2012

Global Impacts of Media on Tobacco Use Among Adolescents: A Comparative Analysis of the United States and China

Katherine Theresa Lesyna
Scripps College

Global Impacts of Media on Tobacco Use among Adolescents:

A Comparative Analysis of the United States and China

A Thesis Presented

by

Katherine Lesyna

To the Keck Science Department

Of Claremont McKenna, Pitzer, and Scripps Colleges

In partial fulfillment of

The degree of Bachelor of Arts

Senior Thesis in Human Biology

April 23, 2012

Table of Contents

Abstract

Tobacco use is responsible for five million deaths annually and is one of the leading causes of preventable death worldwide. Many smokers initiate smoking behavior during adolescence. Adolescent smoking rates have been on the rise and there are a variety of different factors that contribute to the initiation of smoking behavior. While the World Health Organization (WHO) and the National Cancer Institute (NCI) have endorsed the claim that smoking in movies increases adolescents' risk of initiating smoking, few studies have examined the impact of media on adolescent smoking in China following the expansion of transnational tobacco companies. The aim of this thesis is to compare the impact of entertainment media (movies, television programs, and music) on tobacco use among adolescents in both the United States and China. Using data from the China Seven Cities Study (CSCS), this thesis examined the impact of media on cigarette smoking among Chinese adolescents, as well as the relationship between smoking and Chinese adolescents' preference for media from China, other Asian countries, and the U.S. Conducted in 126 middle- and high schools in seven major Chinese cities, the CSCS utilized student and parent surveys to gather information on the following measurements: Ever smoked, 30 day smoking, whole cigarette smoked, and daily smoking; origin of favorite movies, TV shows, and music; perceived stress, hostility, depression, and quality of life. These data indicated that Chinese adolescents who preferred forms of entertainment media from the U.S. or more developed nations of Asia were more likely to initiate tobacco use and experience depression, stress, and hostility than adolescents who preferred forms of entertainment media from China. As China develops and tobacco marketing continues to infiltrate Chinese society, these results suggest that Chinese adolescents will be at a higher risk for tobacco use and tobacco related disease. This thesis analyzes the global impacts of adolescent tobacco use and provides suggestions for future tobacco control campaigns for adolescents in China.

Introduction

Tobacco use is one of the leading causes of preventable death worldwide and is responsible for about five million deaths globally each year (Gu et al., 2009). The tobacco industry spends billions of dollars on advertising and promoting tobacco products, often times using entertainment media to depict a positive message associated with smoking (McDaniel et al., 2008). In an attempt to create a smoking culture, many tobacco companies target youth to recruit new smokers (Glynn et al., 2010). In many nations, tobacco use among adolescents has been on the rise and their initiation of tobacco use is occurring at a younger age than in previous generations (Zhang et al., 2003). Understanding the factors behind adolescent smoking initiation is critical for tobacco control efforts. Research in the United States has examined a variety of different factors that increase adolescent smoking, one of which is the correlation between exposure to smoking in movies and adolescent initiation of smoking (Sargent, 2005).

While overall tobacco use has declined in most developed nations, it remains a significant problem in developing nations, like China. About one-third of the world's smokers live in China, which has become the world's largest tobacco producer and consumer (Chen et al., 2006; Grenard et al., 2005). About 60% of Chinese men and 4% of Chinese women are smokers (Grenard et al., 2005). However, the low percentage of female smokers is steadily increasing as tobacco campaigns advertise for equality for women (Mekemson et al., 2002). As transnational tobacco companies continue to infiltrate China's tobacco market, the number of tobacco users will increase, fueling the global epidemic of tobacco-related disease. While tobacco-related deaths are currently evenly distributed among developed and

developing nations, it is estimated that by 2030, 70% of the global tobacco mortality will be in developing countries (Brandt, 2007).

This thesis will discuss the global health impacts on tobacco use among adolescents and the impact media has on adolescent smoking initiation in both China and the United States. In Chapter 1, an overview of the history and development of the tobacco industry in China will be provided. This chapter will also examine how tobacco companies create a youth smoking culture and the tactics the tobacco industry uses to avoid tobacco control campaigns and regulations.

Chapter 2 will examine the various psychosocial factors and predictors of adolescent smoking in both the United States and China. Past research has indicated that there is a correlation between media exposure and adolescent smoking in the United States. Chapter 3 will provide a background on the tobacco industry's relationship with media and Hollywood and discuss how media impacts adolescent smoking initiation and perceptions in the United States.

While the impact of media on adolescent smoking is well researched in the U.S., limited research has been done on media's impact on adolescents in China. Using the data from the China Seven Cities Study (CSCS), Chapter 4 discusses tobacco use among Chinese adolescents and the impact of media, which includes music, TV, and movies from China, other Asian countries, and the United States. This chapter will investigate the association of media preference to smoking behavior, as well as psychological distress. The findings in Chapter 4 may assist in creating more effective tobacco control campaigns in China.

Chapter 5 addresses the current public health concerns in China, discusses why campaigns targeting adolescents are important, and proposes public health suggestions and

interventions for further tobacco control. This research may inform tobacco control

campaigns about the factors of adolescent smoking initiation and how to reduce the impact of

smoking exposure in media.

Chapter 1:

The Tobacco Industry in the United States and China:

History, Globalization, and its Response to Tobacco Control

Understanding the development of the tobacco industry and its role in both American and Chinese tobacco companies is important in investigating the global impact of the development of transnational tobacco companies. This chapter will provide an overview of the history and development of the Chinese tobacco industry and the American tobacco industry's role in its expansion, how transnational tobacco industries have constructed a youth smoking culture in Asia, and the ways tobacco industries fight tobacco control campaigns.

History and Development of the Chinese Tobacco Industry

While tobacco use has declined significantly in the United States and the rest of the developed world due to aggressive tobacco control efforts, there has been an increase in smoking in developing nations. As Western tobacco markets became vulnerable to tobacco control campaigns and anti-tobacco movements, the tobacco industry looked for markets abroad that would make up for the profits lost in developed countries (McDaniel, 2008). Between 1975 and 1994, overall cigarette sales in the United States decreased by about 20%; however there was an 11% increase in American cigarette production, resulting in an increase in the ratio of cigarettes being exported, therefore, creating a demand for the opening of new markets abroad (Brandt, 2007). During this time, three major American companies (Philip Morris, R.J. Reynolds, and Brown & Williamson) increased their cigarette exports from 50 billion to 220 billion cigarettes (Brandt, 2007). The opening of new markets abroad for American products was facilitated by changes in world trade regulations, efforts

by companies to open these markets, and U.S. government efforts to protect the industry (Brandt, 2007). Changing tobacco markets have resulted in many companies transitioning from national to transnational companies and as a result have spread to China.

During the beginning of the 20th century, British American Tobacco controlled a large part of the Chinese market (Tong et al., 2008). After World War II, the Chinese market was closed off to foreign companies (Tong et al., 2008). In 1982, China established the China National Tobacco Company (CNTC) as a government agency. Two years later, the State Tobacco Monopoly Administration (STMA) was established to control government tobacco policies including allocating quotas for tobacco production in different provinces, prices of tobacco leaf, cigarette production, and international trade (Tong et al., 2008). In 1991, the STMA delegated all administrative aspects of tobacco to the CNTC (Tong et al., 2008).

By the 1990's, the China National Tobacco Company was producing about one third of cigarettes produced worldwide (Brandt, 2007). In 2000, the CNTC was responsible for 99.9% of the domestic cigarette market in China (Gan et al., 2011). After joining the World Trade Organization (WTO) in 2001, China faced lower international trade tariffs, which allowed transnational tobacco companies to enter the Chinese tobacco market (Tong et al., 2008). As a result of transnational companies' involvement in the trade, a widespread introduction of American cigarettes throughout Asia occurred. Although there is a large tobacco market in China, the CNTC faces competition with transnational companies and has lower revenue than many American companies (Tong et al., 2008). The global tobacco industry developed from an invasive industry to an industry in which Asia is participating (Tong et al., 2004). As the tobacco industry expands, tobacco companies must be tactful in

the way they approach advertising in new regions in an attempt to construct a culture of smoking in which tobacco products can be successfully marketed.

The Tobacco Industry's Construction of a Youth Smoking Culture

In order to create a market for cigarettes abroad, tobacco companies needed to create an interest in smoking and their product. With the ease of trade restrictions in China, American tobacco companies infiltrated the Chinese tobacco market in order to rapidly create a culture in which smoking would be appealing for younger generations. Transnational tobacco companies have attempted to recreate the Western connotations of smoking, such as glamour, sophistication, and sexual allure (Knight et al., 2004). Due to promotion and advertising, tobacco companies have constructed a certain view of the Western cigarette, as Western products have become associated with a higher social status, cosmopolitanism, and affluence in many developing countries (Brandt, 2007).

Tobacco companies have studied the habits, tastes, and desires of potential consumers in order to develop tailored products and advertisements (Hammond, 2000). A major part of tobacco campaigns targeted youth. Advanced advertising and incorporation of smoking into movies, often times depicting adventure, sport, glamour, beauty, fashion, and independence followed the introduction of American cigarettes (Knight et al., 2004). American and other multinational companies used music, discos, and nightclubs to promote the status of Western cigarettes and construct certain brands as a status symbol among youth (Brandt, 2007). Tobacco companies used clothing and other gear at discos and nightclubs to promote specific brands and develop an association of a certain tobacco brand to youth culture (Brandt, 2007). In China, Philip Morris has sponsored giveaways at which consumers could receive lighters and other paraphernalia with the Marlboro logo in exchange for an empty pack of cigarettes

(Hammond, 2000). Tobacco companies also promote Western ideals of beauty, fashion, and "coolness" in an attempt to create an atmosphere in which adolescents begin to associate smoking with the American lifestyle and the "American dream" (Knight et al., 2004). The tobacco industry was able to construct a culture in Asia in which smoking is desirable, contrary to social and historical beliefs, and created an environment in which smoking became socially acceptable (Knight et al., 2004). Tobacco control campaigns must respond to this constructed smoking culture by discouraging smoking. Not only do tobacco control campaigns struggle to reverse pro-tobacco advertising, they also face responses from tobacco companies fighting to keep their products successful despite efforts to reduce smoking behavior.

How Tobacco Companies Fight Tobacco Control Campaigns

In 1992, China passed its first anti-tobacco law, which banned tobacco advertising through mass media (Chen et al., 2006). However, government restrictions on tobacco advertisements failed and did not protect people from exposure to pro-tobacco media (Chen et al., 2006). In general, the tobacco control activity in China is very low compared to the U.S and Europe. However, in 2005, China endorsed the World Health Organization's (WHO) Framework Convention on Tobacco Control (FCTC) treaty (WHO FCTC, 2011). The FCTC focuses on the reduction of the demand for tobacco and the reduction of the supply of tobacco (WHO FCTC, 2011). The Convention also works on other areas of tobacco control, such as: liability, protection of public health policies related to tobacco control from the interests of the tobacco industry, and international cooperation. As a participating party of the Convention, China has agreed to ban all tobacco advertising, promotion, and sponsorship on radio, television, print media, and the internet, as well as the sponsorship of events by

local and international tobacco companies. China has also prohibited the selling of cigarettes in vending machines and created legislation to control global cigarette smuggling, which has become an increasing problem (WHO, 2000). While the Chinese government collaborates with tobacco control agencies, there is still very little funding for tobacco control campaigns.

Not only does China face the challenges of low funding and reinforcement of tobacco control campaigns, it also faces challenges from the tobacco industry. Tobacco companies fight to undermine public health policies and tobacco regulation in order to maintain sales of tobacco products. The following are a few ways that the tobacco industry influences policy and disrupts effective tobacco regulation: distorting the science of the health effects of tobacco use and secondhand smoke; challenging advertisement bans; suing or threatening to sue governments; interfering with FCTC ratification; influencing legislators and attempting to bribe legislators; and promoting ineffective voluntary regulation instead of enforceable laws (Tobacco Free Center, 2009). In Asia, tobacco companies even organize to increase effectiveness of tactics involved in fighting tobacco control campaigns.

In 1996, Phillip Morris, a major American tobacco company, sought to organize its regional interests in the Asian tobacco market by forming an organization called the Asian Regional Tobacco Industry Scientists Team (ARTIST) (Tong et al., 2004). The original motivation behind this organization was to counteract the WHO's research that would be released on the dangers of secondhand smoke, but it eventually developed into a forum that facilitated open communication among Asian tobacco companies and allowed them to discuss scientific and regulatory issues that tobacco companies had to deal with (Tong et al., 2004).

Many scientific discussions within ARTIST discussed the "reduced harm effect" which involves developing a product that reduces toxins, but does nothing to eliminate nicotine or address the health issues, such as disease and death related to tobacco use (Tong et al., 2004). Tobacco companies, such as the CNTC, have sponsored research in a variety of different academic institutions that work on tobacco research, primarily focusing on development of "safer" products (Gan et al., 2011). In 1983-1987, CNTC research for low tar and less harmful cigarettes compromised about 1% of the tobacco industry's health research, but from 2003-2007, it grew to 4% while research in other areas such as tobacco farming and cigarette manufacturing decreased from 79% to 69% (Gan et al., 2011). This trend is indicative of the CNTC's transition from a company attempting to increase cigarette production to a company focusing on developing a more marketable product (Gan et al., 2011).

With the ratification of the WHO FCTC by the Chinese government, the role tobacco companies play in affecting scientific research and influencing government officials will hopefully reduce. However, in response to growing tobacco control efforts, the CNTC has sponsored research to examine the impact of the FCTC and develop ways to counteract the impacts that the FCTC is making in China (Gan et al., 2011). The Chinese government benefited greatly from cigarette taxes, accounting for 10–14% of the total government tax revenue between 1983 and 1997 and protecting tobacco companies' interests is beneficial to the government (Sussman et al., 2007). That being said, the Chinese government is making progress in the move towards increased tobacco regulations, but it is still split between the public health concerns of the nation and the economic benefits that the tobacco industry provides (Malone, 2010).

Chapter 2:

Psychosocial Factors and Predictors for Adolescent Smoking

There are a variety of different factors that contribute to initiation of adolescent smoking and the continuation of smoking behavior. Adolescent smoking is influenced by cultural, interpersonal, and individual factors (Sargent et al., 2002). Children tend to develop intentions and positive expectations about smoking before initiation of the behavior. Many of these attitudes and perceptions are formed from observing others smoking (Sargent, 2002). Normative beliefs about smoking, self-identification processes, and learned expectations are all shaped by the social context of an individual and play a role in the susceptibility of adolescents to smoking behavior (Sargent et al., 2002). The following psychosocial factors have been found to be associated with adolescent smoking: sociodemographic (age, ethnicity/race, parental socioeconomic status, and personal income); environmental (parental smoking, parental attitudes, sibling smoking, peer smoking, peer attitudes and norms, family environment, and attachment to family and friends); behavioral (school factors, risk behavior, and lifestyle); and personal (stress, depression/distress, self-esteem, attitudes smoking/smokers, and personal health concerns) (Tyas et al., 1998). This chapter will analyze the psychosocial factors (psychological and social influences) and predictors that impact adolescent smoking in both China and the United States.

Adolescent Smoking in the United States

About 2,050 adolescents (age 12-17) become new smokers every day in the United States and about 32% of these new smokers will die prematurely due to tobacco related disease (Glantz et al., 2003). Tobacco control efforts have significantly reduced adolescent tobacco use in the United States over the past 15 years. Smoking rates for past month

smoking decreased from 21% in 1996 to 6.7% in 2011 for 8th graders, and from 34% to 18.7% for 12th graders (Johnston et al., 2011). This reduction in adolescent smoking rates is due to the strong anti-tobacco movement in the U.S.

A variety of different studies have looked at the factors that contribute to adolescent smoking in the United States. Typically, adolescents initiate smoking in response to social pressures and the desire to act like respected friends or family members (Sargent, 2001). Some other social influences that increase the prevalence of trying smoking include: older age, lower parent's education level, low school performance, less authoritative parents, and less involvement in extracurricular activities (Tanski et al., 2009). Depression and distress, personality characteristics such as rebelliousness, and low self-esteem also contribute to an adolescents risk to start smoking (Tyas et al., 1998). Perceived risk also plays a role in smoking initiation. Many adolescents do not take into account the many health risks involved in smoking when they initiate the behavior, but rather start to regret it after they have developed the habit (Romer et al., 2001).

While many risk factors for adolescent smoking are considered to be a part of adolescent development, the risks for adolescent smoking in the United States has declined due to regulations on tobacco companies and increased knowledge on the harmful effects of tobacco use. Adolescent smoking in the U.S. can be attributed to a variety of different factors. Some of these factors are similar to the factors affecting adolescent smoking in China, although there are some differences as well.

Adolescent Smoking in China

The smoking prevalence among adolescents in China aged 15–19 has increased dramatically over the past two decades (Grenard et al., 2005). About 18% of adolescent

males and 0.28% of females are smokers (Grenard et al., 2005). There are about 9 million adolescent smokers in China with about 80,000 additional adolescents becoming new smokers every day (Grenard et al., 2005). Various studies have been conducted on the multiple factors that influence Chinese adolescent smoking behavior.

Perceived smoking norms (e.g., the perceived number of peer smokers), smoking among important contacts (i.e., friends and family), exposure to pro-tobacco media, and positive attitudes towards tobacco use increase an adolescent's risk of smoking (Chen et al., 2006). Smoking with people that are influential and that adolescents are more closely associated with plays an important role in adolescent smoking behavior, and there is a more direct effect on adolescent smoking from closer and more influential contacts rather than distant contacts (Chen et al., 2006). Exposure to pro-tobacco media, while found in Chen's study to indirectly affect adolescent smoking, is believed to still be important in adolescent initiation of smoking and could contribute to a change in adolescents' perceived smoking norms (Chen et al., 2006). This study illustrates a link between pro-tobacco media, perceived smoking norms, and actual tobacco use (Chen et al., 2006).

Positive personal attitudes towards smoking also increase the likelihood of an adolescent to smoke (Zhang et al., 2000). Perceived psychological and social rewards are also more likely to correlate with tobacco use than the physical consequences of smoking, primarily due to the immediacy of the psychological and social outcomes and the delayed physical consequences (Chen et al., 2006). Anxiety, hostility, and depressive symptoms are significantly associated with having tried smoking (Weiss et al., 2008). Those who had reported higher levels of being worried or nervous, experiencing loneliness or sadness, and finding it challenging to manage their anger were more likely to have tried smoking (Weiss

et al., 2008). Smoking is viewed as a means of coping with these symptoms and will continue to be attractive to adolescents facing these issues if another form of reducing adolescent stress cannot be implemented (Weiss et al., 2008). When faced with a stressful situation, people in China will often try to change aspects of themselves, whereas in the U.S., people try to change the situation (Booker et al., 2007). This cultural perception of stress could play a role in the initiation of smoking. Susceptibility to smoking and low self-confidence to refuse cigarettes increases the likelihood of an adolescent to smoke (Grenard et al., 2005). Adolescents were more likely to smoke if they perceived refusing cigarette offers from others as rude or unfriendly and believed that smoking was an easy way to approach other people, using cigarettes as a beneficial tool for social interaction (Zhang et al., 2000).

Gender differences are evident in adolescent smoking behavior in China. In general, males are more likely to initiate smoking than girls (Weiss et al., 2008). For males, best friend smoking or smoking among influential others, perceived psychological values, perceived social values, and self-confidence to refuse cigarettes are important factors in smoking behavior (Grenard et al., 2005). Females are influenced by smoking among influential others such as best friends and teachers, usually mediated through perceived social norms (Chen et al., 2006). Adolescents are also more susceptible to the influences of those of the same gender (Chen et al., 2006).

The factors influencing adolescent smoking in China provide a framework for the impact of media on adolescent smoking behavior and the connections between perceived social norms and media exposure. The impact of media on adolescent smoking in China will be discussed further in Chapter 4.

Chapter 3:

Media and Adolescent Smoking in the United States

The impact of media on health behaviors, particularly adolescent smoking in the United States has been widely researched. This chapter will provide a background on the tobacco industry's relationships with the media industry and the current rates of smoking in movies. This chapter will then discuss the impact of media on health behavior and a detailed discussion on the impact of exposure to smoking in movies and other forms of media on adolescent smoking behavior in the United States.

The Tobacco Industry's Relationship with the Media and Hollywood

In order to understand the impact of smoking in movies on adolescent smoking behavior, it is first important to investigate the relationship tobacco companies have developed with media in the past and how tobacco control efforts are trying to hinder this relationship. The tobacco industry formed a relationship with entertainment productions in order to recruit new smokers, usually depicting smoking as fun, sexy, exciting, powerful, and a way of expressing rebellion (Mekemson et al., 2002). While American tobacco companies have denied involvement in entertainment productions since 1989, recent documents and the increasing amount of smoking in movies since then indicate that the industry actually has had a close relationship with Hollywood (Glantz et al., 2004). Tobacco companies have paid for their specific product to be placed in films and television, encouraged celebrity use, advertised in entertainment magazines, created advertisements that associated smoking with Hollywood glamour, and sponsored entertainment events (Mekemson et al., 2002). Tobacco companies used films and television not only as advertisements, but also as a way to gain social acceptability of smoking (UCSF Smoke Free Movies). Tobacco companies focused on

making sure that the actors or actresses using their product were people that they wanted their product to be associated with, as well as ensure that their product was being displayed in a positive light (Mekemson et al., 2002). This relationship with Hollywood that developed from cross-promotional incentives not only increased the amount of smoking in movies, putting more adolescents at risk for initiating smoking behavior, but also is responsible for the continuing public tolerance of smoking in movies today (Lum et al., 2008).

While depictions of smoking in American films declined in the 1970s and 1980s due to various regulations on tobacco product placement, the presence of smoking in movies increased in the 1990s (Mekemson et al., 2002). The rates of smoking in the 1990s were similar to the frequency of smoking in movies in the 1950s, well before smoking was known as a major public health problem (Glantz, 2003). However, in the past decade, the number of movies with smoking imagery in top grossing movies has declined from 66.6% in 2005 to 45.3% in 2010 (CDC, 2011). The number of youth rated movies (G, PG, and PG-13) with smoking imagery decreased from 54.8% in 2005 to 30.7% in 2010 (Tobacco Free Center, 2011).

The U.S. has recognized the impact of media on adolescent smoking initiation and tobacco control efforts have focused on reducing the amount of tobacco related content in entertainment media. Motion Picture Association of America (MPAA) and several major movie studios have claimed to consider the ratings of movies that include smoking and have tried to reduce tobacco incidents in films for young audiences (Polansky et al., 2010). However, significant changes in the ratings of movies with tobacco incidents have remained to be seen and reducing tobacco presence in media remains to be a challenge for tobacco control campaigns (Polansky et al., 2010). While the relationship with tobacco industries and

the media have declined, the presence of smoking in the movies is still a concern for global tobacco control efforts around the world.

Impact of Media on Adolescent Smoking

Many forms of media contain health-related information. However, research indicates that most images in the media are in serious conflict with things that people should do to stay healthy (Signorielli, 1993). Those who have more exposure to the media have increasingly skewed beliefs and perceptions regarding health behaviors (Signorielli, 1993). Mass media has been found to greatly influence health-related behaviors among children and adolescents, who are often times too young to distinguish fantasy from reality (Escobar-Chavez et al., 2005). Many adolescents gain knowledge, learn behaviors, and formulate their values from media exposure (Villani, 2001). Listening to the radio and watching music videos and movies on television have been shown to be associated with high-risk behaviors, such as sexual intercourse, drinking, smoking cigarettes, smoking marijuana, cheating, stealing, cutting class, and driving a car without permission (Villani, 2001). Entertainment media is a socializing force and shapes adolescents' views of behavior that is "cool" or socially acceptable (Sargent et al., 2002). Often times, adolescents establish their identity by associating social contexts with certain behaviors, such as smoking (Sargent et al., 2002).

The impact of media on adolescent smoking in the United States has been well researched. Smoking in movies has shown to have a significant impact on initiation of adolescent smoking and perceived social norms. Exposure to smoking in movies has also been shown to be associated with a variety of different factors such as sensation seeking, rebelliousness, low school performance, parental smoking, and authoritative parenting. Smoking in movies tends to normalize smoking behavior and leave out the negative health

effects caused by the behavior (Charlesworth et al., 2005). Both the National Cancer Institute (NCI) and World Health Organization (WHO) have endorsed the conclusion that smoking in movies impacts adolescent smoking behavior (Shmueli et al., 2010).

Many studies have shown a significant correlation between exposure to smoking in movies and other forms of media to adolescent smoking initiation and behavior. In a cohort study of 2,603 adolescents, aged 10–14 years, who had reported that they had never tried smoking before, Dalton et al. examined the impact of exposure to smoking in movies on smoking initiation. Exposure was based on the number of smoking occurrences in the films that the adolescents had recorded seeing from a list of 50 contemporary movies. After 13–26 months, Dalton et al. found 10% of the adolescents in the study had initiated smoking within the follow up period (Dalton et al., 2003). Additionally, 17% of adolescents in the group with the most exposure to smoking occurrences initiated smoking, while only 3% did in the group with the least amount of exposure to smoking occurrences in films (Dalton, et al, 2003). This study concluded that exposure to movie smoking has a significant impact on the initiation of adolescent smoking among those who had never smoked before (Dalton et al., 2003). After controlling for factors such as grade in school, sex, school, friend smoking, sibling smoking, parent smoking, receptivity to tobacco promotions, school performance, sensation seeking, rebelliousness, self esteem, parents' education, authoritative parenting, and perception of parental approval of smoking, Dalton et al. found that 52.2% of adolescent smoking initiation was due to exposure to movie smoking (Dalton et al., 2003). This percentage is greater than the 34% of smoking experimentation known to be due to tobacco advertising (Glantz, 2003). This difference could possibly be explained by the power of the subliminal effects of smoking in movies versus blatant advertising campaigns (Glantz, 2003).

Movie smoking also had a greater impact on adolescents with non-smoking parents than those with parents that smoked (Dalton et al., 2003). Dalton et al. (2003) found that adolescents with non-smoking parents are more susceptible to the initiation of smoking due to movie exposure (Dalton et al., 2003). Adolescents with non-smoking parents in the high exposure group were found to be 4.1 times more likely to initiate smoking than the adolescents in the low exposure group. However, the adolescents with smoking parents in the high exposure group were only about 1.6 times more likely to initiate smoking than in the low exposure group (Dalton, et al, 2003). This difference could be due to the fact that those with smoking parents have experienced the reality of smoking rather than the "glamorous" portrayal of smoking in movies (Dalton et al., 2003). However, overall, adolescents with smoking parents were still at a higher risk for initiation of smoking, indicating that social factors such as smoking in movies is less influential to these adolescents (Dalton et al., 2003).

While smoking in movies and adolescent smoking initiation are significantly associated, the impact of smoking in movies is also impacted by the type of movie character that participates in the smoking behavior. According to Tanski et al. (2009), all types of character smoking (character portrayed as positive ("good guy"), negative ("bad guy"), and neutral) were associated with adolescent smoking, but negative character smoking had a greater impact (Tanski et al., 2009). While negative character smoking may have had a stronger influence on adolescent smoking, there is greater exposure to positive character smoking in the movies and, therefore, the net effects of those characters are fairly similar within society (Tanski et al., 2009). Tanski et al. (2009) also found that the negative character smoking had a greater influence on low sensation seeking adolescents than average

or high sensation seeking adolescents (Tanski et al., 2009). Sensation seeking propensity in this study was a covariate of personality characteristics that defined adolescents' tendency to pursue sensory pleasure and excitement (Tanski et al., 2009). This indicates that exposure to movie smoking may have a greater impact on lower risk adolescents, as we have seen with adolescents who do not have parents who smoke.

Exposure to smoking in movies also increases the likelihood of smoking as adults (Shmueli et al., 2010). Smoking exposure has immediate effects on smoking behavior. Among young adult (18–25) smokers, those who are exposed to smoking in movies are more likely to smoke immediately after seeing a smoking scene than those who saw a smoke free movie scene (Shmueli et al., 2010). Smoking in movies acts as a visual cue that triggers an increase in the likelihood of smoking (Shmueli et al., 2010). Young adults are important in this study because it is the age in which most young adults who started smoking as adolescents will continue smoking or decide to quite (Shmueli et al., 2010). This study suggests that exposure to smoking in the movies can increase the likelihood that young adults will remain smokers.

Smoking in movies also contributes to perceived social norms of smoking, more favorable attitudes towards smoking, and a greater desire to smoke (Shmueli et al., 2010). Sargent et al. found that higher exposure to movie smoking among adolescent never-smokers is associated with having more favorable attitudes towards smoking (Sargent et al., 2002). These data suggest that movie smoking has an impact on attitudes towards smoking before initiation of such behavior (Sargent et al., 2002). This analysis supports the idea that exposure to smoking in movies makes adolescents less resistant to peer offers, increases their perceptions of the positive effects of smoking (i.e. relieve stress, social activity, carefree

behavior as depicted in many films), and increases the likelihood that an adolescent will try smoking in the future (Sargent et al., 2002).

While the impact of media has been well-established, other reasons why an adolescent would be exposed to large amounts of smoking in movies needs to be taken into consideration. Adolescents that watch movies with smoking may be seeking this type of behavior depiction and may have other behavioral characteristics or attitudes that could increase the likelihood for one to initiate smoking behavior (Sargent et al., 2002). Higher exposure to smoking in movies has been associated with sensation seeking and rebelliousness, low school performance, and low authoritative parenting (Dalton et al., 2003). While there is a significant association with the level of exposure and certain behaviors and social factors, there is still a clear indication that the presence of smoking in media plays an important role in adolescent smoking behavior.

Chapter 4:

Media Impact on Adolescent Smoking in China

Chinese adolescents are exposed to smoking on a regular basis, as smoking has become a cultural and social norm. There are a variety of customs that have been part of Chinese culture for hundreds of years in all social and economic classes, including giving tobacco as a gift, openly sharing cigarettes, and smoking at a variety of different social and cultural events (Rich et al., 2011; Hu et al., 2012; Chu et al., 2011). Positive media images of smoking from a variety of different countries increase the already high exposure to tobacco use, and therefore, increase the risk of smoking initiation among adolescents.

While the impact of media on tobacco use among adolescents in the United States has been widely researched, there has been little investigation on the impact of media on tobacco use among adolescents in China. Using data from the China Seven Cities Study (CSCS), this chapter will examine the association between cigarette smoking and Chinese adolescents' preference for entertainment media from the U.S., Hong Kong, Japan, Korea and Taiwan. The association between media preference and psychological outcomes will also be explored. These findings will contribute to our understanding of the type of media sources that Chinese adolescents prefer and whether or not those media sources are associated with tobacco use. The findings of this study may inform Chinese national and Asian transnational tobacco control efforts for adolescents and assist in formulating more successful anti-tobacco campaigns.

Methods

Data Sources and Sample Selection

Data were retrieved from the China Seven Cities Study (CSCS) baseline survey. The primary purpose of the CSCS was to assess influences on tobacco use in seven of the largest urban areas in mainland China. This assessment was used to develop and assess community-based approaches to tobacco control based on the influences on tobacco use that were determined. The secondary purpose was to gain a broader understanding of the role of rapid social, economic, and cultural changes on tobacco use and related health behaviors and outcomes. The seven cities studied are located in four regions of China: the Northeastern (Harbin, Shenyang), Central (Wuhan), Southwestern (Chengdu, Kunming), and Coastal (Hangzhou, Qingdao) regions.

The CSCS baseline survey was conducted between October 2002 and December 2002. With the assistance of the Health Education Institute (HEI) in Kunming and municipal Centers for Disease Control and Prevention (CDCP) in each of the other six participating cities, a stratified sampling strategy was adopted to select middle and high schools in each city. Study personnel from each city first identified the districts with the highest and lowest residential incomes by consulting the appropriate city agencies. Once these two districts were identified, geographical balance was considered in selecting the middle-income district. Local Education Committees in the selected districts provided a list of middle and high schools grouped according to three levels of academic achievement within each district. One middle school and one traditional high school were randomly selected from each of the 9 (3 levels × 3 districts) clusters to participate in the study. One class each from grades 7, 8 (middle school), 10, and 11 (high school) were recruited for the study. For the professional

high schools, one was selected from each district. The professional schools were matched across districts according to number of enrollments, type of occupational training, and male/female student ratios. Two academic majors were randomly selected and students in each of the 10th and 11th grades in these majors were recruited. Parents of the students were also invited to participate in the study. Parents completed their questionnaires at home, while middle and high school students completed the questionnaire during class time. Prior to taking the survey, middle and high school students took home consent forms and questionnaires for their parents to complete. Students returned the consent forms and parents' questionnaires to their classroom teachers in sealed envelopes. All study procedures and survey instruments were approved by both the University Southern California and Chinese Institutional Review Boards (IRB). In the present study, data from13,038 middle-, high-, and professional-high school students and their parents in the seven cities were utilized.

Measure of the Source of Favorite or Preferred Media

The source of participants' favorite or preferred (terms used interchangeably) media was assessed by three questions: (1) "Where do most of your favorite TV shows come from?" (2) "Where do most of your favorite movies come from?" (3) "Where does your favorite music come from?" Response options included China (mainland), Hong Kong, Taiwan, Japan, Korea and the U.S. Respondents were asked to select one response option only. Answers to each question were recorded so that the China option was scored as zero and any other option was scored as one. Each participant was scored to determine the degree of impact of the source of media preference. The score was the sum of the answers to the three questions above, and thus each score ranged from 0 to 3 (Xie et al., 2006).

Psychological Outcomes

Perceived Stress. Three items were adapted from Cohen's perceived stress scale (Cohen et al., 1983; Cohen et al., 1988). Participants were asked about the frequency of any of the following problems they had experienced in the past month: (1) "How often have you felt nervous and 'stressed'?" (2) "How often have you found that you could not cope with all the things that you had to do?" and (3) "How often have you felt difficulties piling up so high that you could not overcome them?" The response scales were "Never (0 days)", "Almost Never (1-2 days)", "Sometimes (3-5 days)", "Fairly Often (6-15 days)", and "Very Often (15+ days)". The responses were recorded from 0 to 4, and summed for all three items as a composite score. The Cronbach's alpha of scale was 0.83.

Hostility. Three items were adapted from Buss-Durkee (Buss et al., 1957) to assess participants' level of hostility. The items included (1) "I lose my temper easily", (2) "I can't help being a little rude to people I don't like", and (3) "Lately, I have been kind of grouchy." The response options included "strongly disagree", "disagree", "agree", and "strongly agree". The Cronbach's Alpha was 0.67.

Depressive Symptoms. The short form of the Center for Epidemiological Studies Depression Scale (CES-D) was used to measure the participants' depressive symptom (Melchior et al., 1993; Cheung et al., 1998). The three items were: "Think about how you felt during the past 7 days. On how many of these days (1) Did you have trouble shaking off sad feelings? (2) Did you feel depressed? (3) Did you feel sad?" Participants were asked to rate the frequency of each symptom during the past week on a four-point Likert scale representing "0-1 day",

"2-3 days", "4-5 days", and "6-7 days". The internal consistency as reflected by Cronbach's coefficient alpha of these three items was 0.84.

Quality of Life. Three items were used to assess quality of life status. Items were: (1) "All things considered, how do you feel about your life right now?" Answer options included "My life is really great", "My life is very good", "My life is okay", "I am not sure", and "My life is not so good". (2) "Compared to 2–3 years ago, what would you say about your life?" Answer options included "My life has gotten a lot better", "My life has gotten a little better", "My life is about the same", "My life has gotten a little worse", and "My life has gotten a lot worse". (3) "How about the neighborhood where you live, would you say it is?": "A great place to live", "A pretty good place to live", "I am not sure" or "Not such a good place to live". Responses of these three items were standardized to create a composite score for quality of life. The Cronbach's alpha of these three items was 0.62.

Behavioral Outcomes

Cigarette Smoking. The following questions and item responses were used to assess smoking status. *Lifetime Ever Puff*: "Have you ever tried cigarette smoking, even a few puffs?" (0= "no", 1= "yes"). *Age When Smoked a Whole Cigarette* (Yes=1 or No=0) was generated based on an item asking the participant to report the age at which he/she first smoked a whole cigarette, "How old were you when you smoked a whole cigarette for the first time?" *Past Month Smoking*: "Think about the last 30 days. On how many of those days did you smoke cigarettes?" (0= "0 days", 1= all other responses). *Daily Smoking*: "Have you ever smoked

28

cigarettes daily, that is, at least one cigarette every day for 30 days?" (0=No, 1=Yes) (Xie et al., 2006).

Other Covariates

Parents' Education Level. Fathers' and mothers' education level were provided by participants' parents and assessed in categorical increments ranging from illiterate to college diploma or higher. Years of education were obtained by converting these categories to corresponding school years. The participants' socioeconomic status was determined in accordance with the highest level of education attained as reported by either the father or the mother. The attainment of education was further collapsed into three categories: below senior high school, senior high school, and college.

Family Income. Monthly family income was determined by highest response to the question "What is your total monthly family income from all sources?" from either mother or father. The response options ranged from "<100 yuan/month" to ">10,000 yuan/month", and was collapsed into the following categories: "≤500 yuan/month" (low), "501-2,000 yuan/month" (medium) and ">2,000 yuan/month (high).

Data Analysis

Descriptive statistics (means, standard deviations and percentages) were calculated to reflect the background characteristics of the sample. SAS Proc Mixed (for continuous outcomes) and GLIMIXED (for categorical outcomes) were used to explore the relationships between the sources of preferred media and psychological and behavioral outcome variables

with adjustment for the intra-class correlations due to the nested study sampling design (i.e. students nested within schools). Gender, age, city residence, parental education and family income levels were controlled as covariates in all models. Also explored were potential interactions of gender and school type (i.e. middle school, academic high school, and professional high school) with Western media preference on psychological and behavioral outcomes. No interactions were observed. All statistical analyses were carried out using SAS.

Results

The general characteristics of participants in the study are summarized in Table 1 below. Slightly more high school students than middle school students were included in the sample. Significant gender differences in the distributions of grade (p=0.001), school type (p=0.002) and city residence (p=0.01) were observed.

Table 1. General Characteristics of the Sample

	Overall (n=13,038)	Female (n=6,760)	Male (n=6,278)	p Value
	n(%)	n(%)	n(%)	
Grade				
7th grade	2838(21.8%)	1392(20.6%)	1446(23%)	0.001
8th grade	2926(22.4%)	1500(22.2%)	1426(22.7%)	
9th grade	3690(28.3%)	1939(28.7%)	1751(27.9%)	
10th grade	3584(27.5%)	1929(28.5%)	1655(26.4%)	
School Type				
Middle School	5684(43.6%)	2851(42.2%)	2833(45.1%)	0.002
Academic High School	5711(43.8%)	3050(45.1%)	2661(42.4%)	
Professional School	1643(12.6%)	859(12.7%)	784(12.5%)	
City Residence				
Chengdu	1979(15.2%)	1048(15.5%)	931(14.8%)	0.01
Hangzhou	1496(11.5%)	749(11.1%)	747(11.9%)	
Shenyang	2216(17%)	1144(16.9%)	1072(17.1%)	
Wuhan	1761(13.5%)	955(14.1%)	806(12.8%)	
Harbin	1727(13.3%)	903(13.4%)	824(13.1%)	
Kunming	1875(14.4%)	909(13.4%)	966(15.4%)	
Qingdao	1984(15.2%)	1052(15.6%)	932(14.8%)	
Parental Education				
Below High school	3499(26.9%)	1798(26.6%)	1701(27.1%)	0.77
High School	5530(42.5%)	2867(42.5%)	2663(42.5%)	
College or above	3986(30.6%)	2082(30.9%)	1904(30.4%)	
Family Income				
Low	1709(13.2%)	895(13.3%)	814(13.1%)	0.87
Middle	8052(62.3%)	4166(62.1%)	3886(62.5%)	
High	3163(24.5%)	1647(24.6%)	1516(24.4%)	

Characteristics for the sources of favorite media, psychological and behavioral outcomes are summarized in Table 2. Girls had a higher preference for media from Hong Kong, Japan, Korea and Taiwan than boys, whereas boys had a significantly higher preference for U.S. media than girls (p<0.001). Boys engaged more frequently in cigarette smoking than girls, while girls reported higher levels of perceived stress, depressive symptoms and hostility than boys.

Table 2. Characteristics of Media Preference, Psychological and Behavioral Outcomes

	Overall	Female	Male	p Value
	n(%)	n(%)	n(%)	
Cigarette Smoking				
Ever Puff	4147(32.1%)	1584(23.6%)	2563(41.3%)	<.0001
Ever Smoke a Whole Cig	2437(18.8%)	692(10.3%)	1745(28%)	<.0001
Past-month Smoking	781(6.1%)	120(1.8%)	661(10.8%)	<.0001
Daily Smoking	333(3.6%)	38(0.7%)	295(7.4%)	<.0001
	mean(SD)	mean(SD)	mean(SD)	p Value
Outside Mainland China Media Preference				
*Asian Media Preference	2.0(1.0)	2.2(0.9)	1.9(1.0)	<.0001
U.S. Media Preference	0.8(0.8)	0.7(0.8)	0.9(0.8)	<.0001
+ All Media Preference	2.4(0.9)	2.4(0.8)	2.3(0.9)	<.0001
Psychological Outcomes				
Perceived Stress	7.6(2.7)	7.8(2.6)	7.3(2.7)	<.0001
Depressive Symptoms	4.6(2.1)	4.7(2.1)	4.4(2)	<.0001
Hostility	7.1(1.6)	7.3(1.5)	6.8(1.7)	<.0001
Quality of Life	9.7(2.4)	9.5(2.4)	10(2.3)	<.0001

*Combined Hong Kong, Japan, Korea, Taiwan
+Combined Asian and U.S.

Table 3 presents results of associations between favorite sources of media and psychological outcomes. Having a preference for media from the U.S., Hong Kong, Japan, Korea or Taiwan was significantly and positively related to perceived stress (β=0.07, p<0.01), hostility (β=0.11, p<0.0001), and depressive symptoms (β=0.09, p<0.0001). The associations of preference for Asian (Hong Kong, Japan, Korea or Taiwan) media and U.S. media were further analyzed separately. Significant, positive associations were observed for participants' preference for media from Hong Kong, Japan, Korea, and Taiwan and perceived stress (β=0.06, p=0.02), hostility (β=0.13, p<0.0001), and depressive symptoms (β=0.1, p<0.0001). However, a preference for U.S. media was significantly associated only with perceived stress (β=0.09, p=0.03) and not with hostility or depressive symptoms.

Table 3. Associations of Outside China Media Preference and Psychological Outcomes

	Asian Media		US Media		All Media	
	β (SE)	p	β (SE)	p	β (SE)	p
Perceived Stress	0.06(0.02)	0.02	0.09(0.04)	0.03	0.07(0.03)	<0.01
Depressive Symptoms	0.1(0.02)	<.0001	0.02(0.03)	0.57	0.09(0.02)	<.0001
Hostility	0.13(0.02)	<.0001	0.02(0.03)	0.46	0.11(0.02)	<.0001
Quality of Life	-0.03(0.02)	0.24	-0.1(0.04)	0.01	-0.01(0.02)	0.71

Preference for non-China mainland media (other Asian and U.S.) was also significantly linked to the risks of smoking (Table 4). In comparison to participants whose favorite media originated from mainland China, those whose favorite media came from other parts of Asia or the U.S. demonstrated significantly greater risk in all measures of cigarette smoking behavior. For example, participants who preferred other Asian and U.S. media had 33% higher odds of engaging in past month cigarette smoking than their counterparts who preferred mainland China media (OR=1.33 with 95% CI of 1.16-1.52, p<0.0001). Similar to

the findings on psychological outcomes, significant associations were primarily observed for

participants whose favorite media originated from Hong Kong, Japan, Korea and Taiwan.

Having a preference for U.S. media was significantly related to higher risk of having ever

smoked a whole cigarette.

Table 4. Relationships between Outside China Media Preference and Smoking Risk

	Asian Media		US Media		All Western Media	
	OR (95% CI)	p	OR (95% CI)	p	OR (95% CI)	p
Cigarette Smoking						
Ever Puff	1.23(1.17–1.28)	<.0001	1.05(0.97–1.14)	0.24	1.20(1.14–1.27)	<.0001
Ever Smoke a Whole Cig.	1.25(1.18–1.32)	<.0001	1.13(1.02–1.24)	0.01	1.27(1.19–1.36)	<.0001
Past-Month Smoking	1.28(1.14–1.43)	<.0001	1.11(0.91–1.34)	0.31	1.33(1.16–1.52)	<.0001
Daily Smoking	1.48(1.11–1.98)	0.007	1.11(0.82–1.49)	0.51	1.39(1.02–1.89)	0.04

Media Preference from China was set as the reference group.

Discussion

There is limited research on the impact of media on adolescent tobacco use in China. This is one of the first large scale studies that examines the association between cigarette smoking and Chinese adolescents' preference for entertainment media from the U.S., Hong Kong, Japan, Korea and Taiwan. In addition, the association between preference of media and psychological outcomes of perceived stress, depressive symptoms, hostility and quality of life were also investigated. In this study, more boys than girls were past-month smokers, 10.8% versus 1.8% respectively. These results follow social and cultural norms of the gender differences present surrounding smoking culture in China. Adolescent girls were more likely to experience perceived stress, depressive symptoms, and hostility than boys. Girls and boys also varied in their preference for entertainment media. Girls preferred Asian entertainment media content from Hong Kong, Japan, Korea and Taiwan, while boys preferred U.S. media. Girl's preference for other Asian media may represent the importance of social connections and feelings of familiarity more common to girls. Girls may be able to relate more to actors in other Asian films than U.S. films due to greater social and cultural similarities. The more adventurous nature of boys may explain why they typically gravitate towards U.S. media. While many more factors influence psychological outcomes of girls, it would be interesting to investigate if the actual content of the media was associated with increased psychological outcomes. It is possible that the increased relatable features of other Asian media may put a greater pressure on Chinese adolescents to live up to expectations set in entertainment media, while U.S. media is more distant and, therefore, has less of a direct impact on some of the psychological outcomes. However, more research would need to be conducted to come to that conclusion.

The most important finding in this study is that adolescents whose favorite movies, television programs, and music originated in mainland China were at a lower risk to initiate tobacco use or engage in any form of smoking behavior (ever puff, ever smoke a whole cigarette, past month smoking, daily smoking) than adolescents who preferred Asian or U.S. entertainment media. The U.S., Japan, Korea and Taiwan are all developed nations and have fought tobacco marketing campaigns and pro-tobacco media for a longer period of time than China. Because China has recently become open to trade and the tobacco market, smoking in movies from the U.S., Japan, Korea, and Taiwan could possibly have a greater impact on Chinese adolescents than adolescents from the U.S., Japan, Korea, and Taiwan due to the increased tobacco control efforts in these other countries. Because China is in its "earlier stages" of their tobacco epidemic, following the pattern the U.S. followed about forty years earlier, there has been less anti-tobacco response and, therefore, Chinese adolescents exposed to pro-tobacco media may have less of an anti-tobacco sentiment, increasing the likelihood of initiating smoking.

In 2002, smoking rates of Chinese 8th graders (males and females combined average) were comparable to the rate 8th graders in U.S. in 2011 which was approximately 6.1% (Johnston et al., 2011). Interestingly enough, comparable 30-day smoking rates for adolescents in Hong Kong, Japan, Korea and Taiwan, were 15%, 10%, 11.2% and 10.5%, respectively, much higher than the U.S. and China (Hong et al., 2011; Osaki et al., 2008; Chen et al., 2009; Lai et al., 2004). The U.S. has been successful in reducing the adolescent tobacco prevalence among 8th graders from 16.7% to the current 6.1% over the past 18 years with billions of dollars of funding for research, programs, legislation and substantial advocacy and awareness campaigns. As China's tobacco industry continues to develop,

smoking rates among adolescents are most likely going to increase. That being said, the Chinese government has already made efforts to control tobacco use, such as joining the WHO FCTC, but the impact of these tobacco control efforts on decreasing adolescent smoking initiation remain to be seen. Hopefully, China will be able to control tobacco use before its smoking rates reach higher levels, like in the U.S. in the past. However, if tobacco control efforts do no increase in the next couple of years, the Chinese government will have to spend more time and effort reversing pro-tobacco campaign successes, rather than stopping pro-tobacco campaigns before the Chinese tobacco epidemic becomes a greater problem than it already is.

While this study provides insight into the impact of media on adolescent tobacco use, there are several limitations to the study. First, while we found significant relationships between all smoking behaviors measured and a preference for Asian and U.S. media, we cannot directly associate smoking behavior to the exposure to entertain media content. The significant findings between media preferences and psychological outcomes also cannot be directly associated with each other. After controlling for either depression or hostility as dispositional characteristics, the significant effects of media exposure on smoking risk remained. However, there are a variety of other types of dispositional characteristics that were not included in the study, but have shown to be associated with smoking risk, such as rebelliousness. Future research needs to be conducted to investigate the association of other dispositional characteristics on smoking risk. Secondly, this study only collected information on adolescents' preference for media and not on the frequency of media exposure. This study also did not collect information on the degree to which adolescents were exposed to pro-tobacco messages based on their media preferences. Studies in the U.S. have shown that

increased frequency of exposure to smoking incidents increases adolescents smoking risk (Dalton et al., 2003). Given the results of this study, future studies should evaluate Asian entertainment media for pro-smoking content and the frequency and intensity of smoking incidents in order to solidify any conclusions about the relationship between different types of media and tobacco use among Chinese adolescents. Thirdly, the data for Hong Kong, Japan, Korea and Taiwan was combined into one category for this study's analysis and, therefore, the results do not indicate whether or not preference for media from a particular country is more or less associated with high risk for tobacco use or psychological distress. Finally, China has developed exponentially since the data for this study were collected in 2002. Internet sites, such as Facebook, Youtube, and Web 2.0 have also made forms of media from around the world more accessible since this study was conducted. That being said, this study provides baseline information about the impacts of media on adolescent tobacco use in China and hopefully stimulates interest in future research in this area.

While there are several limitations to this study, the study has many advantages as well. This study utilizes a large sample of 13,038 middle- and high- school adolescents drawn from seven of mainland China's largest urban areas representing four regions of the country. These adolescents also represent a variety of low to high-income families in each city. Given previous research in the U.S. demonstrating that exposure to pro-tobacco movies and television increases risk of adolescent smoking initiation, this study provides a critical step in beginning research on the impacts of entertainment media content in China and other nations in Asia, both developing and developed. With the initiation of more research, monitoring and regulation of tobacco use in entertainment media will hopefully increase. The WHO FCTC supports the regulation of pro-tobacco media and China would be taking

important steps in reducing smoking risk among Chinese adolescents by regulating smoking in entertainment media. However, tobacco control efforts will take much more than just China's effort to reduce smoking in entertainment media. Given the results of this study, it is clear that Chinese adolescents do not only engage with Chinese entertainment content, but also with media from other nations. With the increase in accessibility to media forms, Chinese adolescents will have a greater exposure to outside entertainment media and, therefore, will be exposed to the smoking present in those forms of media as well. The increasing exposure to other countries' media calls for a global response to reduce smoking in all forms of entertainment media around the world in order to reduce global adolescent smoking rates.

Chapter 5:

Public Health Impact in China

China faces a critical period in tobacco control in the upcoming years. Without aggressive tobacco control efforts, China will follow the trend of developed nations in the past and will face an increased rate of deaths due to tobacco use. This chapter will discuss the current health situation in China due to tobacco use and suggests ways for adolescent tobacco campaigns to prevent China from following the pattern of tobacco use and prevention that other countries have already experienced.

Current Health Situation due to Tobacco Use in China

Adolescent smoking in China contributes to the rapidly increasing number of smokers in China. This trend in rising smoking prevalence will impact the health of the people in China. On average, the daily consumption of cigarettes per person in China increased from one cigarette in 1952 to 10 cigarettes in 1990, which is similar to the rate in the U.S. in 1950 (Zhang et al., 2003). After seeing a rapid increase in cigarette use in the adolescent population, the percentages of deaths related to tobacco use for the middle aged population rose from 12% in 1950 to 33% in the 1990s (Zhang et al., 2003). With China starting to follow the trend that has been seen in the past with the U.S. and other developed countries, the rate of tobacco related deaths can be expected to increase significantly in the future (Zhang et al., 2003).

Smoking is already the main cause of death in China and, if the trend of increasing rates continues, deaths attributable to smoking have not even reached the expected peak (Zhang et al., 2003). The annual rate of deaths related to tobacco use has already risen to about 1 million and is expected to increase to about 2 million deaths annually within the next

10–15 years (Yang et al., 1999). In 1990, it was estimated that 13% of deaths of Chinese men over the age of 35 years were due to smoking behavior and approximately 0.6 million deaths in China were from tobacco related disorders (Zhang et al., 2003). For those aged 50–74, it is estimated that about two thirds of all excess deaths are related to smoking behavior (Jiang et al., 2010).

Respiratory diseases, such as chronic obstructive pulmonary disease (COPD), lung cancer, and pulmonary tuberculosis account for about two thirds of all deaths related to smoking in China (Zhang et al., 2003). Using a multivariable analysis based on follow up data collected from1999–2000 as follow up to a 1991 national survey, Gu et al. (2009) calculated the mortality rate due to smoking in 2005 and found that the three major causes of death related to smoking lung cancer, stroke, and COPD. For men, lung cancer was the highest cause, while COPD was the highest cause in women (Gu et al., 2009). These three diseases were responsible for about 45.1% of deaths related to smoking in men and 31.8% in women (Gu et al., 2009).

While smoking behavior puts those at risk of tobacco related disease, there is also a great risk for tobacco related disease for those who do not participate in smoking behavior but are exposed to secondhand smoke. In 1996, a national survey revealed that about 53.5% of non-smokers in China experienced passive smoking (Yang et al., 1999). Overall, about 72% of the Chinese population over the age of 15 is exposed directly or indirectly to the harm of tobacco (Zhang et al., 2003). In 2005, it was also estimated that 11.1% of lung cancer deaths among non-smoking women were due to involuntary smoking from the spouse or workplace (Wang et al., 2010). Smoking behavior not only affects those who smoke but also the people around those who engage in the behavior, exposing an increasing number of

people to secondhand smoke. Tobacco control efforts are need in China to reduce the already high rates of tobacco related deaths.

With the increasing number of adolescents initiating smoking, the rate of tobacco related deaths is expected to increase in the future. Tobacco control campaigns that focus on preventing adolescent initiation is critical in reducing the mortality rates due to smoking in China. If China is able to create a younger generation that does not view smoking as socially acceptable, the rate of deaths to tobacco related disease would presumably decrease in the future.

Suggestions for Future Tobacco Control

Tobacco control campaigns for adolescents are critical in reducing the number of new smokers in China and ultimately starting to change the acceptability of smoking among future generations. In creating a youth-centered approach that addresses media, a global collaboration is needed to enforce the reduction of smoking in movies and other entertainment media. Effective tobacco control campaigns are needed to prevent children and adolescents from initiating smoking in the first place in order to reduce the prevalence and social costs of tobacco use (Bonnie, 2001). Most smokers begin smoking at a younger age, usually during childhood and adolescence, and become addicted to nicotine within the beginning years of tobacco use (Bonnie, 2001). If a person reaches the age of 18 without engaging in smoking behavior, he or she is highly unlikely to initiate tobacco use later on in life (Bonnie, 2001). However, those who do start before the age of 18 are at a greater risk for becoming addicted and continuing smoking behavior for an extended period of time or for the rest of their lives (Bonnie, 2001). While only about 5% of adolescent smokers view themselves as still smoking in the next five years, 75% of adolescent smokers were found to

still be smoking eight years later in the U.S. (Sussman et al., 2001). This shows the importance of prevention efforts targeted at adolescents to avoid the initiation of tobacco use for future long-term impacts on smoking rates.

Knowing that youth-centered approaches are needed in the fight against tobacco use, the following categories of recommendations have been developed. Based off Jamieson et al.'s (2003) recommendations to reduce adolescent risk, the following are broad approaches that could make the fight against adolescent tobacco use more successful: (1) Developing programs for younger generations that promote healthy lifestyles; (2) Finding innovative strategies to counteract various social and cultural influences that may encourage smoking behavior, such as media; (3) Enhance the global response to the fight against tobacco use (Jamieson et al., 2003). All of these recommendations can help create interventions both at the community, national, and global levels. These recommendations will hopefully assist China to develop strategies that aim at preventing adolescents to initiate behavior and in turn securing the health of China's future generations.

Developing Programs that Promote Healthy Lifestyles

Many adolescents are drawn to new behaviors and part of adolescence is developing and understanding risks of certain behaviors in order to establish an identity for themselves and assess the world around them (APA, 2002). While participating in risk behavior may be considered a natural part of adolescence, guidance needs to be provided to encourage adolescents to choose less risky behavior and channel the desires to take risks in some other aspect of life (APA, 2002). Some key ways to provide guidance to adolescents is to create an environment in which adolescents are exposed to adults who are positive role models,

encourage adolescents to make better decisions, which can be taught, by both parents and teachers in school, and focus on the interventions that involve family, schools, and the community (Jamieson et al., 2003).

Because 60% of adult men smoke in China, adolescents, particularly boys, are constantly exposed to older role models that engage in smoking behavior, most likely including their parents, teachers, and even their physicians. The smoking rate among Chinese physicians is about 23% (41% for males and 1% for females) (Jiang et al., 2007). With role models in the community that engage in smoking behavior, adolescents are exposed to tobacco use often and their perceptions of the behavior are most likely influenced by this exposure. Having adolescents associate and look up to adults that do not engage in smoking behavior will most likely reduce their risk of initiating smoking behavior themselves. Creating environments at school or at home, in which adolescents observe positive health behaviors may encourage adolescents to also engage in positive health behaviors. Tobacco control efforts need to target adult smoking rates in order to reduce the amount of exposure adolescent's have to smoking behavior.

Prevention efforts that have also included family and community based interventions have shown to be effective in the U.S. (Niaura et al., 2009). Interventions that include the family and community would focus on creating supportive environments in which adolescents feel part of the community, but also are not exposed to smoking behavior (Jamieson et al., 2003). Creating community led anti-tobacco campaigns and including adolescents so they feel valued in the community and part of a larger cause may reduce adolescents desire to take part in smoking because of social pressures. The development of community interventions can play into the collectivist culture in China, in which it is more

important to represent a community with honor than stand out as an individual (Booker et al., 2007).

Interventions for adolescents should also include programs that encourage good decision-making and promote the importance of living a healthy lifestyle. Including decision making and other key life skills such as communication skills, problem-solving, emotional skills, and interpersonal skills, as well building confidence, self esteem, and self respect into different aspects of the school curricula could be effective in reducing some of the social influences that increase initiation of smoking. Incorporating life skills into lessons may help develop students' ability to resist peer pressure and decide how to personally deal with influences that may impact tobacco use, among many other useful tactics to avoid tobacco use (UNICEF). In the U.S., life skills training that target many different health behaviors in school have found to be effective in reducing adolescent smoking prevalence (Niaura et al., 2009). Developing culturally tailored life skills training for Chinese schools could help reduce Chinese adolescent risk for a tobacco use and other risky health behaviors.

Counteracting Social and Cultural Influences

While universal programs that help promote a healthy lifestyle may be beneficial, it is also critical for interventions to counteract influences that promote risky behavior. Research has shown that media influences, psychological distress, perceived smoking norms, smoking among family members or friends, and positive attitudes towards tobacco use are some of the influences impacting adolescent smoking risk (Chen et al., 2006). Adolescents who experience higher levels of these risk factors are at a higher risk for initiating smoking behavior. Using the knowledge of these risk factors, interventions can be created to respond

to these influences to reduce the impact each of them have on adolescent smoking. This section will primarily focus on counteracting the impact of media on adolescent tobacco use.

From research in the U.S. and the baseline results from the CSCS, exposure to media has shown to have an impact of adolescent risk of smoking initiation. Because of this, prevention efforts must counteract the positive images of smoking displayed in the media with realistic impacts of smoking behavior. One effective way to counteract pro-tobacco media is to develop anti-tobacco mass media campaigns. In creating mass media campaigns, it is more effective not to simply state, "Do not smoke," but rather to show successful model adolescents who do not smoke and are happy and healthy (Worden, 2001). Other important aspects in making a successful mass media campaign include: influencing the information known to the targeted audience and maximizing exposure to the new information; using social marketing tools to develop creative messages attractive to the targeted audience; and developing a supportive environment in which the targeted audience can change their health behavior (Randolph et al., 2004). The reduction of smoking incidents in movies can also help create an atmosphere in which smoking is no longer socially acceptable and help reduce adolescents' exposure to smoking behavior.

In the U.S., smoking used to be considered a social norm, but now is considered socially inacceptable and a representation of social defiance (Bonnie, 2001). Enforcing bans on tobacco use in public places, schools, and workplaces helped the U.S. promote a tobacco-free norm (Bonnie, 2001). China is currently facing a growing acceptability of smoking as a social norm, and while some bans have been put in place, enforcement of these bans is limited (Malone, 2010). The Chinese government must increase their involvement in tobacco control, instead of benefiting from cigarette taxes at the expense of the health of the

nation (Malone, 2010). Raising taxes on cigarettes so they are less affordable and making

cigarettes less accessible to adolescents are some ways that the Chinese government can start

reducing the presence of tobacco use (Glynn, 2001). The promotion of a tobacco free norm

will include the increased enforcement of tobacco use in public places, a reduction in the

amount of pro-tobacco advertising and tobacco incidents in entertainment media, and the

development of campaigns that can counteract the current perception of smoking as a social

norm.

Global Response to Fighting Tobacco

 While the Chinese government needs to implement new strategies for tobacco control,

a global response is critical in reducing tobacco use, especially as our world becomes

increasingly more connected through trade, technology, and finance (McDaniel et al., 2008).

Globalization has the potential to either improve or harm public health efforts in many

nations (McDaniel et al., 2008). Globalization has harmed China due to the expansion of

tobacco companies and the increase in smoking rates, but global efforts can also play a role

in improving the public health status from other nations as China receives advice and

assistance from the international community. WHO has started to develop interventions that

emphasize global health and the Framework Convention on Tobacco Control (FCTC) is the

first treaty that has uses a global health agenda for tobacco control (Barraclough, 2009). The

FTCT is both a domestic and international document, requiring nations to regulate tobacco

use within their country, but also to regulate trade and advertising that transcends borders

(Barraclough, 2009).

Based off the results from the China Seven Cities Study, adolescents who preferred media from countries other than China were actually had a higher risk for smoking initiation than those who preferred media from China. This data clearly demonstrates the impact that media from other nations has on tobacco use and the need for a global effort to reduce smoking in media around the world. There is a need for a global recognition that smoking in media impacts adolescents in various places around the world. Ratifying the FCTC indicates China's growing efforts to implement tobacco control efforts regarding a variety of different aspects of the tobacco epidemic. However, China faces a conflict of interest in implementing these new guidelines, such as making new health warnings that are inferior to the international requirements, in order to protect the government tobacco interests (Wan et al., 2010). China's full participation in implementing FCTC guidelines for tobacco control is critical in reducing the global impact of tobacco-related deaths, as China accounts for a large proportion of tobacco use. Even though it may take awhile to see the impacts of the FCTC on smoking rates, the FCTC is the first step towards a global response to tobacco control.

Conclusions

Tobacco control efforts focusing on adolescent prevalence reduction will play a key role in reducing tobacco related deaths long term around the world. A global response is needed to address factors that influence adolescent smoking behavior, particularly the impact of media and the impact of globalization on the spread of all forms of pro-tobacco media. The WHO FCTC has made great strides in the effort to fight tobacco use from a global perspective. China's role in tobacco control is critical in reducing the number of tobacco related deaths globally and the government must decide to continue to support the tobacco industry or take steps to improve the public health of China.

Acknowledgements

I would like to thank Dr. Paula Palmer for working with me on this project and opening up her doors to allow me to learn more about global health research. Dr. Palmer provided encouragement and advice for this project and it has been an honor to work with her. I would also like to thank Dr. Bin Xie, Dr. Andy Johnson, the statistician and the PI for the CSCS study, respectively. I would also like to thank Professor David Hansen for providing advice and creating the opportunity for students from the Keck Science Department to work with the CGU School of Community and Global Health. And last but certainly not least, I would like to thank my family and friends for their continuous support of my work on a daily basis.

Literature Cited

American Psychological Association (APA). (2002). Developing Adolescents: A Reference for Professionals. APA: Washington D.C.

Barraclough, S. (2009). Chronic Disease and Global Health Governance: The Contrasting Cases of Food and Tobacco. In A. Kay & O. D. Williams (Eds.), *Global Health Governance: Crisis, Institutions, and Political Economy,* (102-128). New York: Palgrave Macmillan.

Bonnie, R.J. (2001). Tobacco and Public Health Policy: A Youth-Centered Approach. In P. Slovic (Ed.), *Smoking: Risk, Perception, & Policy,* (277-300). Thousand Oaks: Sage Publications.

Booker, C.L., Unger, J.B., Azen, S.P., Baezconde-Garbanati, L., Lickel, B., & Johnson, A. (2007). Stressful Life Events and Smoking Behaviors in Chinese Adolescents: A Longitudinal Analysis. *Nicotine & Tobacco Research,* 9(11), 1085-1094.

Brandt, Allan M. (2007). *The Cigarette Century: The Rise, Fall, and Deadly Persistence of the Product that Defined America.* New York: Basic Books.

Buss AH, Durkee, A. (1957). An inventory for assessing different kinds of hostility. J Consult Clin Psychol. 21, 343-8.

Charlesworth, A., & Glantz, S. A. (2005). Smoking in the Movies Increases Adolescent Smoking: A Review. *Pediatrics*, 116(6), 1516-1528.

Chen P-L, Huang W-G, Chao K-Y. (2009). Susceptibility to initiate smoking among junior and senior high school nonsmokers in Taiwan. Prev Med. 49(1), 58-61.

Chen, X., Stanton, B., Fang, X., Li, X., Lin, D., Zhang, J., Liu, h., & Yang, H. (2006). Perceived smoking norm, socioenvironmental factors, personal attitudes, and adolescent smoking in China: a mediation analysis with longitudinal data. *Journal of Adolescent Health*, 38, 359-368.

Cheung CK, Bagley C. (1998).Validating an American scale in Hong Kong: the Center for Epidemiological Studies Depression Scale (CES-D). J Psychol. 132(2), 169-86.

Chu A, Jiang N, Glantz SA. (2011). Transnational tobacco industry promotion of the cigarette gifting custom in China. Tobacco Control. 20(4), e3.

Cohen S, Kamarck, T., Mermelstein, R. (1983). A global measure of perceived stress. J Health and Social Behav. 24, 385-96.

Cohen S, Williamson, G. (1988). Perceived stress in a probability sample of the United States. In: Spacapam S, Oskamp, S., editor. The social psychology of health: Claremont Symposium on Applied Social Psychology. Newbury Park, CA: Sage.

Dalton, M. A., Sargent, J. D., Beach, M. L., Titus-Ernstoff, L., Gibson, J. J., Ahrens, M., Tickle, J., & Heatherton, T. F. (2003). Effect of viewing smoking in movies on adolescent smoking initiation: a cohort study. *Lancet*, 362, 281-285.

Escobar-Chaves, S., Tortolero, S. R., Markham, C. M., Low, B. J., Eitel, P., & Thickstun, P. (2005). Impact of the Media on Adolescent Sexual Attitudes and Behaviors. *Pediatrics*, 116, 303-326.

Gan, Q., & Glantz, S. A. (2011). Relationship between the Chinese tobacco industry and academic institutions in China. *Tobacco Control*, *20*(1), 12-19.

Goffman, T. E. (2009). Department Media reviews and reports : The Role of the Media in Promoting and Reducing Tobacco Use: (NCI Tobacco Control Monograph 19). *American Journal Of Preventive Medicine*, 36(4), 376.

Glantz, et al. (2004). Back to the Future: Smoking in Movies in 2002 Compared With 1950 Levels. *Am. J Public Health*, 94, 261-263.

Glantz, S. A. (2003). Smoking in movies: a major problem and a real solution. *Lancet*, 362, 258-259.

Glynn T, Seffrin JR, Brawley OW, Grey N, Ross H. (2001). The Globalization of Tobacco Use: 21 Challenges For The 21st Century. CA: A Cancer Journal for Clinicians. 60(1), 50-61.

Grenard, J., Guo, Q., Jasuja, G., Unger, J., Chou, C.P., Gallaher, P., Sun, P., Palmer, P., & Johnson, A. (2005). Influences affecting adolescent smoking behavior in China. *Nicotine & Tobacco Research*, 8(2), 245-255.

Gu D, Kelly TN, Wu X, Chen J, Samet JM, Huang J-f, et al. (2009). Mortality Attributable to Smoking in China. N Eng J Medicine. 360(2), 150-9.

Hammond R. (2000). Tobacco Advertising & Promotion: The Need for a Coordinated Global Response. World Health Organization. <http://www.who.int/tobacco/media/en/ROSS2000X.pdf.>

Ho, S.Y., Wang, M.P., Lai, H.K., Hedley, A., Lam, T.H. (2010). 'Carcinogens in a puff': smoking in Hong Kong movies. *Tobacco Control*, 19, 518-519.

Hong NS, Kim KY, Park S-W, Kim J-Y, Bae J, Lee WK, et al. (2011). Trends in Cigarette Use Behaviors Among Adolescents by Region in Korea. J Prev Med Public Health. 44(4), 176-84.

Hu M, Rich ZC, Luo D, Xiao S. Cigarette (2012). Sharing and Gifting in Rural China: A Focus Group Study. Nicotine & Tobacco Research. 2012 January 4, 2012.

Jamieson, K.H. & Romer, D. (2003). Findings and Future Directions. In D. Romer (Ed), *Reducing Adolescent Risk: Toward an Integrated Approach* (374-378). Thousand Oaks: Sage Publications.

Jiang, J., Liu, B., Sitas, F., Li, J., Zeng, X., Han, W., Zou, X., Wu, Y., & Zhao, P. (2010) Smoking-attributable deaths and potential years of life list from a large, representative study in China. *Tobacco Control,* 19, 7-12.

Jiang, Y., Ong, M. K., Tong, E. K., Yang, Y., Nan, Y., Gan, Q., & Hu, T. (2007). Chinese Physicians and Their Smoking Knowledge, Attitudes, and Practices. *American Journal Of Preventive Medicine*, 33(1), 15-22.

Johnston LD, O'Malley, P. M., Bachman, J. G., Schulenberg, J. E. (2011). Monitoring the Future national survey results on drug use, 1975-2010. Institute for Social Research, University of Michigan. [Monograph]. 1: Secondary school students:744.

Knight, J., & Chapman, S. (2004). "Asia is now the priority target for the world anti-tobacco movement": attempt by the tobacco industry to undermine the Asian anti-smoking movement. *Tobacco Control*, 13(Suppl II), ii30-ii36.

Knight, J., & Chapman, S. (2004). "Asian Yuppies…are always looking for something new and different": creating a tobacco culture among young Asians. *Tobacco Control,* 13(Suppl II), ii22-ii29.

Lai MK, Ho SY, Lam TH. (2004). Perceived peer smoking prevalence and its association with smoking behaviours and intentions in Hong Kong Chinese adolescents. *Addiction.* 99(9), 1195-205.

Lam, T.H., Chung, S.F., Betson, C., Wong, C.M., Hedley, A. (1998). Tobacco Advertisements: One of the Strongest Risk Factors for Smoking in Hong Kong students. *American Journal of Preventive Medicine*, 14(3), 217-223.

Lum, K. L., Polansky, J. R., Jackler, R. K., & Glantz, S. A. (2008). Signed, sealed and delivered: "big tobacco" in Hollywood, 1927-1951. *Tobacco Control*, 17(5), 313-323.

Malone, R. (2010). China's chances, China's choices in global tobacco control. *Tobacco Control*, 19(1), 1-2.

McDaniel P, Intinarelli G, Malone R. (2008). Tobacco industry issues management organizations: Creating a global corporate network to undermine public health. *Globalization and Health*, 4(1), 2.

Mekemson, C. C., & Glantz, S. A. (2002). How the tobacco industry built its relationship with Hollywood. *Tobacco Control*, 11(Suppl I)*,* i81-i91.

Melchior LA, Huba, G.J., Brown, V.B., Reback, C.J. (1993). A short depression index for women. Educ & Psychol Measurement. 53, 1117-25.

Niaura, R. & Abrams, D.B. (2009). Smoking Cessation: Progress, Priorities, and Prosepectus. In G. A. Marlatt & K. Witkiewitz (Eds.), *Addictive Behaviors: New Readings on Etiology, Prevention, and Treatment* (459-496). Washington D.C.: American Psychological Association.

Organization. Health Education: Tobacco Use Prevention. UNICEF. Retrieved April 22, 2012, from http://www.unicef.org/lifeskills/index_7197.html

Organization. (2011). WHO. The Framework Convention on Tobacco Control.

Organization. (2000).WHO. The World Health Report.

Osaki Y, Tanihata T, Ohida T, Kanda H, Kaneita Y, Minowa M, et al. (2008). Decrease in the prevalence of smoking among Japanese adolescents and its possible causes: periodic nationwide cross-sectional surveys. *Envir Health and Prev Med.,* 13(4), 219-26.

Polansky, J., Mitchell, S. & Glantz, S. (2010). Film-Flam: How MPAA/NATO movie labels hide the biggest media risk to kids. University of San Francisco Center for Tobacco Control research and Education. Available from: http://www.escholarship.org/uc/item/8hn866tt.

Randolph, W., & Viswanath, K. K. (2004). Lessons Learned from Public Health Mass Media Campaigns: Marketing Health in a Crowded Media World. *Annual Review of Public Health*, *25*(1), 419-437.

Rich ZC, Xiao S. (2011). Tobacco as a Social Currency: Cigarette Gifting and Sharing in China. *Nicotine & Tobacco Research*, 2011 August 17; Avaliable from: <http://ntr.oxfordjournals.org/content/early/2011/08/17>

Romer, D. & Jamieson, P. (2001). The Role of Perceived Risk in Starting and Stopping Smoking. In P. Slovic (Ed.), *Smoking: Risk, Perception, & Policy,* (64-80). Thousand Oaks: Sage Publications.

Sargent, J., Beach, M., Dalton, M., Mott, L., Tickle, J., Ahrens, M., & Heatherton, T. (2001). Effect of seeing tobacco use in films on trying smoking among adolescents: cross sectional study. *BMJ: British Medical Journal (International Edition)*, 323, 1394-1399.

Sargent, J. D., Dalton, M. A., Beach, M. L., Mott, L. A., Tickle, J. J., Ahrens, M., & Heatherton, T. F. (2002). Viewing tobacco use in movies: Does it shape attitudes that mediate adolescent smoking? *American Journal of Preventive Medicine* 22(3)*,* 137-145.

Sargent, JD. (2005). Smoking in movies: impact on adolescent smoking. *Adolesc Med Clin.,* 16, 345-370.

Shmueli, D., Prochaska, J. J., & Glantz, S. A. (2010). Effect of Smoking Scenes in Films on Immediate Smoking: A Randomized Controlled Study. *American Journal of Preventive Medicine*, 38(4), 351-358.

Signorielli, Nancy. (1993). *Mass Media Images and the Impact on Health.* Westport: Greenwood Press.

Smoke Free Movies. Big Tobacco and Hollywood. UCSF. Retrieved April 22, 2012 from http://smokefreemovies.ucsf.edu/problem/bigtobacco.html.

Sussman, S., Pokhrel, P., Black, D., Kohrman, M., Hamann, S., Vateesatokit, P., & Nsimba, S. D. (2007). Tobacco control in developing countries: Tanzania, Nepal, China, and Thailand as examples. *Nicotine & Tobacco Research*, 9, 447-457.

Sussman, S., Lichtman, K., Dent, C.W. (2001). Use of Focus Groups for Adolescent Tobacco Use Cessation. In S. Sussman (Ed.), *Handbook of Program Development for Health Behavior Research &Practice* (267-286). Thousand Oaks: Sage Publications.

Tanski, S. E., Stoolmiller, M., Sonya Dal, C., Worth, K., Gibson, J., & Sargent, J. D. (2009). Movie Character Smoking and Adolescent Smoking: Who Matters More, Good Guys or Bad Guys? *Pediatrics*, 124(1), 135-143.

Tobacco Free Center. (2011). The Impact of Smoking in the Movies on Youth Smoking. *Campaign for Tobacco Free Kids.* Accessible from: http://www.tobaccofreekids.org/research/factsheets/pdf/0216.pdf

Tobacco Free Center. (2009). How Tobacco Companies Fight Tobacco Control. *Campaign for Tobacco Free Kids*. Accessible from: http://www.ttac.org/tcn/peers/pdfs/02.02.11/OK_Tobacco_Industry_Tactics.pdf

Tong, E. K., & Glantz, S. A. (2004). ARTIST (Asian regional tobacco industry scientist team): Philip Morris' attempt to exert a scientific and regulatory agenda on Asia. *Tobacco Control*, 13(Suppl II), ii118-ii124.

Tong, E., Tao, M., Xue, Q., Hu, T.W. (2008). In T.W. Hu (Ed.), *Tobacco Control Policy Analysis in China: Economics and Health* (211-244). New Jersey: World Scientific.

Tyas, S., & Pederson, L. (1998). Psychosocial factors related to adolescent smoking: a critical review of the literature. *Tobacco Control,* 7, 409-420.

U.S. Centers for Disease Control and Prevention (CDC). (2011). Smoking in Top-Grossing Movies—United States, 2010, *Morbidity and Mortality Weekly Report (MMWR)* 60(27), 909-913.

Villani S. (2001). Impact of media on children and adolescents: A 10-year review of the research. *J Am Acad Child Adolesc Psychiatry,* 40, 392-401.

Wan, X., Ma, S., Hoek, J., Yang, J., Wu, L., Zhou, J., & Yang, G. (2011). Conflict of Interest and FCTC Implementation in China. *Tobacco Control.* Available from: http://tobaccocontrol.bmj.com/content/early/2011/06/14/tc.2010.041327

Wang, J.B., Jiang, Y. Wei, W.Q., Yang, G.Y., Qiao, Y.L., & Boffetta, P. (2010). Estimation of Cancer Incidence and Mortality Attributable to Smoking in China. *Cancer Causes Control,* 21, 959-965.

Weiss, J.W., Palmer, P. H., Chih-Ping, C., Mouttapa, M., & Johnson, C. (2008). Association between Psychological Factors and Adolescent Smoking in Seven Cities in China. *International Journal Of Behavioral Medicine*, *15*(2), 149-156

Worden, J.K. (2001). Implementing Program Development in a State or Local Health Department: A Smoking Prevention Media Campaign Example. In S. Sussman (Ed.), *Handbook of Program Development for Health Behavior Research &Practice* (34-47). Thousand Oaks: Sage Publications.

Xie B, Chou C, Spruijt-Metz D, Reynolds K, Clark F, Palmer PH, et al. (2006). Weight Perceptions and Weight-related Socio-cultural and Behav Factors in Chinese Adolescents. *Prev Med,.* 42(3), 229-34.

Yang, G., Fan, L., Tan, J., Qi, G., Zhang, y., Samet, J.M., Taylor, C. E., Becker, K. & Xu, J. (1999). Smoking in China: Findings from the 1996 national prevalence survey. *Journal of American Medical Association*, 282(13), 1247-1253.

Zhang, H., & Cai, B. (2003). The impact of tobacco on lung health in China. *Respirology*, 8(1), 17-21.

Zhang, L., Wang, W., Zhao, Q., & Vartiainen, E. (2000). Psychosocial predictors of smoking among secondary school students in Henan, China. *Health Education Research: Theory &Practice*, 15(4), 415-422.