, was the most instrumental in role development for both male and female adolescents. When the adolescent is exposed to educational efforts exposing the health risks involved in cigarette smoking, the experimentation rates are decreased throughout the study. The sample strongly believed that one would have great difficulty or could not stop smoking after initiation.

Discussion

From the results of the study, the researcher has determined that the male influence, especially the father,

emerged as a prime contributing factor in initiating smoking in these seventh- and eighth-grade students. The finding substantiates Erikson et al.'s concept of role-modeling, for young adolescents are very susceptible to parental mirroring of behavior. By educating the parents, one may be able to deter adolescent experimentation at an earlier age since parental influences continued to be important. If parents provide proper guidance and education, adolescent smoking will be deterred (Fergusson & Lynskey, 1995). One finding by Wang and Fitzhugh (1997) that was also found in the current research is the male influence was dominant in male experimentation and a factor in female smoking experimentation. Patton and Carlin (1998) also indicated that the male role model was the most predictable indicator among parental influence on adolescents.

Peers continued to be the primary influence in the adolescent's life and for this study was the primary source of the first cigarette and future source to acquire cigarettes among those who have experimented with cigarette smoking. Again, Erikson et al.'s Theory of Modeling provides understanding of the adolescents' copy behavior of their peers. Fergusson and Lynskey (1995)

sought to determine the relationship in peer affiliation and experimentation in adolescence. These researchers' problem statement was that smoking prevention programs should be based on an understanding of the factors that lead to adolescent smoking. Fergusson and Lynskey (1995) concluded that the most influential factor in predicting smoking behaviors was in the association with peer groups who smoked as this relationship reinforced preexisting tendencies to smoke. Thus, early experimentation was listed as a predictor of later smoking tendencies. The researchers determined that prior to the age of 13 years peer affiliation was minimal, while at the age of 15 years accounted for 80% of the variance in smoking behaviors at the age of 16 years. Future smoking intervention programs should be based on development and recognition factors contributing to early smoking experimentation that are age specific. The current research findings support the intervention of smoking programs at a specific time.

A positive response to the finding was that there was a decline in experimentation in adolescents who had received classes or educational material as to the harmful effects of smoking. This fact is very important as evidence that adolescents are listening. Educational

efforts are essential in the adolescent years for these are the most influential years. This researcher proposes that if efforts are made in the preadolescent age group (Grades 5 and 6) further deterrence can occur. The older the adolescent, the greater the need to be self-sufficient. Affiliated-individuation is a unique concept by Erikson et al. (1997). This concept is based on one becoming dependent on support systems and maintaining independence at the same time. The earlier in adolescence one can influence the adolescent or those approaching adolescence, the greater the number we can prevent from experimenting with cigarette smoking.

Cowdery and Trucks (1994) substantiated the need for early adolescent intervention. The researchers indicated that southern adolescents smoke at a later age. This finding is in contrast to the current study in that 12- and 13-year-old adolescents have already initiated smoking behaviors. Cowdery and Trucks found evidence of a deficit in educational efforts for children between the ages of 9 and 12 years. The researchers recommended further curriculum changes directed at prevention and cessation for this age group where peer pressure appears strongest. Patton and Carlin (1998) found that, since the majority of

children had experimented in early adolescence, intervention should be conducted at an earlier age. Hu and Lin et al. (1998) also support early intervention since education plays an important role in deterrence from smoking experimentation.

Several other studies were reviewed which support the current researcher's finding that adolescents are affected by peer pressure as the greatest predictor. Engels and Knibbe (1997) sought to determine why adolescents choose relationships based on their habits, ideas, and peer affiliation throughout adolescence. Their conclusion was that adolescents are homogeneous in group selection. This finding by Engels and Knibbe (1997) is slightly different from the current researcher's finding. Their findings are based on selection as the greatest indicator since adolescents select groups with like habits. Peer affiliation is still a presence. Alteration of peer affiliation was insignificant in that smoking was not important enough to break off friendships. In another study citing peer pressure as an important factor was Wang and Fitzhugh (1997). Wang and Fitzhugh indicated that peer pressure is the overriding influence to smoking experimentation. Evans and Farkas (1995) concluded that

the adolescent who is exposed to family and peer smoking influences is more likely to become a smoker.

Another point reinforced by Evans and Farkas (1995) was that the more exposed an adolescent to advertising propaganda, the more significant the correlation with smoking. One may extrapolate from these findings that marketing influences an adolescent. The outcome of this current study is that adolescents are influenced by marketing campaigns. Over 60% of the sample consisting of 12- to 13-year-olds could name their favorite smoking ad.

Another influencing factor which emerged is that adolescent subjects had no difficulty purchasing cigarettes, despite the 18-year-old minimum age. This aspect is troubling as it occurs despite the current laws and legislation. Retailers are not concerned about carding adolescents at any age. Legislative measures should be taken to mandate that retailers card those who are under 18 or even close to 18. Local law enforcement agencies need assistance in apprehending those who sell cigarettes to adolescents under the age of 18 years.

Conclusion

In conclusion, several influences have been identified throughout the course of this study. Male influence was the most dominant parental influence. This fact was supported by Wang and Fitzhugh (1997) and Patton and Carlin (1998). Peer pressure emerged as the dominant influence to initiate smoking in this sample. Erikson et al.'s (1997) Modeling and Role-Modeling and Erikson's stages of development were evident as peers played an important role in influencing, experimenting, and supplying cigarettes. Peer influence is supported by past research by Engels and Knibbe (1997), Evans and Farkas (1995), and Fergusson and Lynskey (1995). Marketing by tobacco companies also was cited as an influence evidenced by media campaigns aimed at young people and through mascots and slogans popular with young people. This segment was supported by Evans and Farkas (1995). The researchers summarized that intervention is a key factor in deterring experimentation. Educational programs must be developed for early adolescents or even earlier to influence young people before peer influence becomes permanent in their development process (Wang & Fitzhugh, 1997). This premise was further supported by

Cowdery and Trucks (1994) and Fergusson and Lynskey (1995).

Implications for Nursing

Several implications for nursing evolve from this study. The nurse practitioner has a significant role in the community as they are care providers, educators, teachers, and mainly researchers. These roles are vital in today's society. The implications for nursing research focus on five areas: research, practice, theory, education, and administration.

Research. Continuing research is vital to improve an adolescent's future. If researchers are going to develop educational programs on intervention and cessation, statistical data are required as to the influences, behaviors pertaining to peer influence, family structure, and school influences, just to name a few areas of influence needing further attention. These data are essential for educational efforts to be localized and specific for its target audience. The goal is to deter experimentation from occurring in the first place. Deterring smoking experimentation will require extensive research efforts by nurse researchers.

Practice. Health care providers are in the ideal position to make a difference. Nurse practitioners are in positions to affect adolescent outcomes in office visits. Nurse practitioners often have the respect of adolescents. This factor is essential for learning to take place and leads to communication one-on-one with the adolescent about deterrence, hazards, and health risks associated with smoking cigarettes. The clinic setting is the ideal place to apply Erikson et al.'s (1997) Theory of Role-Modeling and allows the adolescent to follow role-modeling through the example set forward by the practitioner. This role-modeling can be a positive influence if the practitioner is given proper data for the 12- to 13-year-old clients. Parents are also part of the clinical office visit in that they are responsible for continuing interventions outside the clinic. Parents also play an important role in the continuum of care as they have a significant influence.

Theory. Erikson et al.'s (1997) Modeling and Role-modeling is an effective theory with adolescents. Through role-modeling, the parent, nurse, or teacher plays a significant role. The adolescents are influenced easily at this age, so adults in these roles should exemplify

behavior against smoking. These adults aid in modeling. The adolescent is going to decide what he or she will do despite proper influence. However, with proper influences at an early age, there has been a trend against smoking experimentation.

Education. Due to the increasing role of nurse practitioners and their expanded roles, there is room for growth in nursing education to implement an age and gender specific program. The more concise efforts, the greater the response in time. The practitioner has the opportunity to develop long-term relationships with adolescent clients. Lastly, nursing programs can create curricula that will enable the student to develop teaching skills at the onset of one's development. The more efficient nursing, the greater the outcome for future clients.

Administration. With nurse practitioners, administrators have a chance to impact nursing. Practitioners must have the support of administration in order to develop and fund programs that are age and gender specific.

Recommendations for Future Study

Recommendations are made for research and practice based on the researcher's findings.

Research.

1. Implementation of a larger scale study with grade school children.

2. Implementation of a study in earlier age adolescents.

3. Implementation of a study focused on peer or family influence among children in Grades 5 and 6.

4. Conduction of a study to further evaluate the effects of marketing on children in Grades 5 and 6.

Practice.

1. Development of an educational program for parents.

2. Development of age-specific programs to deter adolescent smoking.

3. Implementation of smoking and health-risk marketing.

4. Utilization of modeling and role-modeling as a theoretical framework in program development.

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APPENDIX A

MITCHELL ADOLESCENT SMOKING QUESTIONNAIRE

Mitchell Adolescent Smoking Questionnaire

Please check (✓) the letter or number by the one answer that applies to you. Write the number in the space provided when appropriate. If a question has "mark all that apply," please do so. Follow other directions as you answer the questions.

Section I. Demographics

1. How old were you at your last birthday?_____
2. What is your sex?
_____ Male _____ Female
3. Are you
_____ White
_____ Black
_____ Hispanic
_____ Asian
_____ Other
4. What grade are you currently in?
_____ Seventh _____ Eighth
5. How many people live with you?_____
6. How many of your teachers have seen you smoking cigarettes?

7. How many of your family members smoke?
_____ 1. Biological mother
_____ 2. Biological father
_____ 3. Stepmother
_____ 4. Stepfather
_____ 5. Foster parents
_____ 6. Aunt
_____ 7. Uncle
_____ 8. Grandmother
_____ 9. Grandfather
_____ 10. Brother
_____ 11. Sister

Section II. Practices

- A. Have you ever smoked a cigarette?
 Yes No
- B. If no, have you ever tried or experimented with smoking,
 even a few puffs?
 Yes No

If no, then go to Section IV.

- C. Who offered you your first cigarette?
 1. Biological mother
 2. Biological father
 3. Stepmother
 4. Stepfather
 5. Foster parents
 6. Aunt
 7. Uncle
 8. Grandmother
 9. Grandfather
 10. Brother
 11. Sister
 12. Friend
- D. How old were you when you smoked your first whole
 cigarette?_____
- E. How old were you when you first smoked everyday for at
 least a month?_____
- F. How many cigarettes have you smoked in the past 7 days?____
- G. Do your parents know that you smoke?
 Yes No
- H. Do either of your parents mind that you smoke?
 Yes No
- I. How do you get your cigarettes?
 1. Buy them from a vending machine
 2. Buy them from a supermarket
 3. Buy them from a quick stop store
 4. Buy them from friends
 5. From parents
 6. Steal them
 7. From other family members
 8. From friends

- J. When you bought cigarettes were you ever checked/carded for your age?
 Yes No
- K. Do you think you will ever want to quit smoking?
 Yes No
- L. If a program to help people quit smoking were offered for free, would you be interested in going?
 Yes No
- M. I smoke because my friends smoke.
 Yes No
- N. I smoke because people in my family smoke.
 Yes No
- O. I smoke because it makes me look cool.
 Yes No
- P. I smoke because I like the feeling it gives me.
 Yes No
- Q. I smoke because I can't stop.
 Yes No
- R. Do you think you will be smoking one year from now?
 Yes No
- S. How many of your friends smoke? _____
- T. Does your boyfriend/girlfriend smoke?
 Yes No

Section III: Physical

- A. When you smoked your first cigarette, did it make you cough?
 Yes No
- B. Did your first cigarette make you feel dizzy or sick to your stomach?
 Yes No
- C. When you quit/tried to quit smoking, did you feel a strong urge to smoke?
 Yes No

- D. When you quit/tried to quit smoking, did you feel more irritable?
 Yes No
- E. When you quit/tried to quit smoking, did you feel hungry more often?
 Yes No
- F. When you quit/tried to quite smoking, did you feel sad, blue, or depressed?
 Yes No

Section IV: Knowledge

- A. How old does a person have to be to buy cigarettes legally? _____
- B. Have you read the warning on cigarette packs or ads?
 Yes No
- C. Which of the following apply to cigarette smoking?
 1. Lung cancer risk
 2. Other cancer risk
 3. Pregnancy risk
 4. Heart disease/problems
 5. Carbon monoxide
 6. Emphysema
 7. Lung problems
 8. Other Please tell me: _____
- D. Does the smoke from other people's cigarette bother you?
 Yes No
- E. Do you believe there is any harm in an occasional cigarette?
 Yes No
- F. Do you believe it is safe to smoke only one or two cigarettes?
 Yes No
- G. Can you smoke only a few cigarettes without becoming addicted to them?
 Yes No
- H. How many teachers have you seen smoking on school property? _____

- I. Is there a rule at your school that students are not allowed to smoke anywhere on school property?
 Yes No
- J. If there is a rule about not smoking at your school, what will happen if you do get caught smoking?

- K. If I started to smoke regularly, I could stop anytime I wanted?
 Yes No
- L. Is chewing tobacco or snuff better than cigarette smoking?
 Yes No

Section V: Education

- A. Have you ever taken a class at school in which the health risks of smoking were discussed?
 Yes No
- B. Has a doctor, dentist, or nurse ever said anything to you about smoking?
 Yes No
- C. Have you seen anything on TV during the last month about the health risks of smoking?
 Yes No
- D. Have you heard anything on the radio during the last month about the health risks of smoking?
 Yes No
- E. Have you read anything in the paper or a magazine during the last month about the health risks of smoking?
 Yes No

What other thoughts do you have on the subject of smoking? Use the space below.

APPENDIX B

APPROVAL OF THE COMMITTEE ON USE OF
HUMAN SUBJECTS IN EXPERIMENTATION OF
MISSISSIPPI UNIVERSITY FOR WOMEN



MISSISSIPPI
UNIVERSITY
FOR WOMEN

Office of the Vice President for Academic Affairs
Eudora Welty Hall
W-Box 1603
Columbus, MS 39701
(601) 329-7142

Admitting Men Since 1982

March 22, 1999

Mr. Jeff Mitchell
c/o Graduate Program in Nursing
Campus

Dear Mr. Mitchell:

I am pleased to inform you that the members of the Committee on Human Subjects in Experimentation have approved your proposed research as submitted, provided you make it clear in your materials that there will be time taken away from classroom teaching to conduct the study. The Committee further requests that the following be included: the participation or nonparticipation of the subject will in no way affect school records.

I wish you much success in your research.

Sincerely,

A handwritten signature in cursive script that reads "Susan Kupisch".

Susan Kupisch, Ph.D.
Vice President
for Academic Affairs

SK:wr

cc: Mr. Jim Davidson
Dr. Mary Pat Curtis

APPENDIX C
CONSENT OF SUPERINTENDENT
TO CONDUCT STUDY

229 Oral Church Road
 Sumrall, MS 39482
 (601) 264-3448

Dear _____,

My name is Jeff J. Mitchell, and I am a registered nurse and graduate student at Mississippi University for Women School of Nursing. I am conducting a research study as part of my Master of Science in Nursing degree. I am interested in identifying predictors of adolescent smoking to assist in the development of future studies related to adolescents and smoking. I am requesting permission to conduct this study within your school district.

The subjects will be seventh- and eighth-grade students who agree to participate at Sumrall High School. Each student will have the opportunity to refuse participation, and confidentiality will be maintained. Each parent also will have the opportunity to refuse to let his or her child participate. Written permission will be requested from the principal.

Enclosed you will find a copy of the questionnaire, student and parent information forms, and a copy of the letter to be sent to the principal in the school district who will participate in the study. I can be reached at the above address and phone number regarding any questions you may have about the study. I appreciate your assistance in this matter.

Please indicate your permission to conduct this study about smoking prevalence in adolescents within your school district with seventh- and eighth-grade students by signing below and returning this letter to me.

Sincerely,

Jeff J. Mitchell, RN, BSN
 Graduate Student
 Mississippi University for Women

 Signature of Superintendent

Date: _____

APPENDIX D
CONSENT OF SCHOOL PRINCIPAL
TO CONDUCT STUDY

229 Oral Church Road
 Sumrall, MS 39482
 (601) 264-3448

Dear _____,

My name is Jeff J. Mitchell, and I am a registered nurse and graduate student at Mississippi University for Women. I am conducting a research study as part of my Master of Science in Nursing degree. I am interested in identifying predictors of adolescent smoking. I am requesting permission to conduct this study at your school.

The subjects will be seventh- and eighth-grade students who wish to participate by completing a questionnaire. Each student will have the opportunity to refuse participation and confidentiality will be maintained. Each parent also will have the opportunity to refuse for his or her child to participate.

Student and parent information and consent letters are included for your review. The return of the letters from the school and the parent will serve as an indicator of their participation. A copy of the questionnaire will be sent to you for approval prior to the beginning of the program. I can be reached at the above address and phone number regarding any questions you may have about the study. I appreciate your assistance in this matter and will call you as a follow-up in one week.

Please indicate your permission to conduct this study about smoking prevalence in adolescents at your school with seventh- and eighth-grade students by signing on the line below and returning this letter to me.

Sincerely,

Jeff J. Mitchell, RN, BSN
 Graduate Student
 Mississippi University for Women

I hereby grant Jeff J. Mitchell permission to have access to the seventh- and eighth-grade students for participation in the study indicated above.

 Date

 Signature of Principal

APPENDIX E
PARENTAL CONSENT FORM

Dear Parent,

My name is Jeff J. Mitchell, and I am a registered nurse and a graduate student at Mississippi University for Women. I am conducting a research study about the problem of cigarette smoking in children. I hope to identify educational needs in the pre-adolescent age group on smoking.

I am requesting permission for your child to participate in this study. Participation will consist of filling out a questionnaire. The questionnaire aims at identifying predictors of adolescent smoking.

This survey does not imply that your child is smoking. Being a part of the study is completely voluntary, and your child can refuse to answer any question or withdraw from the study at any time. Your child's participation will not affect his or her performance or grade in school in any way. This study holds no known risks, but your child may learn and benefit from answering the questionnaire. Your child's name will not be used, and confidentiality will be maintained throughout the study and results will be reported as a group.

The Committee on Use of Human Subjects in Experimentation at Mississippi University for Women has approved the study. The superintendent, principal, and teachers have approved the study as well.

Please return this signed consent letter if you approve of your child's participation. I appreciate your cooperation in this matter. If you have any questions, please contact me at (601) 264-3448.

 I understand the above information regarding participation in the study on cigarette smoking.

- Yes, my child may participate in the study.
 No, my child may not participate in the study.

Child's Name: _____

Parent's Name: _____

APPENDIX F
STUDENT CONSENT FORM

Student Consent Form

Dear Student,

My name is Jeff J. Mitchell, and I am a registered nurse conducting research about cigarette smoking in adolescents.

The information collected will be used to develop teaching plans about cigarette smoking for your age group. This research will enable health care workers to provide education to other adolescents in an effort to increase their understanding of why adolescents smoke and what the health risks are related to smoking. Participation or non-participation in this study has no effect on your school performance.

The study requires completion of one questionnaire. This questionnaire is not a test and does not affect your grade in class. The choice to participate is left up to you. You may withdraw from the study at any time up to turning in the completed questionnaire. The questionnaire is anonymous and your name will not be used in the study and the results will be reported as group information.

Your cooperation will be greatly appreciated.

I have read the above statements. I understand that this study will not in any way affect my school performance.

Signed: _____ Date: _____