Acceptability of Female Smoking and Smokeless Tobacco Use in Bangladesh and India

by

Genevieve Christine Sansone

A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Doctor of Philosophy
in
Psychology

Waterloo, Ontario, Canada, 2014

Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Background: Smokeless tobacco has a long history in Bangladesh and India, where it has become normalized as a socially acceptable behaviour, but the same level of social acceptance does not apply to smoking, especially among females. As a result, there is a large gender gap in smoking rates but the gender difference in smokeless tobacco use is much narrower or even in the opposite direction. Explanations for the higher prevalence and social acceptability of female smokeless tobacco use in this region range from cultural factors to tobacco industry practices and tobacco control policies.

Objectives: This study aims to examine acceptability of female smoking and smokeless tobacco use in Bangladesh and India, and to identify factors that might distinguish female tobacco use from male tobacco use and influence behavior such as quitting, including different types of social norms (descriptive and injunctive), beliefs about tobacco, and awareness of tobacco control policies.

Methods: Data are from the International Tobacco Control (ITC) Policy Evaluation Project in India and Bangladesh, longitudinal cohort surveys of tobacco users and non users conducted using face-to-face interviews. This dissertation uses data from Wave 1 of the TCP India Project (2010-2011; N=10,585) and Waves 2-3 of the ITC Bangladesh Project (2010, N=4,379; and 2011-2012, N=4,225). Respondents were categorized as either smokers (of cigarettes and/or bidis), smokeless tobacco users, mixed users (currently smoke and use smokeless tobacco), or non users of tobacco. The primary measures of interest for this study were behaviours relevant to quitting (quit intentions and quit attempts), perceived social acceptability of tobacco use in general and of female tobacco use in particular, awareness of selected tobacco control policies, and sociodemographics.

Results: While rates of female tobacco use were low in each country, females were much more likely to use smokeless tobacco than to smoke, compared to males. In both countries, smokeless tobacco was perceived to be more acceptable than smoking, especially for females. Social acceptability measures were predicted by a few of the measures of awareness of tobacco control policies, including warning labels and smoke-free laws. The majority of respondents were aware that any form of tobacco use is harmful and is not an acceptable

behaviour overall, indicating a negative injunctive norm; however, people who use either smoked or smokeless tobacco were more likely to say that their own product is socially acceptable, a sign of justification effects. This effect was strongest for female smokers – only 75-83% said it is not acceptable for females to smoke, compared to 93-97% of male smokers. The influence of descriptive norms on behaviour was seen from the finding that tobacco users were more likely to have friends and parents who shared the same habit. However, most tobacco users also said close others disapproved of their habit, creating a negative subjective norm that may be stronger for females. Very few tobacco users expressed a desire to quit, and a minority had made a quit attempt by Wave 3 in Bangladesh. Social acceptability predicted quit intentions only for smokers in Bangladesh: smokers who perceived greater society disapproval of smoking were more likely to intend to quit.

Conclusions: Most research on smoking has focused on men and specifically on the harms of cigarettes; less attention has been paid to other tobacco products or the factors explaining their use, specifically for female tobacco users. It is important to study patterns of tobacco use among females in countries such as Bangladesh and India in order to reduce health risks and improve cessation rates for women who currently use smokeless tobacco, while at the same time preventing more women in these countries from taking up smoking. A better understanding of the ways that social norms influence tobacco use behaviour and quitting can have a valuable impact on designing and implementing more effective tobacco control strategies and health interventions in these countries and other LMICS.

Acknowledgements

I would like to thank all of the people who have helped me through the entire process of completing my degree and this dissertation.

First, I would like to thank my supervisor, Geoffrey Fong, for all of the guidance, support, encouragement, ideas, and knowledge that he has shared with me, and the amazing opportunities he has provided me with over the course of my graduate studies. I would also like to thank the other members of my committee, Jim Thrasher and Igor Grossman, for their insightful thoughts and feedback about my research. Thanks also to Rita Cherkewski for always going out of her way to assist me with everything that needed to be done in order for me to get this far.

I would also like to acknowledge the team members of the ITC Project, including the research associates and staff based at the University of Waterloo, and the in-country team members for the Bangladesh and India Surveys. Without their hard work and dedication to the project, I would not have been able to pursue my own interest in this topic.

My family deserves a special thank you for their endless love, comfort, and support throughout my grad school career. Thanks to Andrew as well for always listening, understanding, and being my voice of reason over the past year. I wouldn't have made it through without my sister Natalie, who has been by my side (literally and figuratively) through all of the ups and downs that have led us to this point and has always motivated me to continue.

Lastly, I would like to thank the Canadian Institutes of Health Research and the University of Waterloo for providing me with the funding needed to complete my Doctoral work.

Table of Contents

List of Figures

List of Tables

Chapter 1 — Literature Review

1.1 Gender and the Tobacco Problem

While rates of tobacco use have reached a peak and are now declining in many high-income countries, the tobacco epidemic is still a global problem and the patterns and trends of tobacco use in low- and middle-income countries (LMICs) present a particular cause for concern. In contrast to high-income countries, where rates of female smoking have mostly caught up to those of males, the gender gap in smoking rates is still quite large in many LMICs, with very few adult women smoking compared to men. However, it is expected that the number of female tobacco users will increase significantly over the next few decades in these countries as more women take up the habit and the overall population continues to increase at a rapid pace (Samet & Yoon, 2010). The tobacco industry is well aware of this growing market for their deadly products, and is expected to continue to strengthen their marketing practices aimed at female users; combined with a lack of effective tobacco control policies in many countries, and a lack of intervention strategies and programs designed specifically for women, women in LMICs are becoming at especially high risk for tobacco-related morbidity and mortality. Unless drastic measures are undertaken to prevent this from happening, deaths from tobacco among adult women will increase from 1.5 million in 2004 to 2.5 million by 2030, and the majority of these deaths (almost three-quarters) will take place in LMICs (Samet & Yoon, 2010).

Moreover, in India and Bangladesh, the problem of tobacco use among women is even more complex: not only is there an urgent need to prevent an increased uptake of smoking by women, but also to control the consumption of other more traditional forms of tobacco popular in these countries, including smokeless tobacco. We need to know more about the patterns of tobacco use among women in this region and their reasons for starting and maintaining use of different forms of tobacco. Researchers are calling for a multi-faceted understanding of female tobacco use patterns, including the ways that gender interacts with other aspects of diversity to create conditions that increase their risk of tobacco use and subsequent harm from tobacco (Amos, Greaves, Nichter, & Bloch, 2012).

1.2 Smokeless Tobacco in South Asia

The South Asian region, which includes India and Bangladesh, is a major area for both tobacco production and consumption; India is the world's second-largest producer and consumer of tobacco globally (Reddy & Gupta, 2004). Current annual deaths from tobacco total about 6 million worldwide, with the majority occurring in low- and middle-income countries, and the World Health Organization (WHO) estimates that by 2020, tobacco will be responsible for 1.5 million deaths annually in India alone.

While most of the world's tobacco consumption is in the form of manufactured cigarettes and the majority of research on the harms of tobacco focuses on cigarettes, cigarettes actually comprise a minority of the tobacco problem in countries like India and Bangladesh. The nature of the tobacco problem in the South Asian region is quite complex, with multiple forms of both smoked and smokeless tobacco products widely consumed. The most popular smoked form of tobacco is bidis, which are made by rolling tobacco in a tendu leaf, followed by cigarettes. Smokeless tobacco use is more prevalent overall than smoked tobacco, and 90% of the world's smokeless tobacco users are found in this region (Singh, 2012).

Smokeless tobacco refers to any type of tobacco that is consumed without heating or burning, and can be used nasally or orally (such as chewing, sucking, or applying to the teeth and gums; Reddy & Gupta, 2004). In Western countries, snuff or snus (a moist powdered tobacco) is the most commonly known form of smokeless tobacco, while in South Asia, smokeless tobacco comes in many forms and goes by many different names. The most common form of smokeless tobacco in this region is chewing tobacco or paan masala, which typically comes in the form of a betel leaf filled with a mixture of tobacco, areca nut and spices. Other popular forms of smokeless tobacco include gul (a creamy snuff paste), gutka (chewable tobacco), mishri (powdered tobacco), khaini, tooth powder, and tobacco water. In more recent years, the number and variety of smokeless tobacco products has expanded well beyond the traditional handmade forms such as tobacco rolled in a betel leaf to more large-scale manufactured products that are widely available and come in colourful and attractive packages.

In contrast to cigarette smoking rates, which are now declining in most high-income countries but are still on the rise in developing countries, smokeless tobacco has been ingrained in the culture of South Asia for hundreds of years. Paan chewing has been a part of the culture for over 2000 years (Reddy & Gupta, 2004), and has since become a convenient and widely prevalent method of consuming tobacco.

1.3 Prevalence of Tobacco Use in Bangladesh and India

The current prevalence of any tobacco use according to recent Global Adult Tobacco Survey (GATS) results is estimated to be 34.6% of all adults in India and 43.3% in Bangladesh. Smoking rates are higher among men than among women in both countries (44.7% vs 1.5% in Bangladesh and 24.3% vs 2.9% in India; (International Institute for Population Sciences (IIPS), 2010; World Health Organization, 2009)), however, the gender gap is much narrower in India and actually the opposite direction in Bangladesh when smokeless tobacco use is considered. In Bangladesh, 27.9% of women and 25.4% of men currently use smokeless tobacco, and in India, 32.9% of men and 18.4% of women are current smokeless tobacco users. Dual or mixed tobacco use (current use of both smoked and smokeless products) is less common at around 4-5% of adults in Bangladesh and India.

This gender gap in tobacco use has been documented in other surveys as well. In a sample of over 35,000 Bangladeshi adults surveyed from 2001-2003, men were almost twice as likely as women to use tobacco; however, when the different types of tobacco were considered separately, women were less likely to smoke or be dual tobacco users, but were more likely to chew tobacco, and this gender effect remained after adjusting for other sociodemographic variables (Flora, Mascie-Taylor, & Rahman, 2009).

The prevalence of any tobacco use is also higher among certain sub-populations, namely those with lower education and income, the unemployed, and people in rural areas compared to urban (e.g. Hossain et al., 2014). However, the urban-rural difference may be accounted for mostly by the higher prevalence of chewing tobacco in rural areas compared to urban areas (Flora et al., 2009). Recent studies in Bangladesh have found that smokeless tobacco consumption was associated with being female, being of older age, having a lower

level of education, being of Muslim religion, and being divorced, separated, or widowed (Hossain et al., 2014; Rahman et al., 2012).

Patterns of tobacco use among youth in Bangladesh and India provide a valuable comparison to adult data, as rates of tobacco use among youth may be an indicator of changing patterns in tobacco use in these countries. Thus far, the rise in female smoking seen in other countries has not yet occurred in Bangladesh and India — smoking rates among women, especially cigarette smoking, have remained quite low, as seen in prevalence surveys such as GATS. Data from the Global Youth Tobacco Surveys (GYTS) of boys and girls aged 13-15 in Bangladesh (2007) and India (2009), however, suggest that smoking among women in these countries may be on the rise. While the prevalence rates for youth show similar overall patterns of tobacco use to the adult survey data, where smoking rates are lower than rates of other tobacco product use, and male tobacco use is greater than female tobacco use, the ratio of boy to girl tobacco use for cigarettes vs other tobacco products still presents some cause for concern.

For instance, only 2.9% of boys compared to 1.1% of girls in Bangladesh currently smoked cigarettes in 2007; and in India in 2009, 5.8% of boys and 2.4% of girls smoked cigarettes. While these rates are still very low overall, they show a more narrow gender gap than the adults in these countries – for example, the 2009 India GATS found that 10.3% of adult males and only 0.8% of females currently smoked cigarettes. The Bangladesh GATS did not separate out cigarette-only smoking in their results, but the overall smoking rate of tobacco products showed a gap of over 20% in smoking rates between adult males and females, as described earlier in this section. The rates of cigarette smoking among youth are also different than the prevalence of "other tobacco product" use in the GYTS data, where prevalence among boys is at least double that of girls (8% vs 4.2% in Bangladesh, and 16.2% vs 7.2% in India). Therefore, while the gender gap in tobacco use still exists among youth in Bangladesh and India, the gap is more narrow than that found among adults in these countries, and may be closing more quickly for cigarette smoking than for other tobacco products. These patterns may be evidence that social norms for smoking and for female

4

tobacco use may be changing in Bangladesh and India, and if these patterns persist into adulthood, there would be a great cause for concern about rising female smoking rates.

1.4 Reasons for the High Prevalence of Smokeless Tobacco

Explanations for the higher prevalence of smokeless tobacco use in this region range from cultural factors to tobacco marketing and product affordability as well as the strength of anti-tobacco policies. In general, reasons for the high rates of smokeless tobacco use among both men and women can be attributed to three broad factors: cultural tradition, misconceptions about the harm, and tobacco control policies. What distinguishes male versus female smokeless tobacco use further is differing social norms about smoking compared to smokeless use for males and females.

1.4.1 Culture and Tradition

Cultural influences, which refer to the shared knowledge and mutual expectations within a network of individuals that lead them to behave in similar or characteristic ways (Grossmann, Ellsworth, & Hong, 2012), can be used to understand how the use of smokeless tobacco became so common in countries like Bangladesh and India. The long history of smokeless tobacco use in South Asia has embedded it as a characteristic pattern of behavior within the culture, and thus normalized it as a socially acceptable behaviour. Indeed, the use of paan had become common practice long before tobacco was even introduced into India from Europe; therefore, tobacco easily became incorporated into chewing habits, making it even more addictive (Reddy & Gupta, 2004).

Chewing tobacco is often regarded as a shared social activity to be performed with friends and family rather than as a harmful behaviour, and has been integrated into popular media, social activities such as festivals, and rituals such as marriage (Health Development Agency, 2000). As a result of the association between smokeless tobacco and social ritual, the use of smokeless tobacco continues to be passed on from generation to generation as a family and cultural tradition (Kakde, Bhopal, & Jones, 2012). Indeed, several studies from

5

India have found that the uptake of smokeless tobacco occurs at young ages as children and adolescents pick up the habit from family members (Gupta & Ray, 2003).

The same level of social acceptance and integration does not apply to smoking, however, especially among females. While traditional values permit smokeless tobacco use among both men and women, these values do not apply to smoking by women, which is strongly discouraged by Bangladeshi and Indian society (Gupta & Ray, 2003). Smoking in public by women is more likely to be noticed than smoking by males, and many women still avoid smoking in front of family and elders to avoid negative perceptions (Reddy & Gupta, 2004). In addition to being more acceptable than smoking, smokeless tobacco is also naturally less conspicuous and thus easier for women to conceal – both due to its lack of odour and visible smoke, as well as the availability of tins to carry it in.

The difference in how male versus female smokers in these countries are perceived has also been shown in qualitative research studies such as focus group discussions. For example, Bangladeshi men associate smoking with their male identity, seeing it as a manly and normal social activity. Bangladeshi women, on the other hand, associate smoking with concepts such as shame, stigma, and taboo and describe smoking with words like "bad" and "disrespectful" (Bush, White, Kai, Rankin, & Bhopal, 2003).

1.4.2 Misconceptions of Harm

While it has been well-established that smokeless tobacco products are associated with a number of health risks, these harms are not well-known among the South Asian population. In India, chewing betel quid and tobacco has been associated with a substantial risk of oral and esophageal cancers, hypertension, and heart disease and an increased risk of mortality compared to non-tobacco users (Gupta & Ray, 2003; World Health Organization, 2011). The IARC has concluded there is sufficient evidence that chewing tobacco is carcinogenic (International Agency for Research on Cancer (IARC), 1985). According to the WHO, tobacco-related cancers account for about one-third of all cancers, and over half of all oral cancers in Bangladesh and India (World Health Organization, 1997). In fact, the South-East Asia region has the highest burden of oral cancer in the world, with over 95,000 cases every year (World Health Organization, 2008).

Female tobacco users face the same health risks as men, or even greater risk for certain diseases including COPD and CHD (Samet & Yoon, 2010). There are additional health risks for women who use smokeless tobacco and any infants born to them, including cervical cancer and risks associated with pregnancy and reproductive health. For instance, evidence from India has shown a higher risk of stillbirths and low birth weight for women who use smokeless tobacco during pregnancy (Krishna, 1978). Finally, there may also be additional health risks for poly-tobacco users, that is, those who use both smoked and smokeless forms of tobacco concurrently. South Asia has the highest prevalence of poly-tobacco use, which can not only hinder tobacco control efforts in this region such as cessation interventions, but it can also increase the risk of tobacco-related health effects (Agaku et al, 2014). A case-control study across 52 countries found a higher risk of acute coronary events in tobacco users who both smoke and use smokeless tobacco, compared to either smokers or smokeless users only (Teo et al., 2006). Another study of tobacco users in Sweden found evidence suggesting that dual users of snus and cigarettes showed more signs of nicotine dependence and greater withdrawal symptoms than single product users (Post, Gilljam, Rosendahl, Bremberg, & Galanti, 2010).

Despite the high prevalence of smokeless tobacco use and the evidence that it is harmful, many people are still not aware of its dangers. Because chewing tobacco has such a long history in the South Asian culture, many people in this region do not associate it with any health risks, assuming that if their ancestors have used smokeless tobacco safely for so many years, it must not be harmful (Health Development Agency, 2000). In addition, governments and health authorities in South Asian countries such as Bangladesh have only recently begun to engage in efforts to educate the population about the harms of tobacco use, and among these efforts, most have focused on the dangers of smoking. There have been relatively few such educational programs directed at the harms of smokeless tobacco.

Consequently, there remains a high prevalence of the misconception that smokeless tobacco products such as paan masala and gutka are relatively safe to use (Dwivedi, Aggarwal, & Dev, 2012), and that they may even provide certain health benefits such as

improving oral hygiene, freshening breath, helping digestion, and relieving tooth pain, headaches and abdominal pain. (Messina et al., 2013; Singh, 2012).

While knowledge of the harms of smoking is fairly high among the South Asian population, various studies have found low levels of knowledge of the specific health risks of chewing tobacco. For example, while the majority of respondents in a small sample of non-smoking adults in Bangladesh believed that smokeless tobacco is harmful to health, both smokeless users and non users had low levels of awareness of the health risks of smokeless tobacco – only 40% believed it causes heart disease, 39% believed it causes cancer, 20% said it causes tuberculosis and only 10% said it causes hypertension (Rahman et al., 2012). While there is a dearth of research conducted with samples from Bangladesh, there have been a number of studies conducted with Bangladeshi adults living in the UK also showing a lack of awareness that smokeless tobacco is harmful to one's health, as well as lower knowledge among women compared to men. For example, 62% of Bangladeshi women in a 1994 study believed that chewing tobacco was good for their health (Summers, Williams, & Curzon, 1994), and 43% of Bangladeshi adults in a 1999 study did not know that chewing tobacco had negative health consequences (49% of females and 38% of males; (Pearson, Croucher, Marcenes, & O'Farrell, 1999)). A more recent study of a small sample of Bangladeshi women in the UK still found that 11% believed chewing tobacco was good for their health (Croucher et al., 2002). Another UK study that asked about the specific health effects of tobacco found a relatively high level of awareness of the harms of smoking (over 80% of men and women agreed that smoking causes lung cancer and heart disease), but poor levels of knowledge of the harms of smokeless tobacco, with less than one third of respondents (24% of men and 36% of women) agreeing that chewing betel quid is a risk for oral cancer (Ahmed, Rahman, & Hull, 1997).

Evidence from the Global Adult Tobacco Surveys (GATS) in India and Bangladesh — larger, nationally representative surveys — shows that while the vast majority of the population in these two countries is generally aware that both smoked and smokeless tobacco products are harmful, their knowledge of the specific health effects of tobacco use is not as high. In India, 90.2% of adult respondents to the GATS India Survey believed that smoking

causes serious illness and 88.8% believed that smokeless tobacco causes serious illness (International Institute for Population Sciences (IIPS), 2010). Knowledge of the specific harms of smoking was highest for lung cancer (85%) but much lower for other health effects such as heart disease (64%) and stroke (49%). In Bangladesh, overall knowledge was even higher – 97.4% believed that smoking causes serious illness and 92.7% believed that smokeless tobacco causes serious illness (World Health Organization, 2009). Knowledge of the specific health effects of smoking varied from 91.5% for lung cancer to 81.6% for stroke. Levels of knowledge were lower for the specific health effects caused by smokeless tobacco: 83% for mouth cancer, 75.7% for heart attack, and 73.5% for stroke.

These recent survey results show that overall awareness of the harms of tobacco is fairly high, but there is still room for improvement, particularly in terms of the range of specific health effects, and the harms of smokeless tobacco. This lack of full awareness of the harmful effects of smokeless tobacco in Bangladesh and India is a major barrier to improving cessation rates. Previous research done in India has demonstrated that smokeless tobacco users with higher knowledge of the health effects are more likely to intend to quit, so it is important to improve levels of awareness for all health effects associated with smokeless tobacco use (Raute et al., 2011).

1.4.3 Tobacco Legislation

In addition to cultural factors and low awareness about the health risks that promote smokeless tobacco use in the South Asian region, marketing techniques by the tobacco industry and a lack of strongly enforced legislation covering smokeless tobacco products are other factors contributing to the high prevalence of smokeless tobacco use among both men and women. A recent review of existing tobacco control policies in the South Asian region by a panel of experts found that any policies relevant to smokeless tobacco are either inadequate or poorly implemented and enforced (Khan et al., 2014).

1.4.3.1 Advertising and Promotion

The tobacco industry is profiting from misconceptions of smokeless tobacco as a beneficial habit by making a variety of smokeless tobacco products widely available in the

region and using indirect means to advertise their products. According to Schensul et al. (2013), there are now hundreds of varieties of smokeless tobacco products on the market, and people living in densely populated urban areas in cities such as Mumbai can often easily find a tobacco outlet within 100 feet of their homes.

The current tobacco control law in India (COTPA 2003) prohibits any form of direct or indirect advertising and promotion of all tobacco products except at point of sale; however, violations of the ban are still common, especially indirect or surrogate advertisements for smokeless tobacco products. For example, some smokeless tobacco companies manufacture similar products without tobacco under the same brand name, allowing them to promote their brand of smokeless tobacco through clever marketing techniques, even though this type of brand sharing is prohibited by the COTPA (ITC Project, 2013). Some companies also package and market their products as dental care products, thus taking advantage of the belief that smokeless tobacco can improve one's oral health (Sinha, Gupta, Ray, & Singh, 2012).

In Bangladesh, advertising and promotion of cigarettes is banned under the national Tobacco Control Act (2005), but this law does not apply to smokeless tobacco. Evidence from recent national surveys in Bangladesh suggests that the existing legislation has had some effect on limiting the public's exposure to tobacco advertisements on television, radio, and other mass media forms. However, advertising is still present in other public places such as restaurants (where over one-third of smokers surveyed noticed cigarette advertising) and shop windows (in which almost half of smokers noticed advertising; ITC Project, 2010a). In addition, 48.7% of adults in the GATS survey noticed some form of cigarette advertising, sponsorship or promotion in the last 30 days, and 70.5% noticed smokeless tobacco advertising (World Health Organization, 2009).

On the other hand, anti-tobacco campaigns can be an important source of information about the harms of tobacco as a means of combating tobacco advertising, and they can also influence attitudes and perceived norms about tobacco by conveying information about social acceptability. There have been several recent anti-tobacco media campaigns in South Asia — mostly in India where there is more space in the budget for this — including some designed

10

to improve awareness of the harms of smokeless tobacco in particular, but there are still strong barriers against achieving this goal, including high levels of social acceptance and interference from the tobacco industry (Khan et al., 2014).

1.4.3.2 Price and Taxation

Not only is smokeless tobacco an extremely cheap product in most of South Asia, but taxes on smokeless tobacco products also tend to be very low or even absent compared to the level recommended by the WHO, making these products extremely affordable for the majority of the population. For instance, according to Hossein et al. (2014), the most popular forms of smokeless tobacco among rural women in Bangladesh are locally grown products that cost less than one percent of the average weekly wage in those areas for a packet (which would last a week).

The tax structure in India is highly complex and multi-tiered, with low specific taxes on smoked tobacco products, especially for bidis. In addition, most smokeless tobacco products are subject to an ad valorem system, making taxes on these products easy to evade (John et al., 2010). Research has shown that tobacco products have become more affordable for Indians over the last decade, and that price is one of the least important reasons leading tobacco users to think about quitting (ITC Project, 2013; John et al., 2010). For instance, while taxes on cigarettes almost doubled in India from the period of 2006-2009, there was no change in taxation on smokeless tobacco products over this same period (John et al, 2010).

A similar tax environment currently exists in Bangladesh, where cigarettes have become 2.5 times more affordable since 1990, and tax differentials between tobacco products allow tobacco users to substitute more expensive cigarettes with cheaper products such as bidis and smokeless tobacco (ITC Project, 2010c). Evidence from the ITC Bangladesh Survey clearly shows a need for raising tobacco taxes, and analyses on the impact of tax increases have predicted that significant increases in tobacco taxes would lead to major reductions in consumption and prevalence, while reducing health inequality and raising revenue for the government at the same time (Nargis et al., 2011, 2014).

Low taxation combined with tax evasion problems, lack of inflation, and weak government administration are only part of the issue – cross-border smuggling of products

between countries in South Asia and the sale of smokeless tobacco in informal markets (i.e. loose, unpackaged forms) further intensify the problem (Khan et al., 2014).

1.4.3.3 Smoke-Free Laws

In Bangladesh, there is a complete smoking ban in some public places but only a partial ban in other public places; therefore, the law does not meet Article 8 Guidelines of the Framework Convention on Tobacco Control (FCTC) for establishing comprehensive smoke-free environments and has not been effective in protecting the public from exposure to tobacco smoke. Findings from the ITC Bangladesh Survey have shown that smoking in public places decreased slightly from 2009 to 2010, but smoking is still highly prevalent in certain public places including restaurants and workplaces, despite being banned by the national Tobacco Control Act (ITC Project, 2011).

Similarly, India implemented a national smoke-free law in 2008 which prohibits smoking in all public places but does not fully meet Article 8 Guidelines because it allows for smoking in certain designated areas, such as larger hotels and restaurants. ITC Survey findings from 2010-2011 indicate that compliance with this law is weak overall as smoking is still observed in many public places, particularly bars, although there is considerable variance across states. Awareness of this law was also low overall among survey respondents, with the lowest levels of awareness in Madhya Pradesh (18-32%) and the highest (46-58%) in Bihar. In each state, awareness was lowest among the smokeless tobacco-only users compared to smokers and non users (ITC Project, 2013).

In addition, the current smoke-free legislation in either country does not extend to smokeless tobacco products, meaning that smokeless tobacco use is not banned in public places although the state of Maharashtra in India is planning on implementing a ban on smokeless tobacco use in the same places as the smoking ban in the coming months.

1.4.3.4 Warning Labels

Finally, health warnings on smokeless tobacco products are either extremely weak or non-existent in Bangladesh and India. The Article 11 Guidelines of the FCTC obligate parties to implement graphic health warnings that cover at least 50% of the principal display areas of

the package, and research has consistently shown that warning labels are an effective tool for informing smokers and non-smokers about the health risks of tobacco use. Furthermore, large pictorial warnings are more effective than text warnings in improving knowledge about the harms of smoking and increasing behaviours that predict quit attempts (ITC Project, 2009). For instance, a study comparing knowledge in four high-income countries found that smokers in countries with stronger graphic warning labels reported higher knowledge of the health effects of smoking, and greater health knowledge was positively associated with plans to quit (Hammond, Fong, McNeill, Borland, & Cummings, 2006).

Evidence from the ITC Project suggests that warning labels may be even more effective in low- and middle-income countries (LMICs) because there are fewer other sources of information about the harms of tobacco in these countries (ITC Project, 2009). Moreover, in countries such as Bangladesh and India where multiple languages are used across the country and illiteracy rates tend to be higher, it is even more important to have warning labels with pictorial components (Sankaran, Hiilamo, & Glantz, 2014). Therefore, warning labels on tobacco packages are a cost-effective and potentially powerful means of educating the public in India and Bangladesh about the health risks of smoking and smokeless tobacco use and motivating tobacco users to quit.

Unfortunately, Bangladesh and India have not taken advantage of the potential of pictorial health warnings. In Bangladesh, text warnings are required on smoked tobacco packages under the TCA, but the existing law does not require any health warnings on smokeless tobacco products because they do not meet the current definition of tobacco products (which only covers those that are inhaled through smoking (Campaign for Tobacco-Free Kids, 2013)). However, a new amendment to the law was passed by the parliament in May 2013 extending the scope of tobacco legislation to cover smokeless tobacco products, and requiring graphic warning labels on all tobacco packages, among other amendments (although to date, these regulations have not yet been implemented due to delays and interference from the tobacco industry).

India, on the other hand, has had pictorial warnings on both smoked and smokeless tobacco products since 2009; however, several studies have shown these warnings to be

13

poorly understood by the Indian population and ineffective in encouraging tobacco users to quit (ITC Project, 2013). Since these studies were conducted, however, India has enacted new laws and policy changes, including a requirement to switch from plastic to paper sachets for smokeless tobacco packaging. Because the sachets must also bear the name of the tobacco company, this regulation should reduce the amount of unbranded smokeless products on the market (Agaku, Ayo-Yusuf, Vardavas, & Connolly, 2013). In addition, in 2011, tobacco and nicotine were banned from all food products, and over 21 states and territories have gone a step further to completely ban the manufacture and sale of gutka (ITC Project, 2013). Finally, a new round of graphic warning labels have been in place as of April 2013 with graphic images of mouth cancer on smokeless tobacco packages. These new tobacco control measures have yet to be thoroughly evaluated, so it remains to be seen how much they will actually reduce rates of smokeless tobacco use in India.

The lack of comprehensive legislation on warning labels means that tobacco users in Bangladesh and India are not exposed to important information on the health risks of tobacco products through warning labels, particularly for smokeless tobacco users. As a result, the tobacco users in these countries are less informed about the harms compared to tobacco users in countries with stronger warning labels in place, which has been demonstrated by ITC Project surveys. Similar to the GATS knowledge results discussed earlier, findings from Wave 1 of the TCP India Survey showed that 78-87% of smokeless tobacco users across four states believed that smokeless tobacco use causes mouth cancer, but awareness was lower for other health effects such as heart disease (ITC Project, 2013). Less than one-quarter of smokeless tobacco users said that warning labels on their respective products made them a lot more likely to think about the health risks or to stop using smokeless tobacco.

1.4.4 Summary

In summary, a number of factors likely interact to promote the widespread use of smokeless tobacco among women compared to smoking in Bangladesh and India. Not only is smokeless tobacco use more socially acceptable and ingrained in the culture, but it is widely accessible and easily affordable for the majority of the population, meaning that price is not as much of a barrier for smokeless tobacco as it can be for cigarettes in other countries. In

addition, the tobacco industry aggressively markets their products, sometimes through surrogate or indirect methods, all of which are illegal. A lack of comprehensive and strongly enforced tobacco control policies combined with a lack of resources and political will to improve these policies in these countries also means that the public continues to be exposed to advertising and images of smokeless tobacco use while not being well informed about the health risks.

1.5 Role of Social Norms

Thus far, cultural tradition, lack of knowledge about the harms, and tobacco policies are some of the factors used to explain the patterns of smokeless tobacco use in India and Bangladesh; this section will focus more on the influence of social norms. As originally described by Cialdini, there are two main types of norms that can influence behaviour: those that tell us what is done by other people, and those that tell is what ought to be done (Cialdini, Reno, & Kallgren, 1990). This distinction has been well developed in social psychological literature and is generally described by the distinct terms of descriptive and injunctive norms.

Descriptive norms describe people's perceptions about the prevalence of a behaviour and provide information about the environment that one can use in deciding how to behave themselves. In general, the more prevalent we think a behaviour is, the more likely we are to perceive it as normative and socially acceptable. For example, students tend to misperceive norms about college drinking by overestimating the prevalence of drinking among their peers, thus believing it is more socially acceptable than it actually is (Perkins, Meilman, Leichliter, Cashin, & Presley, 1999). A study on smoking visibility in the context of descriptive norms found that smokers reported witnessing others smoking more than non-smokers did, and smokers were also more likely to perceive smoking as socially acceptable, thereby demonstrating a link between higher visibility of smoking and greater perceived social acceptability (Alesci, Forster, & Blaine, 2003). Accordingly, if the goal of smoking bans is to reduce the visibility of smoking, then comprehensive smoke-free laws should be an effective way of denormalizing smoking.

15

Descriptive norms are only one type of social norm that can guide behaviour; injunctive norms can also impact behaviour. Injunctive norms refer to individuals' beliefs about how others expect them to behave; in other words, injunctive norms do not tell us what most other people do (descriptive), they tell us which behaviours are socially acceptable, thereby imposing behavioural guidelines based on whether we think others will approve of our actions or not. Injunctive norms can be further subdivided into societal injunctive norms, that is, the perceived opinion of society in general, and subjective norms, which refer to the perceived opinion of close others, that is, people who are important to us such as friends and family.

Subjective norms, or the theory that beliefs about others' approval of our actions can influence our behaviour is also an important component of Azjen's theory of planned behaviour, which has been used to explain smoking behaviour. The theory of planned behaviour states that our behaviour can be predicted from intentions, which in turn are influenced by three things: attitude, subjective norms, and perceived behavioural control (Ajzen, 1991). There has been some controversy over which type of norm is the best predictor of intentions. Meta-analyses of this model's ability to predict intentions have found that subjective norms tends to be the weakest link in the model, that is, it makes the least contribution to explained variance in intentions (Forward, 2009). Researchers have since suggested that descriptive norms may be a more appropriate measure of norms to include in the model, and various studies have tested the predictive ability of descriptive norms in behavioural intentions. In a meta-analysis based on 14 studies, descriptive norms was generally successful as a predictor and increased the variance explained in intentions by 5% beyond the variables already in the model (Rivis & Sheeran, 2003). However, it has been found to be a more successful predictor in models predicting risky behaviour such as smoking and drinking as opposed to health-promoting behaviours (Forward, 2009; Rivis & Sheeran, 2003). For example, in a model predicting exercise intention among Korean Americans, descriptive norms did not significantly improve the TPB (H. Lee, 2011). On the other hand, in a model predicting intention to commit driving violations (speeding and dangerous overtaking), descriptive norms did contribute a significant unique effect to the

variance after controlling for the variables already included in the TPB, thus supporting the idea that descriptive norms and subjective norms are distinct variables (Forward, 2009).

In a regression analysis comparing the impact of different types of social norms on intentions to quit smoking among a sample of 2,895 smokers, survey measures of both injunctive norms (perceived acceptability of smoking in various places) and subjective norms (extent to which people important to them would approve of their quitting smoking) were better predictors than descriptive norms (the number of people in their personal environment, such as friends, colleagues, and relatives, who smoked (van den Putte, Yzer, & Brunsting, 2005)). Therefore, smokers appear to be more motivated to quit by whether they think close others or society disapprove of their smoking than by what they perceive most other people do. Past quit attempts also increased the likelihood of having an intention to quit smoking in this study, and the effect of social norms on quit intentions were also stronger for those who had previously tried to quit, showing the importance of other cessation-related factors besides social norms.

Descriptive and subjective norms may both be used to explain female tobacco use in Bangladesh and India. Because smokeless tobacco use is more prevalent than cigarette smoking in these countries, descriptive norms might tell people that smokeless tobacco use is more socially acceptable than smoking. This would be even more exaggerated for women, whose smoking prevalence is extremely low in comparison to both male smoking prevalence and female smokeless tobacco prevalence. Previous research would also suggest that tobacco users should be more likely than non users of tobacco to notice tobacco use by others and thus tobacco users should be more likely to view their own behaviour as normative (e.g. Alesci et al., 2003).

Descriptive norms may be compatible with injunctive norms, or they may be opposing; that is, it is possible for individuals to perceive tobacco use as normative but at the same time believe that others would disapprove of their own tobacco use. This was supported by the study by van den Putte et al. (2005), in which the majority of smokers believed it was acceptable to smoke in public, but also that other people would approve of their quitting smoking. Since the prevailing view of female smoking in Bangladesh and India is a negative

one, most female smokers should perceive that others would disapprove of their smoking and may be influenced to comply with the expectation that they should not smoke. On the other hand, smokeless tobacco use is generally accepted by society, even among women, so female smokeless users should be less likely to perceive any disapproval or prohibition against using smokeless tobacco. Therefore, for female non users and female smokeless users, it may be more likely that the descriptive and subjective norms for their behaviour are consistent. Female smokers, on the other hand, may be more likely to face an inconsistency in their own behaviour and their beliefs about the acceptability of that behaviour. In this case, they may face cognitive dissonance.

Cognitive dissonance theory states that an inconsistency between your beliefs and your behaviour results in a feeling of discomfort that you are motivated to reduce by either changing your beliefs or changing your behaviour (Festinger, 1962). Under this theoretical framework, if a female smoker in Bangladesh or India is aware that it is not acceptable for women to smoke in their society, yet they are confronted with the fact that they do smoke, they would experience dissonance that they could reduce either by stopping smoking or by changing their beliefs about the acceptability of their own behaviour by convincing themselves that either society or close others would approve of their smoking. A female smokeless tobacco user would face less dissonance because their behaviour is more likely to match their beliefs about its acceptability.

It is widely accepted that quitting smoking is very difficult and quit rates are extremely low (Hyland et al., 2004, 2006); therefore a change in beliefs would be more likely to occur in the case of female smokers than quitting. A study of smokers in four high-income countries supports this prediction. Current smokers who were confronted with the knowledge that their behaviour is harmful were more likely to rationalize their behaviour through risk-minimizing or functional beliefs compared to smokers who made a quit attempt, demonstrating a pattern of belief change consistent with the theory of dissonance reduction (Fotuhi et al., 2013). If a similar process occurs for beliefs about social acceptability as beliefs about harm, then we would expect to see justification patterns for female smokers in Bangladesh and India as well.

While justification effects may be more likely among female smokers, they may also occur among female smokeless tobacco users. For example, Banerjee et al. (2014) found evidence of disengagement beliefs among South Asian smokeless tobacco users in New York. Even though participants were aware of the health risks of smokeless tobacco, their tobacco use was perpetuated by these disengagement beliefs, including perceived invulnerability to harm, skepticism about the link between smokeless tobacco and cancer, and faith based rationalizations (i.e. saying that any tobacco related health effects are a result of God's will).

In summary, beliefs about acceptability of female tobacco use may be a function of one's own behaviour in combination with prevailing social norms about that behaviour. However, there are also limits on an individual's ability to change their beliefs about tobacco, which are known as reality constraints. According to Kunda, "There is considerable evidence that people are more likely to arrive at conclusions that they want to arrive at, but their ability to do so is constrained by their ability to construct seemingly reasonable justifications for these conclusions" (Kunda, 1990). When this theory is applied to female smokers, we might expect that within the reality of a strongly negative prevailing social norm against female smoking, they may be restricted in their ability to justify their behaviour. For example, in a large sample of female smokers, the majority may still hold negative overall opinions of smoking and view smoking by females as socially unacceptable, but we would expect to see a higher proportion believing it is acceptable when compared to non-female smokers.

1.6 Social Norms and Tobacco Policies

According to Mead et al., the sources of norm formation are not well known or understood (Mead, Rimal, Ferrence, & Cohen, 2014). These authors propose the concept of social exposure to explain the development of social norms. Social exposure refers to the total combination of ways that people come into contact with a particular behaviour or product in their environment, all of which serve as cues that can convey descriptive and injunctive norms, and thus influence one's attitudes and behaviours. With the respect to tobacco, this would refer to all instances of exposure to tobacco products and their use,

including marketing campaigns, the availability of products in stores, observations of actual smoking behaviour in social venues or in the media, or even exposure to quitting behaviour. The more people are exposed to these cues, the more their perceptions of norms about tobacco use will be shaped accordingly.

It is important to understand how norms about female tobacco use in India and Bangladesh have developed and how they are maintained or modified over time. As described in this section, tobacco control efforts such as anti-tobacco campaigns and the extent of smoking bans can be factors influencing the formation and maintenance of norms against tobacco use, so the strength of tobacco control policies and levels of awareness of these policies among the public may help us understand the role of social norms in these countries.

The history and strength of tobacco control policies within a country or region is an important factor in explaining social norms and beliefs about female tobacco use because the strength of these policies can in turn influence the perceived social acceptability of tobacco use within that country.

Tobacco control policies that directly or indirectly influence perceived social norms about tobacco use have the potential to greatly influence actual smoking behaviour and consumption. In fact, researchers have suggested that social unacceptability is just as important as tobacco taxation in reducing cigarette consumption (Alamar & Glantz, 2006). One way to change norms is through bans against smoking in public places such as restaurants, which should affect descriptive norms by reducing the amount of smoking in public, and injunctive norms by indicating (i.e. through signage) that smoking is not approved of in these places. There is some research showing associations between both of these types of norms – descriptive and injunctive – and smoking behaviour, but little research showing a link between actual tobacco control policies and these perceived norms (Hamilton, Biener, & Brennan, 2008).

One recent ITC study of smokers in three European countries (France, Netherlands and Germany) has examined the association between awareness of tobacco control policies and social acceptability of smoking, as well as the effect of social acceptability on

subsequent quitting behaviour (Rennen et al., 2014). Multivariate logistic regression models revealed that awareness of anti-tobacco information was positively associated with feeling uncomfortable about smoking in all three countries (one of the measures of social acceptability). Two of the other social acceptability measures predicted quit attempts at the follow-up survey (but not in every country), where smokers who perceived stronger disapproval by close others or by society were more likely to attempt to quit. These findings emphasize the importance of perceived disapproval of smoking in influencing smokers to quit, as well as the role of anti-tobacco campaigns on reducing social acceptability of smoking.

Research on the link between tobacco control policies and smoking behaviour has also focused on rationalizations among smokers, that is, adopting beliefs that minimize the harms of smoking in order to reduce the psychological discomfort that comes from engaging in a behaviour that smokers know is harmful. This research suggests that differences in social norms about smoking across countries may be due to differences in the strength of tobacco control policies (W. B. Lee et al., 2009). For instance, in countries with strong tobacco control policies, smokers are more likely to perceive negative social norms against smoking, and as a result, it would be harder for them to rationalize their behaviour compared to smokers in countries with less stringent policies and enforcement of those policies. This was supported by a study comparing smokers in Thailand, a country with a long history of strong tobacco control, with smokers in Malaysia at a time when the tobacco control environment was weak. Thai smokers were less likely to rationalize their behaviour than Malaysian smokers, and they were also more likely to intend to quit. The relation between country and quit intentions was partially explained by the stronger perceived negative social norms towards smoking in Thailand (W. B. Lee et al., 2009).

Another ITC Project study comparing the social acceptability of smoking in Uruguay and Mexico looked at the impact of a specific policy: smoke-free laws, which are designed to reduce smoking prevalence by making smoking in public places less socially acceptable. Using three items to measure perceived social norms against smoking, the study found stronger norms against smoking in Uruguay, where a comprehensive smoke-free policy has

been in place since 2006, than in Mexico, where the law on smoking in public places was much more limited (Thrasher, Boado, Sebrié, & Bianco, 2009). A later study evaluating the implementation of a comprehensive smoke-free policy in Mexico City found a significant change in perceived social acceptability of smoking after the policy was implemented – the number of respondents who agreed that society disapproves of smoking increased by 32% from the previous survey wave after the law was implemented (Thrasher, Pérez-Hernández, Swayampakala, Arillo-Santillán, & Bottai, 2010).

Another study in Massachusetts that measured perceived norms after local regulations banning smoking in restaurants and other venues were implemented found similar results – after controlling for pre-regulation views on tobacco, perceived norms against smoking were significantly stronger in towns that had implemented stronger tobacco regulations compared to those in towns with weaker policies (Hamilton et al., 2008). This relationship was stronger in adults than in youths, suggesting that tobacco policies may be more effective in influencing perceived social acceptability among adults. Perceived smoking norms were also more negative among non-smokers, older people, women, and those with higher education.

Bangladesh and India have both had national tobacco control legislation in place for more than five years; however, many of the current laws do not meet FCTC standards, and combined with a lack of effective enforcement, these countries remain behind others in terms of the strength of their tobacco control policies.

Moreover, evidence from high income countries has shown that tobacco control policies are more effective when they are inclusive of smokeless tobacco products (Agaku et al., 2013), which is not the case in Bangladesh. Therefore, not only can we compare the strength of tobacco control policies between Bangladesh or India and other countries, but we can also compare policies between types of tobacco products within each country. In other words, because the legislation differs within the country for smoked tobacco and smokeless tobacco products, the impact of policies on tobacco use and beliefs about tobacco may also differ.

Chapter 2 – Research Gaps, Research Questions, and Predictions

2.1 Research Gaps

Most research on smoking has historically focused on men and specifically on the harms of cigarettes. Less attention has been paid to the health effects of other tobacco products or the factors explaining their use, specifically for female tobacco users. As other researchers have noted (e.g. Samet & Yoon, 2010), there are major gaps in the literature on gender and tobacco use, especially in low- and middle-income countries. Even in the existing data and research, there is often some degree of gender bias, meaning there is a lack of concrete evidence documenting the patterns of tobacco use among women and girls worldwide (Samet & Yoon, 2010). Not only is there some bias on the part of researchers, but there may also be underreporting of tobacco use by women in these countries due to the strong cultural disapproval of this behaviour (Flora et al., 2009; Ghouri, Atcha, & Sheikh, 2006). Therefore, much improvement is needed in the ways that current research on tobacco use and national surveys of tobacco use are carried out, including taking a more gender-sensitive approach.

Existing research on the social acceptability of tobacco use among women in South Asia has acknowledged the differences in social norms for male versus female tobacco use; however, it is not clear how these norms operate or whether they impact behavior such as tobacco use and quitting differently depending on one's sex and tobacco use status. Moreover, while there is some research demonstrating an association between social norms and smoking, more evidence is needed to examine the role of country-level tobacco control policies that might also influence levels of perceived social acceptability, which is important from a public health perspective.

2.2 Research Questions

The proposed research is designed to address these gaps in the literature by examining the following research questions:

We already know that there is a profound difference in tobacco use between males and females in certain countries in South Asia, such as Bangladesh and India. What I am interested in knowing more about is why this variability exists, and why or how might it be maintained. In other words, if you are a woman in one of these countries, what type of tobacco would you be most likely to use, if at all, and what factors might maintain your status as a smoker, smokeless tobacco user, or non user of tobacco over time?

Moreover, if social norms and gender are both important factors in explaining patterns of tobacco use in these countries, how do they influence behaviour? What role does one's own perceptions of social norms about tobacco play, and how do these beliefs interact with broader environmental factors such as tradition, cultural patterns and values, and national level policies?

More importantly, how might variance in perceptions of social norms influence tobacco use behaviour? Does perceived social acceptability predict quit intentions? Do different types of norms, such as descriptive versus injunctive norms, have different impacts on behaviour? How do these relationships change when men are considered separately from women, and when different types of tobacco users are compared?

To summarize, there are two main questions this research will address, leading to several hypotheses: First, we want to understand differences or patterns in prevalence rates of tobacco use between products and between sexes in Bangladesh and India. To answer this question, we will explore factors that might distinguish current tobacco use status for women, that is, whether a woman in these countries will be a smoker, a smokeless tobacco use, or a non user. Second, we want to explain why these patterns may be maintained over time or not. To answer this question, we need to identify and examine factors that might predict perceptions of social norms about tobacco use, and whether the measures of social norms influence behaviour such as quitting.

In other words, we will develop a model that predicts tobacco use behaviour based on these factors, similar to what Rennen et al. (2014) did with European smokers. First, we want to test whether country-level factors such as strength of tobacco control laws, as measured by awareness of these laws, predicts measures of social acceptability or social norms relevant to

tobacco use. Next, we will test whether those measures of social norms then predict tobacco use behaviour, with quit-related measures as the outcome variables. The same model can be used to compare predictors for type of tobacco user, as well as for men versus women. For example, we can test whether social norms are a stronger predictor of quitting for female tobacco users compared to males, and for smokers compared to smokeless users.

2.3 Predictions

2.3.1 Prevalence

In line with available global survey data, we expect to find a higher prevalence of smokeless tobacco use than smoked tobacco overall in our samples from both India and Bangladesh, and a higher or equal prevalence of smokeless use among women than men. We also expect to see a significant gender gap in smoked tobacco use, with very low prevalence among women compared to men.

2.3.2 Norms, Dissonance & Social Acceptability

In line with the reality constraints described earlier, we expect that all respondents, regardless of sex and whether or not they use tobacco, would say that society disapproves of any type of tobacco use overall. However, because of the long history of smokeless tobacco use in these countries, we expect to find greater perceived disapproval of smoking than smokeless use, as shown in previous studies and as would be expected from research on descriptive norms. Similarly, there should be higher levels of acceptability when asked specifically about female smokeless tobacco use than female smoking.

Because social norms are stronger against female tobacco use than male tobacco use, we may find greater differences across categories of respondents on measures specific to acceptability of female tobacco use than more general social acceptability measures. For example, there may be a greater difference in perceived acceptability between men and women on female-specific measures.

We also expect to find differences in perceived social acceptability across sex and user categories: first, if female smokers need to justify their behaviour, then they should

perceive greater acceptability of female smoking compared to any other group (i.e. female smokeless users, male users, and non users). Similarly, female smokeless users should perceive greater acceptability of female smokeless tobacco use than any other group. However, there may be a larger difference (i.e. a stronger effect) between men and women within the smoker category compared to smokeless users because female smoking is much less acceptable overall, so greater justification may be needed. Finally, non users of any tobacco should be the least likely of any other user category to say that smoking or smokeless use is acceptable.

2.3.3 Intentions to Quit

We expect that female tobacco users who agree that it is acceptable for females to smoke/use smokeless tobacco should be less likely to intend to quit their respective product, and vice versa. Based on research on cognitive dissonance, those female smokers who said it is acceptable for females to smoke have attempted to change their beliefs to match their behaviour as a way of reducing dissonance, but those who still say it is not acceptable may be more likely to reduce their dissonance by changing their behaviour instead (i.e. by attempting to quit). Again, because dissonance should be stronger for female smokers than smokeless users, this effect may also be stronger among smokers.

2.3.4 Quit Behaviour

Similar to quit intentions, female smokeless tobacco users who agree that it is acceptable for females to use smokeless tobacco should be less likely to have actually quit when followed up at a later survey date. In addition, both male and female tobacco users who perceive greater society disapproval of their respective products should be more likely to have quit that product in the future.

Chapter 3 — Methods

3.1 Dataset – the ITC Project

I will use data from the International Tobacco Control (ITC) Policy Evaluation Project to examine the research questions above and to test my predictions. The ITC Project, launched in 2002, is the first international research platform to measure and understand the psychosocial and behavioural impact of tobacco control policies at the population level. The ITC Project is currently conducting longitudinal cohort surveys of tobacco users and non users across 22 countries covering over 50% of the world's population and over 70% of the world's tobacco users. Its purpose is to systematically evaluate the impact of tobacco control policies in each of several domains, including health warnings, price and taxation of tobacco products, smoke-free laws, and tobacco advertising and promotion bans. Each ITC Survey includes measures that are identical or functionally similar across all countries to facilitate cross-country comparisons (see Fong et al., 2006; and Thompson et al., 2006 for a detailed explanation of the conceptual model and methods of the ITC Project).

The ITC Project began with four high-income countries and has since expanded to include several lower- and middle-income countries, starting with Bangladesh in 2009, and adding India in 2010.

Cross-sectional analyses will be done on the Wave 2 (2010) Bangladesh Survey and the Wave 1 (2010-2011) India Survey. Wave 3 data from the Bangladesh Survey (the most recent wave) will be also used for longitudinal analyses to look at changes in tobacco use among cohort respondents over time. The same longitudinal analyses could not be done with the India sample because only one wave of data from the India Survey was available at the time of this dissertation. In addition, we did not include Wave 1 data from Bangladesh because smokeless users were not clearly defined in the Wave 1 Surveys; it was not until Wave 2 that current smokeless users were identified and given a larger set of questions.

3.2 Sampling Design

3.2.1 Bangladesh

The ITC Bangladesh Survey uses a multi-staged clustered sampling design with probability of selection proportional to population size to produce a nationally representative sample. There were two primary samples at the first survey wave and at each subsequent wave – a national sample representing the broad national population, and a "floating" sample representing the more transient urban slum population. For this dissertation, the floating sample was excluded to keep the results nationally representative. The national sample was selected from 23 out of 64 total districts in Bangladesh – 20 of which were selected randomly and the remaining three were selected purposively to include tribal and border populations. Within these 23 districts, 40 upazilas were randomly selected, and two villages or wards from each of these were then selected, resulting in a total of 80 villages/wards, each of which contained 300-600 households.

3.2.2 India

Respondents for the Wave 1 India Survey were also randomly selected through a multi-staged sampling design. However, only four states were included in the survey, so the sample from India is not nationally representative. In each state, the principal or capital city was selected (Mumbai in Maharashtra, Indore in Madhya Pradesh, Patna in Bihar, and Kolkata in West Bengal), along with the surrounding rural area within a 50 kilometer diameter. In each urban area, 10 wards were randomly selected with probability of selection proportional to size, and four enumeration blocks (EBs) within each ward were selected. Finally, 150 households were approached for enumeration and survey purposes within each EB. A similar method was followed in each rural area – one sub-district were purposively chosen and four villages in each were randomly selected from among those with at least 1000 households in the census list. Within each village, 125 households were selected for the enumeration and survey. The goal was to fully enumerate at least 2,000 households (1,500 from urban areas and 500 from rural areas) in each state.

3.3 Sample

Respondents for the analyses in this dissertation were drawn from Waves 2 and 3 of the ITC Bangladesh Survey, and from Wave 1 of the ITC India Survey. The Bangladesh Surveys were conducted from March to June 2010 (Wave 2) and from November 2011 to May 2012 (Wave 3), and the India Survey was carried out between August 2010 and December 2011.

In each cohort survey of the ITC Project, respondents are recontacted at each survey wave to participate in follow-up surveys, and new respondents are recruited to replace any who have dropped out between waves.

3.3.1 Bangladesh

Three samples of respondents from the ITC Bangladesh Project were used in this dissertation: the cross-sectional sample of all tobacco users and non users at Wave 2, the cross-sectional sample of all tobacco users and non users at Wave 3, and the Wave 2-Wave 3 longitudinal sample of respondents from Wave 2 who were followed up with and successfully completed the survey at Wave 3.

The Wave 2 Bangladesh sample used in the analyses presented here (which excludes people from the slum areas as well as quitters) consists of 2,730 adult tobacco users (aged 15 and above) and 1,649 non users of tobacco, as shown in Table 1. The Wave 3 sample included 2,620 tobacco users and 1,605 non users, with an overall retention rate of 90% from Wave 2 to Wave 3. Retention rates for Wave 2 of the ITC Bangladesh Survey were also high, with 94% of the national sample from Wave 1 participating in the follow-up survey. The retention rate was slightly higher for tobacco users (94.2%) than non users (93.8%). For all three waves, the overall Wave 1 to Wave 3 retention rate dropped to 89.8% of the national sample (89% of tobacco users and 90.9% of non users).

3.3.2 India

The Wave 1 India sample consists of approximately equal numbers of adult (aged 15 and older) tobacco users and non users in each of the four cities and surrounding rural areas.

29

The aim was to survey approximately 2,000 tobacco users and 600 non users in each state, although the final total sample size across the four states was 8,051 tobacco users and 2,534 non users (see Table 1).

Table 1: Sample Sizes and Distribution in Each Country

Category	Percent Distribution (n Size)		
	India Wave 1	**Bangladesh Wave 2**	**Bangladesh Wave 3**
Total Smokers	15.5 (1255)	68.6 (1874)	70.4 (1846)
Total Mixed Users	10.0 (805)	16.6 (452)	9.3 (243)
Total Smokeless Users	74.6 (5991)	14.8 (404)	20.3 (531)
Total Tobacco Users	**8051**	**2730**	**2620**
Total Non Users	2534	1649	1605
TOTAL N	**10585**	**4379**	**4225**

3.3.3 Types of Respondents

In Bangladesh, respondents were divided into two categories according to pre-survey screening questions: smokers and non-smokers. Smokers included those who reported smoking either cigarettes or bidis (or both) at least once a week, and non-smokers were those who did not currently smoke either cigarettes or bidis. Either category of user may or may not have used smokeless tobacco as well. Therefore, within the dataset, it was possible to divide respondents into four categories: smokers, smokeless tobacco users, mixed users (people who both smoke and use smokeless tobacco), and non users (those who do not currently use any tobacco products).

In India, a tobacco user was defined as someone who currently smokes (cigarettes, bidis, hookah, or other smoked products) and/or uses smokeless tobacco products at least once a month. Any individual who did not meet these criteria was classified as a non user of tobacco. Tobacco users were further categorized according to the products they currently use

in the same way as in Bangladesh: smokers only, smokeless tobacco users only, or mixed users.

3.4 Survey Development and Protocol

3.4.1 Survey Development Overview

All of the survey materials, including the individual survey questionnaires, screeners, enumeration forms, training manuals, information and consent forms, were developed by the project management team at the University of Waterloo in collaboration with the research teams in each country. The surveys were developed using the existing surveys common across all other countries in the ITC Project as the basic framework, and were then adapted to suit the specific tobacco environments and cultures of the individual countries, while keeping consistency and comparability across countries as the primary goal. The questionnaires were developed in English and then translated into the local languages.

As a graduate student working as a student project manager specifically on the ITC Bangladesh and India Projects from 2008-2013, one of my roles was to assist in the development of all of the survey and training materials for Waves 2 and 3 of the Bangladesh Survey and Wave 1 of the India Survey. I also participated in the training workshops held in each of the four states in India in 2010, where I was able to monitor and assist in the sessions to train the local interviewers on survey procedures and protocols.

3.4.2 General Survey Information

In both countries, surveys were conducted using face-to-face interviewing techniques by trained interviewers in the local languages (Hindi, Marathi, or Bengali in India; and Bengali, Garo or Chakma in Bangladesh). Written informed consent (or verbal if the respondent was illiterate) was obtained from each respondent before completing the survey, and each respondent who completed the survey was given a token of appreciation for their time. The survey took about 90 minutes for tobacco users and 45 minutes for non users (because they were asked fewer questions).

The study protocol was cleared for ethics by research institutional review boards at each of the following institutions: the Office of Research at the University of Waterloo (Waterloo, Canada), the Bangladesh Medical Research Council (Dhaka, Bangladesh), and Healis-Sekhsaria Institute for Public Health (Navi Mumbai, India).

Further information on the sampling designs, construction of sampling weights, and selection criteria for survey respondents in each country is provided in Appendix A and can be found in the specific country technical reports posted on the following website: http://www.itcproject.org.

3.4.3 Bangladesh Survey Protocol

In Bangladesh, respondents who were interviewed at Wave 1 were recontacted and given the appropriate Wave 2 Survey depending on their new tobacco status. Replenishment of respondents was done by selecting five households, three of which had at least one smoker and two of which contained only non smokers, from each village or ward that was enumerated at Wave 1 but not interviewed. From each of these households, one non-smoker was randomly selected to be interviewed and all smokers were selected, with an attempt to follow the same smoking status from Wave 1. The same method was followed at Wave 3 to replenish respondents that could not be recontacted from the previous waves.

In addition to the selection and interviewing of individuals within households, a large-scale enumeration of households was conducted at two time periods in the ITC Bangladesh Survey: once at the beginning of the project, between December 2008-January 2009, and again at Wave 3 concurrently with the tobacco use surveys. The enumeration involves collecting basic sociodemographic information about each adult member of each selected household (including age, gender, and tobacco use) with the purpose of providing more precise estimates of prevalence of the different types of tobacco use in the country.

3.4.4 India Survey Protocol

In India, enumeration and survey interviews were also done concurrently for Wave 1. Once contact was made with a household, information on the gender, age, and current tobacco use was collected for all household members from a key informant in the household

32

for enumeration purposes. A maximum of four tobacco users were then selected and interviewed in each enumerated household, with priority given to female adult tobacco users when possible. One adult non user was randomly selected from every third household enumerated to be interviewed as well. Once respondents were selected, a maximum of four attempts were made to contact him or her to complete the survey interview following standardized protocols.

3.5 Survey Weights

In each ITC country, survey weights are calculated in order to adjust for potential disproportionate selection of tobacco users and non users resulting from the complex sampling design. The weights are then rescaled within each sampling category (i.e. smoker, non user, etc.) and area to sum to national sample sizes. These rescaled weights, which are interpreted as the number of people in a population that a respondent represents, are then used in analyses of the datasets. In Bangladesh, cross-sectional weights were computed for each survey wave from both household level and individual level weights. Separate longitudinal weights for the cohort respondents from Wave 2 to Wave 3 were also calculated, which were created from the Wave 2 weights but adjusted for attrition or dropouts. In India, cross-sectional weights were calculated for each household and individual and rescaled in a similar way.

All analyses in this dissertation were weighted unless otherwise stated. Cross-sectional analyses within each country were done using the rescaled cross-sectional weights for each wave, and longitudinal analyses in Bangladesh used the rescaled Wave 2-Wave 3 longitudinal weights.

3.6 Measures

Survey measures were standardized across the two countries (as well as with the rest of the ITC Surveys) as much as possible; however, there were some differences in the measures of interest between India and Bangladesh that are noted below. Further information about the full survey questionnaires is provided in Appendix A.

3.6.1 Key Outcome Variables

The primary dependent variables that I will focus on are behaviours relevant to quitting tobacco, including intentions to quit and how much you expect to be smoking/using smokeless tobacco one year from now (for cross-sectional analyses), as well as actual quit attempts and quit success for longitudinal analyses.

To measure *intention to quit*, tobacco users were asked about their plans to quit their respective products in the future. In India, smokers were asked "Are you planning to quit smoking…within the next month/within the next six months/sometime in the future, beyond six months/not planning to quit?", while smokeless tobacco users were asked the same question about smokeless tobacco. Mixed tobacco users answered both questions. In Bangladesh, smokers were asked if they are planning to quit smoking cigarettes or bidis (or both questions) depending on which product they currently smoke. Because smokeless tobacco users were asked only a limited set of questions at Wave 2, they were not asked the equivalent version of the intention to quit measure. In each country, those who said they were planning to quit either in the next month, next six months, or sometime in the future were coded as having an intention to quit. Intention to quit was chosen as an outcome variable for Wave 2 cross-sectional analyses because intentions have been shown to be a consistent predictor of actual attempts to quit tobacco (Hyland et al., 2006; Vangeli et al., 2011).

To measure quit attempts at Wave 3 in Bangladesh, respondents from the cohort sample (those who were successfully recontacted from the previous wave) were asked whether they have ever made a serious attempt to stop smoking cigarettes/bidis/using smokeless tobacco. Those who had made a serious quit attempt were then asked when they started smoking/using smokeless tobacco again. These responses were turned into a derived binary variable to represent making a quit attempt in the past twelve months versus no attempt to quit in the past year.

Successful quitters were those who were current tobacco users at Wave 2, but said they are not currently using any form of tobacco at Wave 3. These respondents were classified as 'quitters' at the screening stage and given the Quitter Survey.

3.6.2 Key Predictor Variables

The main independent variables that were tested included: sex, type of tobacco user, awareness of tobacco control policies, and perceived social acceptability of tobacco use. Demographic variables were also explored and controlled for in regression analyses.

3.6.2.1 Demographic Variables

Demographic variables included in the analyses were gender (male or female), age group, area (urban or rural), marital status, religion, education level, income level, and state in India (Maharashtra, Madhya Pradesh, Bihar, or West Bengal). Age was categorized into five different groups in each country: 15-17 years, 18-24, 35-39, 40-54, and 55 and older. Education level was standardized into three categories: low, moderate, or high. In Bangladesh, the three categories were illiterate/1-8 years of education/9 years or more, while in India, they were illiterate or primary school/middle or secondary school/college or above. Household income level was standardized in a similar way with three categories — in Bangladesh, an income of less than 5,000 taka per month was classified as low income, 5,000-10,000 taka was moderate, and more than 10,000 taka was high. In India, the categories were less than 5,000 rupees (INR) per month/5,000-15,000 INR per month/more than 15,000 INR per month.

3.6.2.2 Social Norms

Specific measures of descriptive norms within the survey included: how many of your five closest friends smoke or use smokeless tobacco, and how many of them talked about wanting to quit; whether your parents and grandparents currently smoke or use smokeless tobacco or have in the past; and whether your spouse smokes or uses smokeless tobacco.

Two primary measures of injunctive norms were included: whether society approves of smoking/smokeless tobacco; and whether it is acceptable for females to smoke/use smokeless tobacco. For the society approval measure, participants were asked whether they strongly agree, agree, neither agree nor disagree, disagree, or strongly disagree with the statement: "Society disapproves of smoking". In India, they were also asked the equivalent question about smokeless tobacco whereas in Bangladesh the smokeless tobacco question

was worded differently: "What is society's attitude toward smokeless tobacco use?" with the following response options: "Society approves smokeless tobacco use/society disapproves smokeless tobacco use/society neither approves nor disapproves smokeless tobacco use". The five-point scale measures were transformed into three-point measures (agree/disagree/neither) for consistency across questions. For the female acceptability measure, participants in each country were asked three separate questions about the extent to which they agree with the statements: "It is acceptable for females to smoke cigarettes/smoke bidis/use smokeless tobacco". Again, the five-point scale for responses of strongly agree to disagree was turned into a three point scale of agree/disagree/neither.

Finally, measures of subjective norms included whether your spouse wants you to quit smoking/using smokeless tobacco ("Yes, a lot/yes, somewhat/no"), and whether people who are important to you think you should not smoke/use smokeless tobacco (five point scale from strongly agree to strongly disagree).

3.6.2.3 Awareness of Tobacco Policies

The levels of awareness of three different policies were included. Awareness of warning labels was measured in Bangladesh by the questions: "As far as you know, do cigarette/bidi packages in Bangladesh have health warnings?" and in India by the questions "As far as you know, do any smoked tobacco/smokeless tobacco packages in India have warning labels?", with a yes or no response option.

Awareness of anti-tobacco information was measured by asking: "In the last 6 months, have you noticed advertising or information that talks about the dangers of smoking, or encourages quitting, in any of the following places?" with a yes or no response option for each of several places: television, radio, cinema halls, posters, newspapers or magazines, on shop windows or inside shops, on or around street vendors, in the workplace, public transportation vehicles or stations, restaurants or tea stalls, bars, and tobacco packages. A single summation variable was then created to calculate the total number of places respondents reported noticing this information.

Awareness of smoke-free policies was measured by asking whether respondents were aware of smoking restrictions in various public places, including restaurants and workplaces.

Because restaurant smoking bans are only partial and not well enforced, and the sample of respondents who work at an indoor workplace was small, awareness of rules on public transport was used as a single measure to represent awareness of smoke-free policies in each country. Specifically, respondents were asked, "Which of the following best describes the rules about smoking inside public transportation vehicles, such as buses, ferries, launches and trains?" Responses of "Smoking is not allowed in any public transportation vehicles" were categorized as complete restrictions; "Smoking is allowed only in some public transportation vehicles" was categorized as partial restrictions; and the third response option was "No rules or restrictions". Following Rennen et al (2014), those who said they don't use public transportation were included in the "no restrictions" category.

3.7 Description of Analyses

All analyses were conducted with IBM SPSS version 22. First, weighted frequencies were calculated to present the characteristics of each of the three primary samples — the Bangladesh Waves 2 and 3 cross-sectional samples, and the India Wave 1 cross-sectional sample. Descriptive analyses were done to explore the cross-sectional datasets for both Bangladesh and India. For example, we compared prevalence rates for different types of tobacco by gender and country; beliefs about smokeless tobacco; frequency and intensity of use; awareness of tobacco control policies; perceptions of social acceptability of smoking and smokeless tobacco use, and intentions to quit. We also examined differences between male and female respondents on these measures, as well as differences across types of tobacco users. For certain measures, this was done with chi-square analyses to test for significance (i.e. beliefs about social acceptability).

Bivariate and multiple linear regression analyses were performed to determine correlates of the two primary measures of social acceptability of tobacco use. Separate models for each country were run for each aspect of social acceptability (societal disapproval of smoking and of smokeless tobacco use and acceptability of female cigarette smoking and smokeless use), with the three policy awareness variables included as independent variables. Multivariate analyses controlled for the above mentioned demographic variables.

To examine whether the measures of social acceptability predicted quit intentions, bivariate and multivariate logistic regression analyses were performed using the cross-sectional datasets. Separate models were run in each country and for each type of tobacco user using the two measures of society approval and two measures of female acceptability as the independent variables, and intention to quit smoking or smokeless use as the outcome variables.

For the longitudinal sample of cohort respondents in Bangladesh, bivariate and multivariate logistic regression analyses were performed to see whether the measures of social acceptability predicted attempts to quit smoking or smokeless tobacco, controlling for demographic variables and other factors known to be associated with quit attempts such as addiction level.

Chapter 4 — Results

4.1 Characteristics of the Sample

4.1.1 India

Table 2: India Wave 1 Tobacco Users and Non Users (unweighted)

	Respondents	Total n	% of Category	% of Tobacco Users
Smokers	Male Cigarette Smokers	504	41.4	
	Female Cigarette Smokers	2	5.4	
	Total Cigarette Smokers	**506**	**40.3**	
	Male Bidi Smokers	426	35	
	Female Bidi Smokers	18	48.6	
	Total Bidi Smokers	**444**	**35.4**	
	Male Dual Smokers	285	23.4	
	Female Dual Smokers	3	8.1	
	Total Dual Smokers	**288**	**22.9**	
	Male Other Smokers	3	0.2	
	Female Other Smokers	14	37.8	
	Total Other Smokers	**17**	**1.3**	
	Total Male Smokers	**1218**	**100**	22.3
	Total Female Smokers	**37**	**100**	1.4
	Total Smokers	**1255**	**100**	15.6
Mixed Users	Male Mixed Users	792	98.4	14.5
	Female Mixed Users	13	1.6	0.5
	Total Mixed Users	805	100	10.0
Smokeless Users	Male Smokeless Users	3439	57.4	63.1
	Female Smokeless Users	2552	42.6	98.1
	Total Smokeless Users	5991	100	74.4
Total Tobacco Users	**Total Male Tobacco Users**	**5449**	67.7	**100**
	Total Female Tobacco Users	**2602**	32.3	**100**
	Total Tobacco Users	**8051**	100	**100**
Non Users	Male Non Users	879	34.7	
	Female Non Users	1655	65.3	
	Total Non Users	2534	100	

As shown in Table 1, about three-quarters (74.4%) of all tobacco users in India were smokeless tobacco users; 15.6% of tobacco users were smokers; and 10% were mixed users. Smokeless use was even more common among women – almost all female tobacco users (98.1%) were smokeless users, compared to only 1.4% who were smokers and 0.5% mixed users. Men had a higher prevalence of smoked tobacco use – 22.3% of male tobacco users were smokers, compared to 63.1% who were smokeless users and 14.5% mixed users.

Of the smokers, almost equal proportions smoked bidis and cigarettes – 40.3% of all smokers smoked cigarettes only compared to 35.4% who smoked bidis only. An additional 22.9% were dual smokers (they smoked both cigarettes and bidis) and the remaining 1.3% smoked other tobacco products. There was a difference in smoked tobacco patterns for males versus females – the majority of male smokers (41.4%) smoked cigarettes compared to bidis (35%), dual (23.4%) or other products (0.2%), whereas the majority of female smokers smoked bidis (48.6%) compared to cigarettes (5.4%), dual (8.1%), or other products (37.8%). The distribution of tobacco products used by men and women is shown in Figure 1 below. Finally, the majority of non users of tobacco in the sample (65.3%) were female.

Male Tobacco Users

Cig (9%)
Bidi (8%)
Dual (5%)
Other (0%)
Mixed (15%)
Smokeless (63%)

Female Tobacco Users

Cig (0%)
Bidi (1%)
Dual (0%)
Dual (1%)
Mixed (0%)
Smokeless (98%)
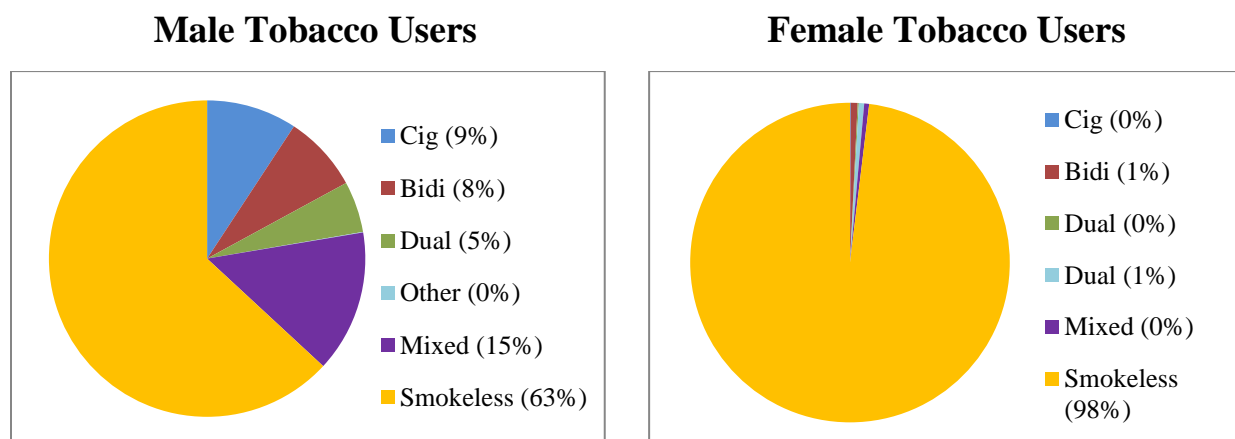
Figure 1: Distribution of Tobacco Products Used by Males Versus Females in India (unweighted)

4.1.2 Bangladesh Wave 2

Table 3: Bangladesh Wave 2 Tobacco Users and Non Users (unweighted)

	Respondents	Total n	% of Category	% of Tobacco Users
Smokers	Male Cigarette Smokers	1434	79.5	
	Female Cigarette Smokers	28	39.4	
	Total Cigarette Smokers	**1462**	**78.0**	
	Male Bidi Smokers	189	10.5	
	Female Bidi Smokers	35	49.3	
	Total Bidi Smokers	**224**	**12.0**	
	Male Dual Smokers	180	10.0	
	Female Dual Smokers	8	11.3	
	Total Dual Smokers	**188**	**10.0**	
	Total Male Smokers	**1803**	**100**	78.7
	Total Female Smokers	**71**	**100**	16.2
	Total Smokers	**1874**	**100**	68.6
Mixed Users	Male Mixed Users	418	92.5	18.2
	Female Mixed Users	34	7.5	7.7
	Total Mixed Users	452	100	16.6
Smokeless Users	Male Smokeless Users	70	17.3	3.1
	Female Smokeless Users	334	82.7	76.1
	Total Smokeless Users	404	100	14.8
Total Tobacco Users	**Total Male Tobacco Users**	**2291**	83.9	**100**
	Total Female Tobacco Users	**439**	16.1	**100**
	Total Tobacco Users	**2730**	100	**100**
Quitters	Male Quitters	192	89.3	
	Female Quitters	23	10.7	
	Total Quitters	215	100	
Non Users	Male Non Users	400	24.3	
	Female Non Users	1249	75.7	
	Total Non Users	1649	100	

The majority of tobacco users in the Wave 2 sample in Bangladesh (68.6%) were smokers, 16.6% were mixed users, and 14.8% were smokeless only users. Of the male tobacco users, over three-quarters (78.7%) were smokers, 18.2% were mixed users, and only 3.1% were smokeless users; however, female tobacco users showed the opposite pattern – 76.1% were smokeless users, 7.7% were mixed users, and 16.2% were smokers.

Within the smoker category, the majority (78%) were cigarette smokers compared to bidi smokers (12%) or dual smokers (10%). However, the pattern differed for men versus women – the strong majority of male smokers smoked cigarettes only (79.5%) compared to bidis (10.5%) or both cigarettes and bidis (10%); whereas the majority of female smokers smoked bidis only (49.3%) compared to cigarettes only (39.4%) or both products (11.3%). The distribution of tobacco products used by men and women in Bangladesh is shown in Figure 2.

The majority of both smokeless-only users (82.7%) and non tobacco users (75.7%) were female. There were also some quitters from the previous wave in the Wave 2 sample, of which the majority (89.3%) were male.

Male Tobacco Users

- Cig (63%)
- Bidi (8%)
- Dual (8%)
- Mixed (18%)
- Smokeless (3%)

Female Tobacco Users

- Cig (6%)
- Bidi (8%)
- Dual (2%)
- Mixed (8%)
- Smokeless (76%)
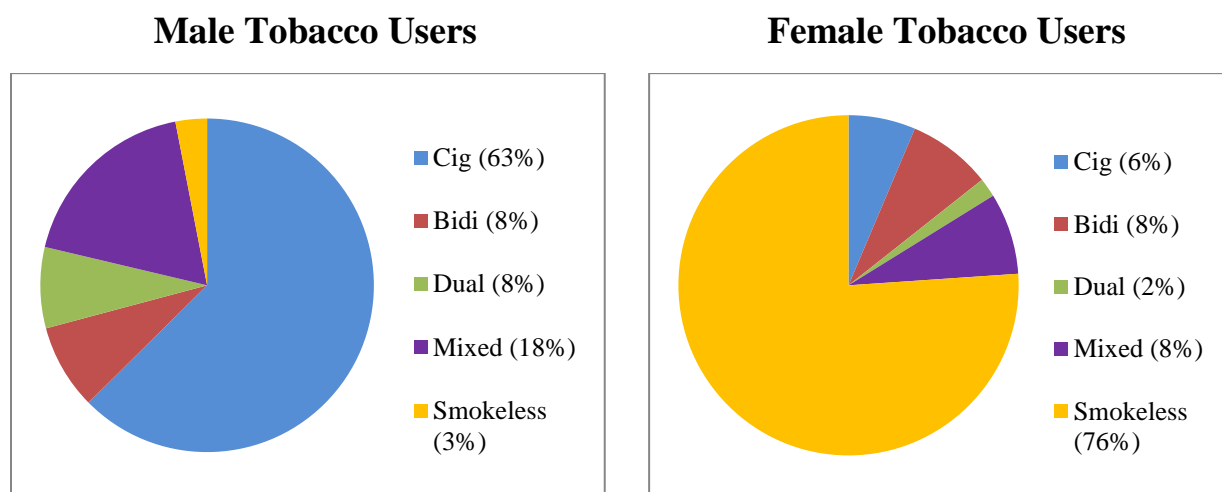
Figure 2: Distribution of Tobacco Products Used by Males Versus Females in Bangladesh (unweighted)

4.1.3 Comparison of Tobacco Use Status in India Versus Bangladesh

As seen in Figure 3 comparing tobacco use in the two countries, it is clear that a much higher proportion of tobacco users in Bangladesh were smokers (cigarette smokers in particular) than in India, where smokeless use was the most popular form of tobacco use. These patterns generally follow the pattern of male tobacco use in each country due to the

larger proportion of male tobacco users in each sample. The patterns of female tobacco use in the two countries was more similar, with smokeless use being the most dominant form of tobacco use and very little female smoking, the majority of which was bidis in both countries.
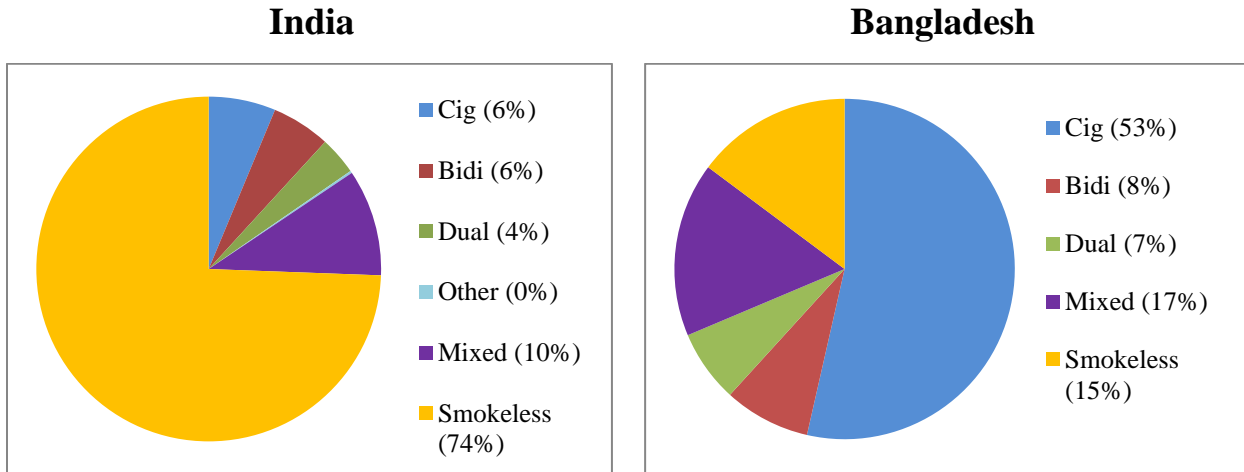
Figure 3: Comparison of India and Bangladesh — Distribution of Tobacco Users Across Products (unweighted)

4.1.4 Bangladesh Wave 3

Table 4: Bangladesh Wave 3 Tobacco Users and Non Users (unweighted)

	Respondents	Total n	% of Category	% of Tobacco Users
Smokers	Male Cigarette Smokers	1378	77.2	
	Female Cigarette Smokers	23	38.3	
	Total Cigarette Smokers	1401	75.9	
	Male Bidi Smokers	218	12.2	
	Female Bidi Smokers	31	51.7	
	Total Bidi Smokers	249	13.5	
	Male Dual Smokers	190	10.6	
	Female Dual Smokers	6	10.0	
	Total Dual Smokers	196	10.6	
	Total Male Smokers	**1786**	100	**82.7**
	Total Female Smokers	**60**	100	**13.0**
	Total Smokers	**1846**	100	**70.4**
Mixed Users	Male Mixed Users	222	91.4	10.3
	Female Mixed Users	21	8.6	4.6
	Total Mixed Users	243	100	9.3
Smokeless Users	Male Smokeless Users	151	28.4	7.0
	Female Smokeless Users	380	71.6	82.4
	Total Smokeless Users	531	100	20.3
Total Tobacco Users	**Total Male Tobacco Users**	**2159**	82.4	**100**
	Total Female Tobacco Users	**461**	17.6	**100**
	Total Tobacco Users	**2620**	100	**100**
Quitters	Male Quitters	229	94.6	
	Female Quitters	13	5.4	
	Total Quitters	242	100	
Non Users	Male Non Users	367	22.9	
	Female Non Users	1238	77.1	
	Total Non Users	1605	100	

In Wave 3 of the Bangladesh Survey, the majority of tobacco users were smokers (70.4%), which only increased slightly from Wave 2 (68.6%). Of the remaining tobacco users, 20.3% were smokeless users (an increase from 14.8% at Wave 2), and 9.3% were mixed users (a decrease from 16.6% at Wave 2). The rate of smoking increased among male tobacco users (78.7% to 82.7% at Wave 3) but decreased among female tobacco users (16.2% to 13%). Mixed tobacco use also decreased among both male tobacco users (18.2%

44

to 10.3%) and female tobacco users (7.7% to 4.6%). Meanwhile, the rate of smokeless use increased among both men (3.1% to 7%) and women (76.1% to 82.4%).

Among the smokers, the distribution of cigarette, bidi, and dual smoking did not change much from Wave 2 – the majority at Wave 3 smoked cigarettes (75.9%), followed by bidis (13.5%) and both cigarettes and bidis (10.6%).

Finally, the majority of quitters at Wave 3 (94.6%) were male (an increase from 89.3% at Wave 2), while the majority of non users (77.1%) were female (similar to Wave 2, 75.7%). Figure 4 below shows the distribution of tobacco use in Bangladesh in Wave 2 compared to Wave 3.

Wave 2   **Wave 3**
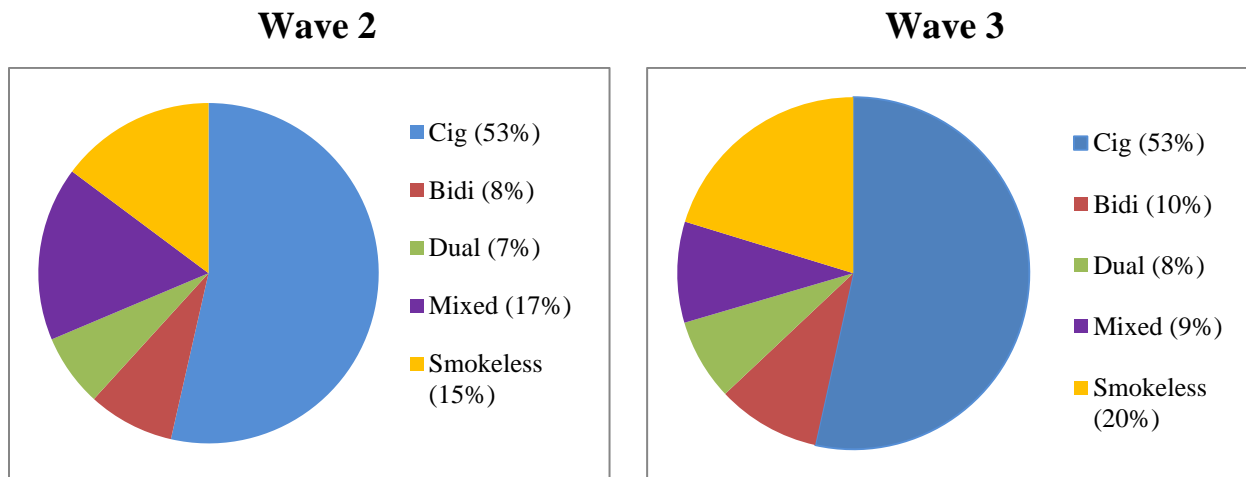
Figure 4: Comparison of Bangladesh Wave 2 vs Wave 3 — Distribution of Tobacco Users Across Products (unweighted)

4.2 Demographics

4.2.1 India Wave 1

Table 5: India Wave 1 Demographics

Variable	Categories	Tobacco Users		Non Users	
		%	n	%	n
State	Maharashtra	25.5	2051	27.2	688
	Madhya Pradesh	24.7	1992	24.5	621
	Bihar	24.9	2008	23.7	600
	West Bengal	24.8	2000	24.7	625
Area	Urban	72.9	5866	74.6	1890
	Rural	27.1	2185	25.4	644
Sex	Male	67.7	5449	43.0	879
	Female	32.3	2602	57.0	1655
Age Group	15-17	2.2	176	8.7	201
	18-24	11.5	914	22.4	539
	25-39	33.4	2677	33.4	947
	40-54	29.6	2421	22.0	523
	55+	23.3	1863	13.5	324
Income Level	Low (<5000 INR per month)	26.6	2239	19.3	591
	Moderate (5000-15000 INR)	56.0	4524	55.5	1376
	High (15000+)	14.6	1069	21.7	474
	Not reported	2.9	219	3.5	93
Education	Low (illiterate up to middle school)	59.7	4839	34.6	965
	Moderate (secondary school)	29.4	2366	39.7	986
	High (graduate or higher)	10.8	831	25.7	580
Language	English	0	3	0.1	2
	Marathi	15.3	1246	15.7	409
	Hindi	65.1	5153	65.3	1617
	Bengali	19.6	1648	18.9	506
Religion	Hindu	81.2	6474	82.2	2092
	Muslim	16.0	1354	14.3	355
	Christian	0.3	25	0.7	16
	Sikh	0.1	10	0.3	8
	Buddhist	2.3	182	1.7	44
	Jain	0	3	0.7	18
	Other	0	2	0	1

Table 6 (continued): India Wave 1 Demographics

		Tobacco Users		Non Users	
Variable	**Categories**	**%**	**n**	**%**	**n**
Marital Status	Married	74.0	5996	63.0	1671
	Divorced/separated	0.6	53	0.5	17
	Widowed	9.5	759	4.4	131
	Single	15.8	1235	32.2	715

Following the sampling design, respondents were approximately equally distributed across the four states in India, and the majority of respondents lived in urban areas (72.9% of tobacco users, 74.6% of non users) as opposed to rural areas.

As discussed in the previous section, the majority of tobacco users (67.7%) were male, while the slight majority of non users (57%) were female (these percentages differ from those in Table 1 because sample weights were applied). The greatest proportion of respondents fell into the middle age category of 25-39 years (33.4% of tobacco users and non users), with very few tobacco users (2.2%) in the youngest age group of 15-17 years. The majority of respondents had a moderate income level (56% of tobacco users, 55.5% of non users). The majority of tobacco users had a low education level (59.7%) whereas the majority of non users had a moderate education level (39.7%). Finally, the majority of respondents were married (74% of tobacco users, 63% of non users); Hindu (81.2% of tobacco users, 82.2% of non users); and answered the survey in Hindi (65% of tobacco users and non users).

4.2.2 Bangladesh Wave 2

Table 7: Bangladesh Wave 2 Demographics

Variable	Categories	Tobacco Users		Non Users	
		%	n	%	n
Sample Type	National	94.0	2565	95.6	1578
	Border	1.0	37	1.6	19
	Tribal	5.1	128	2.8	52
Area	Urban	32.6	902	37.6	595
	Rural	67.4	1828	62.4	1054
Sex	Male	86.6	2291	38.7	400
	Female	13.4	439	61.3	1249
Age Group	15-17	2.0	67	10.3	152
	18-24	13.4	379	23.5	431
	25-39	35.2	953	37.4	638
	40-54	26.6	743	18.0	299
	55+	22.7	588	10.8	129
Income Level	Low (<5000)	18.9	452	17.4	286
	Middle (5000-10000)	42.8	1194	35.8	658
	High (>10000)	32.7	932	32.7	555
	not reported	5.6	152	14.0	150
Education Level	Illiterate	22.7	562	14.8	279
	1-8 years	56.1	1538	52.3	887
	9+ years	21.2	630	32.9	483
Religion	Muslim	80.6	2221	83.1	1363
	Hindu	13.4	357	13.5	217
	Christian	4.2	90	2.7	36
	Buddhist	1.6	54	0.7	28
	Other	0.2	8	0.1	2
Marital Status	Married	80.5	2182	71.6	1253
	Divorced/separated	0.5	14	2.0	18
	widowed	5.8	124	6.2	76
	single	13.2	407	20.1	295

Unlike the Indian sample, the majority of the respondents in Bangladesh lived in rural areas (67.4% of tobacco users; 62.4% of non users) as opposed to urban areas. The majority of tobacco users were male (86.6%) whereas the majority of the non users (61.3%) were female.

The age of respondents varied, with the greatest proportion in the range of 25-39 years old (35.2% of tobacco users, 37.4% of non users). Very few tobacco users were in the youngest age group of 15-17 years (2%). The majority of all respondents fell into the middle income category (42.8% of tobacco users, 35.8% of non users), and the middle education level category of 1-8 years (56.1% of tobacco users, 52.3% of non users). In addition, the majority of respondents were married (80.5% of tobacco users, 71.6% of non users) and of Muslim religion (80.6% of tobacco users, 83.1% of non users).

4.2.3 Bangladesh Wave 3

Table 8: Bangladesh Wave 3 Demographics

Variable	Categories	Tobacco Users %	Tobacco Users n	Non Users* %	Non Users* n
Sample type	National	94.5	2476	94.3	1516
	Border	1.0	36	1.6	18
	Tribal	4.5	108	4.1	71
Sex	Male	86.3	2159	35.8	367
	Female	13.7	461	64.2	1238
Age Group	15-17	2.4	63	7.8	127
	18-24	13.2	352	22.2	395
	25-39	36.1	921	40.3	637
	40-54	25.9	719	19.8	310
	55+	22.4	565	9.9	136
Area	Urban	30.6	828	38.4	586
	Rural	69.4	1792	61.6	1019
Income Level	<5000	10.8	280	12.4	175
	5000-10000	37.4	939	33.8	558
	>10000	42.0	1155	38.1	675
	Not Reported	9.8	246	15.7	197
Education Level	Illiterate	18.2	462	12.2	212
	1-8 years	61.0	1545	51.5	853
	9+ years	20.8	603	36.4	532
Marital Status	Married	84.8	2191	77.0	1279
	Divorced/separated	0.7	21	2.0	22
	Widowed	4.1	109	6.3	75
	Single	10.3	293	14.8	227
Religion	Muslim	81.3	2135	79.5	1281
	Hindu	13.7	360	15.1	229
	Christian	3.4	75	4.1	46
	Buddhist	1.5	44	1.3	34

*includes entire sample except quitters (not just the cohort sample)

The demographic characteristics of the Bangladesh sample did not change much in Wave 3 from Wave 2. The majority of the sample lived in rural areas (69.4% of tobacco users, 61.6% of non users), and fell into the middle age category (36.1% of tobacco users, 40.3% of non users). Again, the majority of tobacco users (86.3%) were male while the majority of non users (64.2%) were female. The majority fell into the middle category of education level (61% of tobacco users, 51.5% of non users); however at this wave the slight majority were classified as the highest income level over the low or middle categories (42% of tobacco users, 38.1% of non users). Most respondents were married (84.8% of tobacco users, 77% of non users) and of Muslim religion (81.3% of tobacco users, 79.5% of non users).

4.3 Smokeless Tobacco Use

4.3.1 Smokeless Products Currently Used in India

Table 9: Use of Various Smokeless Tobacco Products in India, by Sex

	Overall (%)	Females (%)	Males (%)
Mishri	9.2	**20.1**	2.5
Betel quid (paan)	1.2	11.1	12.9
Chewing tobacco	22.7	14.6	**27.7**
Gutka	30.9	12.6	**41.9**
Khaini	20.0	2.5	**30.6**
Zarda	9.3	7.5	10.3
Tobacco toothpaste	0.8	1.0	0.8
Snuff	3.2	**6.1**	1.4
Lal dantmanjan	16.7	**29.4**	9.0
Dotka	0.5	1.1	0.2
Gudhaku	4.7	**9.4**	1.9
Gul	3.5	5.6	2.2

All smokeless tobacco users in India (including mixed users) were asked which of several types of smokeless tobacco they currently use. Table 8 shows the percent of smokeless users that currently use each type of product, where responses were not mutually

exclusive (i.e. respondents could select as many products as applicable). Numbers in the table are bolded to indicate which products are used more commonly by one sex or the other.

Overall, the most common form of smokeless used in India was gutka (30.9% currently use), followed by chewing tobacco (22.7%), and khaini (20%). However, it is important to note that certain types of smokeless products are found only in some states which affects the overall percentages; for example, mishri is only found in Maharashtra, where 33.2% of smokeless users use it; khaini is only found in Bihar (43.6%) and West Bengal (34.3%), gudkahu is most common in West Bengal (22.5%), and lal dantmanjan is mostly found in Bihar (47%).

There were also some interesting gender differences in types of smokeless products used. Female respondents were much more likely to use mishri than males (20.1% vs 2.5%), as well as snuff (6.1% vs 1.4%), lal dantmanjan (29.4% vs 9%), and gudhaku (9.4% vs 4.7%). Men, on the other hand, were more likely than women to use chewing tobacco (27.7% vs 14.6%), gutka (41.9% vs 12.6%) and khaini (30.6% vs 2.5%). The products that were more popular among women, such as mishri, lal dantmanjan, and gudhaku, tend to be those that are applied to the teeth and gums as cleaning or dentifrice products; whereas the products more common among men are all ones that are chewed in the mouth. Previous research on smokeless tobacco preferences among women is limited but there is some evidence to suggest that women prefer products that are cheaper (which would include mishri and gutka) and provide more of a "kick" (Schensul et al, 2013).

4.3.2 Smokeless Products Currently Used in Bangladesh

In Wave 2 of the Bangladesh Survey, respondents were not asked which smokeless products they currently use; they were only asked what their primary product currently is, and which of several smokeless products they have used in the past six months.

Of all smokeless tobacco users in the Bangladesh sample (including mixed users), the most common form of smokeless product used was zarda (63.5% said this was their primary form of smokeless tobacco), although it was more common among men than women (69.9% versus 50.8%). Sadapata was the second most common form overall (14.8%), although it was

more common among women (31%) than men (6.5%). Paan with tobacco leaf was the next most common form (10.2% overall, 11% of men, 8.6% of women).

Table 10: Primary Form of Smokeless Tobacco Used in Bangladesh

Product	Overall (%)	Males (%)	Females (%)
Zarda	63.5	**69.9**	50.8
Sadapata	14.8	6.5	**31.0**
Paan with tobacco leaf	10.2	11.0	8.6
Gul	8.9	9.4	7.8
Pan masala	2.3	2.7	1.7
Nasshi	0.1	0.1	0

When asked which products they have tried in the past six months, responses followed a similar pattern, with zarda being the most popular product used (78% overall, 85.2% of men and 64.1% of women). Again, women were more likely to have tried sadapata (42.1% versus 18.2%), and men were slightly more likely to have tried paan with tobacco leaf (21.8% versus 16.7%).

4.3.3 Frequency and Intensity of Smokeless Tobacco Use in Bangladesh

Smokeless tobacco users in Bangladesh used smokeless tobacco very often – 94.4% said they use some form of smokeless more than once a day, which was the most frequent response option category. Responses did not differ much between men and women – 92.1% of male smokeless users and 95.4% of female smokeless users used smokeless tobacco more than once a day. These levels were also similar to the frequency of smoking reported by cigarette smokers in Bangladesh – 92.8% overall smoked cigarettes more than once a day.

Besides frequency of use, smokeless tobacco users were also asked several questions measuring addiction level. For instance, time to first cigarette (TTFC) after waking in the morning can be used as a measure of nicotine dependence, and research has shown that shorter TTFC is associated with more cigarettes per day, longer smoking duration, greater depth of inhalation, and increased risk of lung cancer, independently of other risk factors (Gu et al., 2014). In Bangladesh, about half of smokeless only users used their first smokeless

product within 60 minutes of waking up on a usual day (52.1%), whereas about one-third (34.1%) waited more than 60 minutes after waking to use their first smokeless product. This rate is comparable to cigarette smokers, of whom 58.6% smoked their first cigarette of the day within 60 minutes of waking. Men were more likely to wait longer – 46.4% of male smokeless users waited more than 60 minutes after waking to use their first smokeless product compared to 28.9% of female smokeless users.

The majority of smokeless users (65.1% overall; 58.4% of men and 68% of women) said it was "somewhat hard" to go a whole day without smokeless tobacco, as opposed to not at all hard (17.4%), very hard (13.2%), or extremely hard (3.3%). Most users also had frequent strong urges to use smokeless tobacco – 87% said they had strong urges several times a day (the second most frequent response option). This was the most common response for both males and females (83.4% and 88.5%). In comparison, cigarette smokers reported slightly lower levels of these measures – only 48% of smokers said it was "somewhat hard" to go a whole day without smoking, and 65.9% said they get strong urges to smoke a cigarette "several times a day".

When asked whether smokeless tobacco users considered themselves addicted to smokeless tobacco products, the majority (62.4%) said they were "somewhat addicted" as opposed to very addicted (20%) or not at all addicted (16.6%). Women were more likely to say they were addicted – 84.4% of women said they were somewhat or very addicted compared to 77.9% of men. In comparison, the majority of cigarette smokers also said they were somewhat addicted (55.8%), and 34.8% said they considered themselves very addicted.

4.3.4 Frequency and Intensity of Smokeless Tobacco Use in India

The majority of smokeless tobacco users in India (78.1%) said they use smokeless tobacco more than once a day (67.7% of women and 84.4% of men), in comparison to only 43.5% of cigarette smokers who said they smoke more than once a day. About half of smokeless users (54.3%) used their first smokeless product of the day within 30 minutes of waking (50.9% of women and 56.4% of men), which was very similar to cigarette smokers, 54.7% of whom smoked their first cigarette within 30 minutes of waking.

When asked how often they get strong urges to use smokeless tobacco, most users (61.2%) said "several times a day", with slightly more males (65.2%) choosing this response option than females (54.7%). Men were also more likely than women to choose the most frequent response option of "hourly or more often" (12.3% vs 6.9%). In comparison, 54.5% of cigarette smokers said they get strong urges to smoke 'several times a day'.

The majority of smokeless tobacco users agreed that they are addicted to smokeless tobacco – 47.7% said they were "somewhat" addicted and 39.7% said they were "very" addicted (12.5% said "not at all" addicted). Responses were very similar for male and female smokeless tobacco users, as well as compared to cigarette smokers (45.3% of who said they were somewhat addicted, 37.3% very addicted, and 17.2% not at all addicted).

4.3.5 Comparison between Bangladesh and India

Smokeless tobacco users in Bangladesh used smokeless more often on an average day than smokeless users in India, and had more frequent strong urges to use smokeless tobacco. However, they were also less likely to use their first smokeless product of the day within 30 minutes of waking compared to Indian smokeless users, and they were less likely to consider themselves "very addicted" to smokeless tobacco.

4.4 Beliefs About Smokeless Tobacco

4.4.1 Beliefs in Bangladesh

Smokeless tobacco users in Bangladesh strongly believed that smokeless tobacco in general is addictive – 88.2% agreed or strongly agreed that smokeless tobacco is addictive (95.2% of men compared to 85.3% of women). 10.3% of women disagreed that smokeless tobacco is addictive compared to only 2.1% of men. However, non users were more likely than tobacco users to agree that smokeless tobacco is addictive (94.7% overall; 94.4% of men, 94.8% of women), which would be expected based on our predictions for justification effects among tobacco users compared to non users.

55

In addition, the majority of smokeless users believed that smokeless tobacco is "not good" for their health (91.2% overall; 91.3% of men and 91.1% of women), compared to either "good" or "neither good nor bad" for health. Again, non users were more likely to say smokeless tobacco is not good for health (97% overall; 98.5% of men, 96.1% of women).

Levels of knowledge of the health effects of smokeless tobacco were fairly low overall: 63.8% of users said that smokeless tobacco causes mouth cancer; 68.6% said it causes gum disease, and 59.4% said it causes difficulty to open the mouth. Knowledge was higher among male respondents than females (74.3-74.2% compared to 57.3-66.1%). Knowledge was also higher overall among non users for mouth cancer (71.4%) and gum disease (76%), although there was no difference for knowledge of difficulty to open mouth (59.4%).

4.4.2 Beliefs in India

The strong majority (90.6%) of all smokeless tobacco users in India believed that smokeless tobacco is addictive, compared to 92.5% of smokers who believed that smoking is addictive. Male smokeless users were slightly more likely than females to say that smokeless tobacco is addictive (91.4% vs 89.2%), and male smokers were also more likely than female smokers to agree that smoking is addictive (92.6% vs 86.8%). Female mixed users were the least likely to agree that smokeless tobacco (77%) or smoking (74.9%) is addictive. Finally, non users were actually less likely than tobacco users to agree that smokeless tobacco (87%) or smoked tobacco (87.5%) is addictive.

The strong majority of smokeless tobacco users (smokeless only and mixed users) believed that smokeless tobacco is not good for their health (86.3%) as opposed to good (4.8%) or neither good nor bad (8.4%). Responses were similar for mixed users compared to smokeless only users, although smoked tobacco users were slightly more likely to say smokeless tobacco is not good for health (90.8%). Male smokeless users were also slightly more likely than females to say that smokeless tobacco use is not good for their health (88.6% vs 82.4%), whereas female smokeless users were more likely than males to say it is

good for their health (7.7% vs 3.1%). Non users were more likely overall to say that smokeless tobacco (98.5%) or smoking (97.7%) is not good for health.

4.4.3 Comparison Between Bangladesh and India

Smokeless tobacco users in both Bangladesh and India had similar beliefs about the addictiveness and harm of smokeless tobacco. Approximately equal proportions of smokeless users in each country said that smokeless tobacco was addictive, and men were more likely than women in each country to agree that smokeless tobacco is addictive. The majority of smokeless tobacco users in both countries also agreed that smokeless tobacco is not good for their health, although smokeless users in Bangladesh were slightly more likely to say it is not good for health than users in India. In both countries, non users were more likely than smokeless tobacco users to say that smokeless tobacco is not good for health. Non users in Bangladesh were also more likely than users to say that smokeless tobacco is addictive; however, non users in India were less likely to say it is addictive.

4.5 Tobacco Use Among Friends and Family

We examined the tobacco use behaviour of respondents' friends and family as part of the descriptive analyses because close friends and family play an important role in the influence of social norms on behaviour, such as smoking initiation and cessation. Research has shown that unhealthy behaviours such as smoking tend to cluster within social networks, so we would expect smokers to have more friends who smoke than non-smokers (Mead et al., 2014). This would also fit in with the literature on descriptive norms showing that observing more people in one's social environment engaging in a certain behaviour can promote that behaviour because it is seen as more acceptable. We would also expect then that being raised by parents who smoke or use smokeless tobacco might have a positive influence on one's own tendency to use tobacco.

Being exposed to friends or family who smoke may also influence smoking cessation outcomes by increasing exposure to smoking cues and to more positive social norms towards smoking (Hitchman, Fong, Zanna, Thrasher, & Laux, 2014). A study on smokers in the ITC

57

4-Country Survey indeed found that smokers with fewer smoking friends were more likely to intend to quit, to make a quit attempt, and to be successful in their attempts at the next survey wave (Hitchman et al., 2014).

4.5.1 Tobacco Use Among Closest Friends

4.5.1.1 Bangladesh

When asked how many of their five closest friends smoke cigarettes or bidis, the average number reported by smokers in Bangladesh was 4.10 friends who smoke cigarettes and 4.04 who smoke bidis. Male smokers had more smoking friends than female smokers – 4.11 for cigarettes and 4.15 for bidis, compared to 3.45 and 3.21 for women, respectively. Mixed users reported a similar pattern, with an average of 3.92 friends who smoke cigarettes (3.96 among men and 2.19 among women), and 3.99 who smoke bidis (4.23 among men and 2.63 among women).

Of the smokers' friends who also smoke, an average of only 0.64 had talked about wanting to quit cigarettes, and 0.62 wanted to quit smoking bidis. The number of smoking friends who wanted to quit cigarettes was similar for male and female respondents (0.64 and 0.69 respectively) and slightly higher among male respondents for friends who wanted to quit bidis (0.64 versus 0.48 for females). Again, results were similar for mixed users, who reported 0.56 friends wanting to quit smoking cigarettes and 0.60 wanting to quit bidis.

Among smokeless only users, the average number of smoking friends (either cigarettes or bidis, as smokeless users were only asked a single question about smoking friends) was much lower – 0.86, although more men had smoking friends than women (2.2 vs 0.3). Of these, an average of 1.01 friends wanted to quit smoking (1.31 for men and 0.88 for women). Finally, non users also reported having less smoking friends than smokers – 1.07 overall, 1.98 among men and 0.49 among women.

Therefore, as expected, current smokers are clearly much more likely than either smokeless only users or non users to have friends who also smoke. It was not asked how many friends use smokeless tobacco in Bangladesh at Wave 2.

4.5.1.2 India

Tobacco users in India were asked how many of their five closest friends smoke and how many of their friends use smokeless tobacco. Of all tobacco users in India, the average number of friends who smoke was 1.87 and 2.71 who use smokeless tobacco. Of these smoking friends, very few had talked about wanting to quit – only 0.22 wanted to quit smoking and 0.29 of the friends who use smokeless tobacco wanted to quit.

Mixed users had the most number of friends who smoke (3.60) or use smokeless (3.56) compared to smokers only (3.40 and 2.13) and smokeless only users (1.33 and 2.72). Non users were much less likely than any type of tobacco user to have friends who use tobacco – only an average of 0.86 of non users' closest friends smoked, and 1.15 used smokeless tobacco. This pattern was similar to that observed in Bangladesh.

Male respondents in India were more likely overall than females to have friends who use tobacco – men had 2.47 friends who smoke and 3.03 friends who use smokeless, compared to 0.61 and 2.04 for women. Male non users were also more likely than female non users to have friends who smoke (1.35 versus 0.49) or use smokeless tobacco (1.65 versus 0.78). Men were also more likely than women to report their friends wanting to quit smoking (0.30 versus 0.06) or smokeless tobacco (0.35 versus 0.17).

Of the female respondents, female mixed users were the most likely to have friends who smoke (2.41) or use smokeless tobacco (3.26). Female smokers had the lowest number of friends who use smokeless (1.28) and female smokeless users had the lowest number of friends who smoke (0.59). Of the male respondents, mixed users also had the most friends who smoke (3.61) or use smokeless (3.26). Again, male smokers had the lowest number of friends who use smokeless (2.15) and male smokeless users had the lowest number of friends who smoke (1.87).

Therefore, as in Bangladesh, there is a pattern in India where one's closest friends that one hangs around on a daily basis tend to use the same tobacco products. It is interesting that mixed users in India, who use both smoked and smokeless tobacco, had the greatest number of friends who use either product compared to single tobacco product users.

4.5.2 Tobacco Use Among Spouses

4.5.2.1 Bangladesh

Respondents who reported being married were asked about the tobacco use status of their spouse (whether he or she smokes, uses smokeless tobacco, both, or neither). The majority of Bangladeshi smokers who were married said their spouse does not use any tobacco (74.8%). Only a few percent (3.6%) said their spouse smokes, and 19.8% said their spouse uses smokeless tobacco only. However, there was a different pattern for men than women — male smokers were more likely than female smokers to have a spouse who does not use tobacco (76% vs 33.3%), or who uses smokeless tobacco (20.1% vs 10%), meaning that female spouses are more likely to be smokeless users or non users. Male spouses were more likely to be smokers, as female smokers were much more likely than male smokers to report having a spouse who also smokes (36.2 vs 2.6%) or is a mixed user (20.5% vs 1.8%).

Approximately equal numbers of smokeless tobacco users said their spouse either does not use tobacco (25.2%), uses smokeless only (26.5%), smokes only (27%) or is a mixed user (21.3%). However, again, male smokeless users were more likely to have a spouse who does not use tobacco (56.2 vs 9.6%), or who uses smokeless only (38 vs 20.7%), and female smokeless users were more likely to have a spouse who smokes (40.6 vs 0%) or is a mixed user (29.1 vs 5.9%), meaning that men in Bangladesh are more likely to be smokers and women are more likely to be smokeless users or non users.

Non users were less likely overall than smokers to have a non –tobacco using spouse, although results differed greatly for men versus women – 79.7% of male non users said their spouse does not use tobacco, compared to only 33.3% of female non users. The majority of female non users said their spouse smokes only (51.4%), compared to only 7.9% of male non users. Male non users were more likely to have a spouse who uses smokeless tobacco only (11.9%) than female non users (6%).

4.5.2.2 India

The majority of tobacco users in India said their spouse does not use any tobacco (59%), although this percentage was lower than that in Bangladesh. Only a few percent said

their spouse smokes (3.7%), and 32.6% said their spouse uses smokeless tobacco only. An additional 4.6% said their spouse is a mixed user. Male tobacco users were more likely than female tobacco users to have a spouse who does not use tobacco (74.4% vs 21.9%), whereas female tobacco users were more likely to have a spouse who smokes (11.8 vs 0.4%), is a mixed user (15.2% vs 0.3%), or uses smokeless only (51.1% vs 25%).

Male non users were also much more likely than female non users to have a spouse who does not use tobacco (91.2% vs 51.7%), and female non users were much more likely to have a spouse who uses smokeless tobacco (30.4% vs 7.8%), smokes (13% vs 0.6%) or is a mixed user (5% vs 0.5%).

Looking at type of tobacco user, smokers were the most likely overall to have a spouse who does not use any tobacco (82.2%) compared to mixed users (66.7%), non users (65.2%) or smokeless users (52.5%). Smokeless only users were the most likely to have a spouse who also uses smokeless only (36.4% vs 31.2% for mixed users, 22.6% for non users and 17.1% for smokers), or who is a mixed user (6.1% vs 3.5% for non users, 1.3% for mixed users and 0.4% for smokers). Non users were the most likely to have a spouse who smokes only (8.7% vs 5% for smokeless, 0.7% for mixed users and 0.3% for smokers). It is interesting that smokers were most likely to have a non user spouse and vice versa, whereas smokeless users were most likely to be married to another smokeless tobacco user.

4.5.3 Tobacco Use Among Parents and Grandparents

4.5.3.1 Bangladesh

In Bangladesh, all respondents were asked about the past and present tobacco use of their parents and grandparents. More specifically, they were asked whether each of the following family members smokes or has smoked in the past; and uses smokeless tobacco or has in the past: father, mother, grandfather, and grandmother.

Descriptive analyses of responses to these questions (either yes, no, not applicable, refused, or don't know) showed some interesting patterns, shown in Figures 5 and 6. First, smokers were more likely than smokeless users and non users to have parents and

grandparents who smoked; similarly, smokeless users were more likely than smokers and non users to have parents and grandparents who also used smokeless tobacco.

While there were few differences between male and female respondents among non users, there were some large differences in family tobacco use between male and female tobacco users. Female smokers and mixed users were much more likely than male smokers and mixed users to report having parents or grandparents who smoked. They were also more likely than female smokeless and non users to have had parents and grandparents who smoked. This difference was especially large for the question about maternal smoking – 57.3% of female mixed users and 45.5% of female smokers reported having a mother who smokes or has smoked in the past, compared to only 9.6% of male mixed users and 4.8% of male smokers, and 3-6.6% of both male and female non users and smokeless users. Similarly, while reported maternal smokeless use was more common overall than maternal smoking, female mixed users (78.6%) and smokeless users (77.0%) were the most likely of any category or sex to have a mother who also uses smokeless tobacco or has in the past.
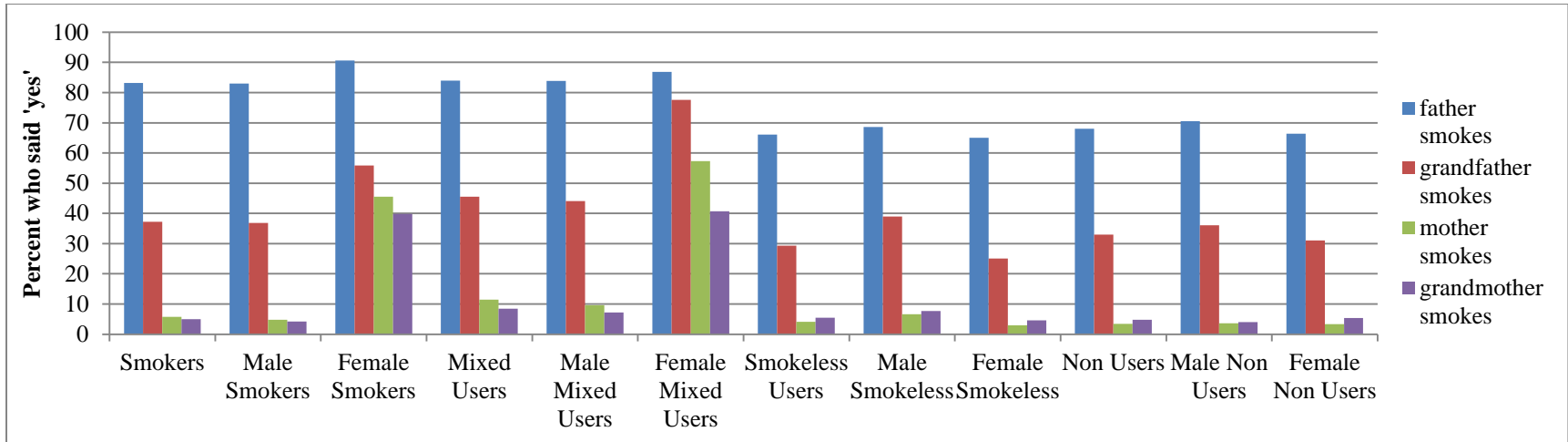
Figure 5: Smoking Among Family Members in Bangladesh, by Tobacco User and Sex
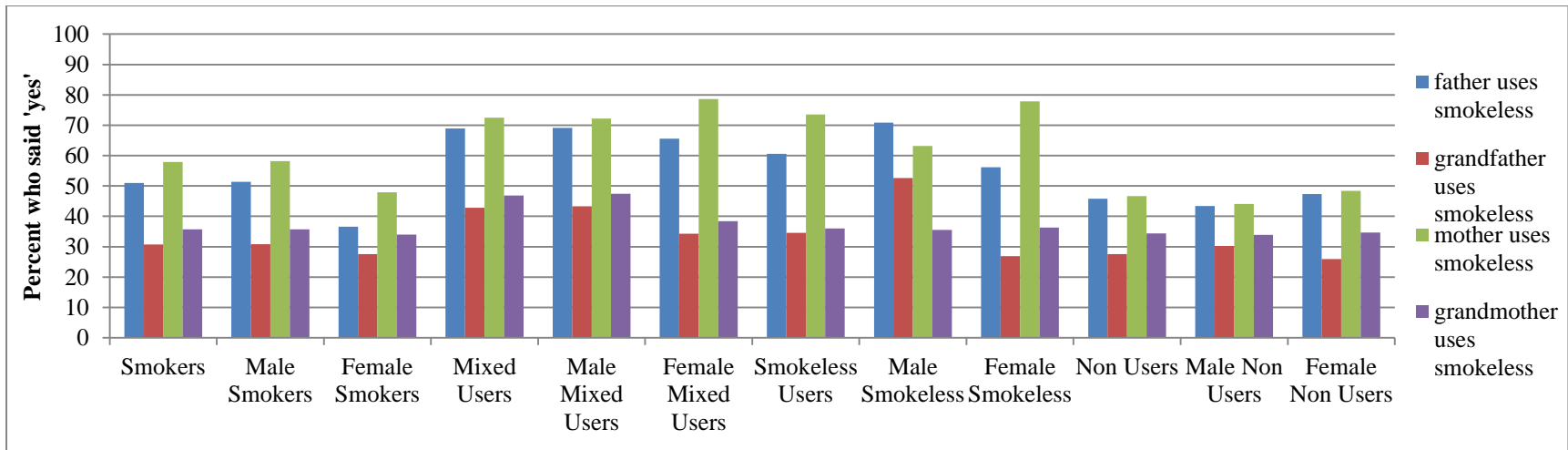
Figure 6: Smokeless Use Among Family Members in Bangladesh, by Tobacco User and Sex

4.5.3.2 India

In the Wave 1 India Survey, respondents were only asked about the tobacco use of their parents, not their grandparents. Overall, reported tobacco use among parents was lower in India than in Bangladesh, but the patterns of use reported were similar to those found in Bangladesh (see Figure 7). Non users reported the lowest levels of smoking and smokeless use by parents compared to any of the types of tobacco users. Again, smokers and mixed users were more likely than smokeless users or non users to report having a father who smokes or has smoked in the past. Maternal smoking followed a slightly different pattern, with smokers, mixed users, and smokeless users all reporting similar rates of smoking by their mothers overall. However, there was a large difference between men and women only among smokers and mixed users – 27.2% of female smokers and 14.3% of female mixed users reported having a mother who smokes or has smoked, compared to 2.5% of male smokers and 3.8% of male mixed users. Smokeless users and non users did not show any significant sex differences in maternal smoking.

A similar pattern was observed for maternal smokeless use, with female mixed users (54.2%) and female smokeless users (44.2%) more likely to report their mother using smokeless tobacco than their male counterparts (37% and 31.4%, respectively). This same sex difference was not seen among smokers or non users when asked about maternal smokeless use.
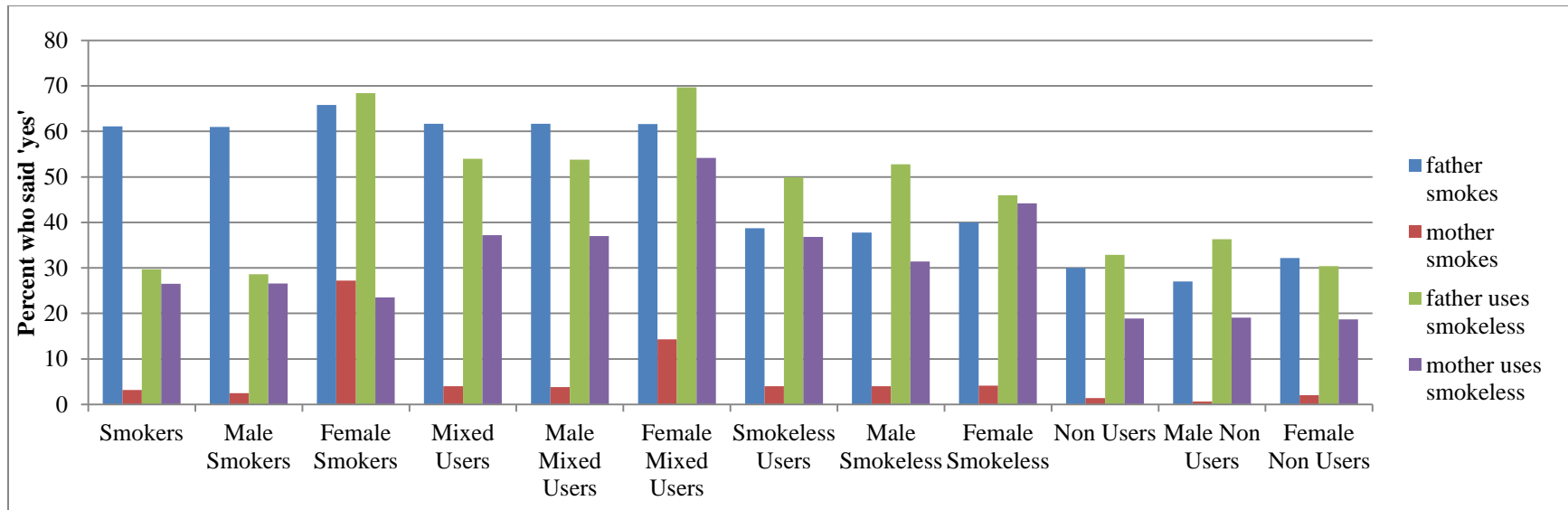
Figure 7: Smoking and Smokeless Use by Parents in India, by Tobacco User and Sex

4.5.4 Summary

These results show that tobacco users in Bangladesh and India are likely to spend time on a regular basis with other tobacco users, as indicated by their number of closest friends who use tobacco and the prevalence of tobacco use among their parents and grandparents. In Bangladesh, almost all of the smokers' five closest friends also smoked, although male smokers had more smoking friends than female smokers did. In comparison, smokeless tobacco users and non users in Bangladesh had very few smoking friends, and the evidence from India shows that smokeless users were more likely to have other smokeless tobacco-using friends than smoking friends. Almost none of these tobacco using friends in either country expressed a desire to quit, thus contributing to more positive social norms towards tobacco use and a lack of cessation support in one's immediate social network. However, the majority of tobacco users who were married did not have a tobacco-using spouse (although users in India were more likely than those in Bangladesh to be married to a tobacco user). Of the spouses who did use tobacco, smokeless tobacco use was more common, following prevalence patterns. Also in accordance with prevalences, male spouses were more likely to be tobacco users overall, and were more likely to smoke than women, while female spouses were more likely to be smokeless users or non users than males.

Patterns of tobacco use also seemed to be passed on from generation to generation. Smokers in the current sample were the most likely to report having parents or grandparents who also smoked (whether currently or in the past), and smokeless users were the most likely to have parents and grandparents who use smokeless tobacco as well. The influence of parents appeared to be the strongest for maternal tobacco use habits on their daughters. While most respondents reported very little smoking by their mothers, female smokers were much more likely than any other category of user to have a mother who also smokes (although rates of maternal smoking were lower overall in India than in Bangladesh). Similarly, female smokeless users were more likely than any other category to report having a mother who also uses smokeless tobacco. Overall, non users were the least likely to have parents or grandparents who used any tobacco. These findings suggest that parental tobacco habits may

have a strong influence on whether children take up the same habits in Bangladesh and India, and that this influence may be stronger for women than for men.

4.6 Opinion of Close Others on Quitting

Friends are not the only members of one's close social network that can influence smoking behaviour – the opinions and behaviour of family members and partners or spouses can also play an important role, as demonstrated by research on subjective norms. Previous research has shown that having a smoking spouse is a risk factor for being a smoker, and that supportive behaviours by spouses are associated with greater quit success (Cohen & Lichtenstein, 1990; Roski, Schmid, & Lando, 1996; Vink, Willemsen, & Boomsma, 2003). Therefore, we examined the beliefs of close others, including one's spouse for married respondents about respondents' tobacco use habits.

4.6.1 People Important to You Think You Should Not Use Tobacco

4.6.1.1 Bangladesh

Among smokers in Bangladesh, 92.2% agreed or strongly agreed that people important to them think they should not smoke cigarettes (92.2% of men and 90.7% of women), and 83.8% said people important to them think they should not smoke bidis (84.8% of men and 76.8% of women). Smokeless users in Bangladesh were not asked at Wave 2 whether important people think they should not use smokeless tobacco.

4.6.1.2 India

In India, 84% of all smokers agreed or strongly agreed that people important to them think they should not smoke, and 76.6% of smokeless users said people important to them think they should not use smokeless tobacco. Overall, female smokers were less likely than male smokers to say people think they shouldn't smoke (71.2% vs 84.3%), although there wasn't much difference for smokeless users (75% of women vs 77.6% of men).

Looking at type of smoker, women who used smoked tobacco only were even less likely than female mixed users to say that people important to them think they should not smoke (68.9% vs 78%). On the other hand, female mixed users were less likely than female smokeless-only users to say that important people think they should not use smokeless tobacco (68.8% vs 75%).

4.6.2 Spouse Wants You to Quit Tobacco

4.6.2.1 Bangladesh

Almost all smokers with a partner or spouse in Bangladesh (97.3%) said their partner or spouse wants them to quit smoking (70.3% said 'a lot' and 27% said 'somewhat'). Male smokers were slightly more likely to say that their spouse wants them to quit smoking than females (97.4% versus 90.2%). A lower percentage (71%) of smokeless only users said their spouse wants them to quit smokeless tobacco (26.9% said 'a lot' and 44.1% said 'somewhat'). Male and female smokeless only users were about equally likely to say their spouse wants them to quit, but men were more likely to say their spouse wants them to quit 'a lot' (40.2%) than women (19.6%).

4.6.2.2 India

Overall, 91.4% of smokers with a partner/spouse in India said their spouse wants them to quit smoking (60.7% said a lot, 30.7% said somewhat). Male smokers were more likely than female smokers to say their spouse wants them to quit (91.7% vs 78.4%; and 21.6% of women vs 8.3% of men said no, their spouse does not want them to quit).

A similar percentage (93.2%) of all smokeless users said their spouse wants them to quit using smokeless tobacco. Again, men were more likely than women to say their spouse wants them to quit smokeless (88.1% vs 74%, and 26% of women vs 11.9% of men said no, their spouse does not want them to quit)). Mixed users showed a similar pattern of responses.

4.6.3 Summary

The majority of tobacco users in both Bangladesh and India believe that the important people in their lives do not support their behaviour, which would be a strong negative

subjective norm. This belief was stronger for smokers than for smokeless users. In addition, wives seemed to have more negative views on their spouses' smoking or smokeless use than husbands; however this negative opinion may influence actual quitting behaviour differently for males versus females.

4.7 Intentions to Quit Tobacco

4.7.1 Expected Future Use of Tobacco in Bangladesh

Smokers in Bangladesh were asked how much they expect to be smoking cigarettes and/or bidis one year from now, compared to now. The majority of cigarette smokers said they did not know how many cigarettes they would be smoking in one year. Very few smokers said they would be smoking more (1.2%); 18.2% said they would be smoking the same amount; 20.5% said a little less; 19.3% said a lot less; and 10.4% said they expected not to be smoking cigarettes at all. Responses followed a similar pattern for bidis, and for mixed users. Smokeless users were not asked this question at Wave 2 in Bangladesh.

Looking at responses by sex, about the same amount of male and female cigarette smokers said they would be smoking the same amount, more, or not at all in one year. Women were less likely than men to say they would be smoking less (23.5% vs 40%), although the majority of female smokers said they don't know how much they will be smoking in one year (46.1%).

4.7.2 Expected Future Use of Tobacco in India

Smokers and smokeless only users (not mixed users) in India were asked how much they expect to be smoking or using smokeless tobacco one year from now, in comparison to now.

The majority of smokers (39.8%) said they would be smoking the same amount one year from now; 5.8% said they would be smoking a little (5.2%) or a lot (0.6%) more than now; 31.9% said a little less; and 18.2% said a lot less. An additional 4.3% said they expect

not to be smoking at all. Male and female smokers showed a similar pattern of responses, although men were slightly more likely to say they would be smoking a lot less (18.6% vs 8.6%) or not at all (4.3% vs 2.5%).

The majority of smokeless only users (42.5%) also said they would be using the same amount of smokeless one year from now. 3.4% said they would be using more (2.7% a little; 0.7% a lot), 34% said a little less, and 12% said a lot less. 8% said they expect not to be using smokeless at all. Female and male smokeless users showed a similar pattern, although women were more likely to say they would be using the same amount (47% vs 39.2%), and men were more likely to say they would be using a little or a lot less (50.2% vs 40.3%).

4.7.3 Plan to Quit Smoking in Bangladesh

Of all smokers in Bangladesh, 27.8% reported an intention to quit smoking cigarettes either in the next month, next six months, or sometime in the future. Intentions to quit smoking bidis was much lower at only 5.7% of all smokers. Male smokers were more likely overall to intend to quit smoking cigarettes (28.3%) than female smokers (16.1%); however women were more likely to intend to quit bidis (16.1%) than men (5.4%).

Looking at differences by type of tobacco user further, smokers only were slightly more likely to intend to quit cigarettes (28.9%) than mixed users (24.1%); however, mixed users were more likely to intend to quit bidis (8.5%) than smokers (5.1%). Male and female smokers followed a similar pattern as the smokers in general; however, mixed users showed a different pattern – male and female mixed users were about equally likely to intend to quit cigarettes (24.1% vs 23.1%), and female mixed users were much more likely to intend to quit bidis than male mixed users (21.6% vs 7.7%). However, the sample of female mixed users was also very small. Smokeless tobacco users were not asked whether they intended to quit smokeless tobacco at Wave 2 in Bangladesh.

4.7.4 Plan to Quit Tobacco in India

In India, tobacco users were not asked about their intentions to quit cigarettes and bidis separately, but they were asked about both smoked and smokeless tobacco products

70

separately. Of the smokers, only 13.9% of smokers only reported any intention to quit smoking, compared to 16% of mixed users. Men and women showed a similar pattern – 13.9% of male smokers and 15.7% of female smokers intended to quit smoking; and 16.1% of male mixed users and 15.3% of female mixed users intended to quit smoking.

Intentions to quit were similar for smokeless tobacco as well. 15.7% of all smokeless only users in India intended to quit using smokeless tobacco, and 15.5% of mixed users intended to quit smokeless. Male respondents had slightly higher intentions to quit than females – 16.4% of male smokeless only users and 15.5% of male mixed users intended to quit smokeless tobacco, compared to 14.7% of female smokeless only users and 13.1% of female mixed users.

4.7.5 Summary

These results show that tobacco users in Bangladesh and India are not very likely to have intentions to quit anytime in the near future. Less than one-third of smokers in Bangladesh and less than one-quarter of tobacco users in India expressed plans to quit, and a minority said they expected to have stopped using tobacco one year from now. The rates of quit intentions found here (13.9% in India and 27.8% in Bangladesh) are comparable to those found in the ITC China Survey (24%, Feng et al., 2010), but much lower than rates found in high-income countries (e.g. 72% in the ITC 4-Country Survey of Canada, U.S., U.K. and Australia; Reid, Hammond, Boudreau, Fong, & Siahpush, 2010). Men seemed slightly more likely to intend to quit smoking than women in Bangladesh; however in India, quit intentions were approximately the same across both types of tobacco users and both sexes. One encouraging finding was that tobacco users do see a future of less tobacco use for themselves – the majority expect to be using tobacco less than their current amount in one year, and very few think they will increase their tobacco use.

4.8 Awareness of Tobacco Control Policies

4.8.1 Awareness of Anti-Tobacco Campaigns

4.8.1.1 Bangladesh

In Bangladesh, respondents were asked whether they have noticed advertising or information that talks about the dangers of smoking, or encourages quitting, in several different places in the past six months: television, radio, cinema halls, posters, newspapers or magazines, on shop windows or inside shops, street vendors, workplace, public transportation vehicles or stations, and restaurants or tea stalls. Cigarette only smokers were asked about anti-cigarette information; bidi only smokers were asked about anti-bidi information; and dual and non smokers were asked about anti-smoking information in general. A combined measure was created to determine the total number of places respondents reported noticing this information.

Of all smokers combined, the average number of places that anti-tobacco information was seen was only 2.53 (out of a possible total of ten). As shown in Table 10, male smokers reported a higher number of places than female smokers (2.57 vs 1.45). Smokers only noticed anti-tobacco information in the greatest number of places (2.65 average), followed by non users (2.49), mixed users (2.04), and smokeless only users (1.65).

Table 11: Mean Number of Places in Bangladesh Where Anti-Tobacco Information was Seen, by Tobacco User and Sex

	All Smokers		Smokers Only		Smokeless Only		Mixed Only		Non Users	
	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n
All	2.53	2333	2.65	1874	1.65	404	2.04	452	2.49	1649
Men	2.57	2228	2.69	1803	2.78	70	2.07	418	3.18	400
Women	1.45	105	1.49	71	1.16	334	1.38	34	2.05	1249

Of the various locations, television was the most commonly cited source of anti-tobacco information — 69.4% of dual smokers, 80.8% of cigarette smokers, 56.1% of bidi smokers and 78.8% of non users reported noticing advertising or information about the dangers or harms of smoked tobacco/cigarettes/bidis on television in the past six months.

Radio and posters were the next two most common sources of anti-tobacco information across all types of users; awareness for other sources was generally low.

4.8.1.2 India

In India, all respondents were asked whether they've noticed advertising or information about the dangers of tobacco in general (which includes both smoked and smokeless forms) in the last six months in the following places: television, radio, cinema halls, newspapers or magazines, workplace, public transportation vehicles or stations, restaurants or tea stalls, bars, and tobacco packages.

As shown in Table 11, the average number of places reported by all tobacco users was 3.28 (out of a possible total of nine), although men reported seeing anti-tobacco information in more places (3.69) than women (2.42). Non users had the highest number of reported places (3.85), followed by mixed users (3.72), smokers (3.66), and smokeless users (3.14).

Table 12: Mean Number of Places in India Where Anti-Tobacco Information was Seen, by Tobacco User and Sex

	All Tobacco		Smokers Only		Smokeless Only		Mixed Only		Non Users	
	Mean	n	Mean	n	Mean	n	Mean	n	Mean	n
All	3.28	8051	3.66	1255	3.14	5991	3.72	805	3.85	2534
Men	3.69	5449	3.65	1218	3.69	3439	3.75	792	4.66	879
Women	2.42	2602	3.91	37	2.41	2552	1.76	13	3.24	1655

As in Bangladesh, television was the most commonly cited source of noticing anti-tobacco information in India (69.2% of tobacco users, and 79.9% of non users reported noticing anti-tobacco information on television), followed by tobacco packages and public transport. Bars were the only source of anti-tobacco information that was rarely cited by respondents.

4.8.2 Awareness of Smoke-Free Policies

To measure awareness of smoke-free policies, respondents were asked whether they are aware of smoking restrictions in a few different public places, such as restaurants, public transportation, and their workplace. Because restaurant smoking bans are only partial and not well enforced in both countries, and the sample of respondents who work at an indoor workplace was small, awareness of rules on public transport was used as a single measure to represent awareness of smoke-free policies.

4.8.2.1 Bangladesh

In Bangladesh, the laws against smoking in public places are only partial and do not meet the Guidelines of the FCTC Article 8 for 100% smoke-free public places. The current law does prohibit smoking in public vehicles but there is also a provision that allows the person in control of the public vehicle to create a smoking zone; therefore, public transportation vehicles are not currently 100% smoke-free. Rules for smoking on public transit have not yet been drafted for the new 2013 amendments to the tobacco control legislation in Bangladesh.

When asked about their knowledge of the smoking rules on public transportation, the majority of respondents in Bangladesh said that smoking is not allowed in any public transportation vehicles. Mixed users were the most likely to say there is a complete smoking ban (81.2%), followed by smokers and non users (75.8%), and smokeless users were the least likely (65.1%). Smokeless users were the most likely of any tobacco user category to say that the rules against smoking on public transportation vehicles are partial (17.2%) or that there are no rules or restrictions at all (17.7%).

Across the types of tobacco users, males were more likely than females to say that smoking is not allowed on any public transportation vehicles. The largest difference in responses between men and women was among smokers – 76.6% of male smokers compared to only 50.1% of female smokers said there is a complete ban. The differences between men and women were much smaller for mixed users, smokeless users, and non users.

4.8.2.2 India

A national smoke-free law was implemented in 2008 in India banning smoking in all public places except for certain designated areas, such as larger hotels and restaurants. While the law is a bit unclear with respect to rules about smoking on public transportation, experts have interpreted the law as requiring public transport to be 100% smoke-free ("India Details - Tobacco Control Laws," n.d.).

The majority of all respondents in India also said that smoking is not allowed on any public transportation vehicles. Non users were the most likely to say there are complete restrictions against smoking on public transit (85.4%), followed by smokers (81%), smokeless users (79.4%), and mixed users (78.2%). Men were consistently more likely than women to say that smoking is not allowed on any public transportation vehicles – 88.2% vs 83.2% for non users, 81.85 vs 53.2% for smokers, 79.4% vs 76.5% for mixed users, and 78.3% vs 66.9% for smokeless users.

4.8.3 Awareness of Warning Labels

As a measure of awareness of warning labels, respondents were asked whether or not they knew that tobacco packages in each country had warning labels. In Bangladesh, they were asked separately about warning labels on cigarette and bidi packages as warnings did not exist on smokeless tobacco packages, and in India, they were asked about smoked tobacco and smokeless tobacco packages separately.

4.8.3.1 Bangladesh

At the time of the Wave 2 survey, only text-based health warnings covering 30% of the front and back of the package were required on all forms of smoked tobacco in Bangladesh. These warnings do not meet the requirements of the FCTC that call for pictorial warnings covering at least 50% of the package and rotating messages.

Awareness of warning labels among smokers in Bangladesh was much higher for cigarette packages (84.1%) than for bidi packages (9.5%). Awareness was also higher among men than women – for example, 85.4% of male smokers were aware that cigarette packages had warning labels compared to only 40.1% of female smokers.

Awareness of cigarette warning labels was lower among smokeless users at 67.4% and awareness of bidi warning labels was higher among smokeless users at 40.1%. Again, male smokeless users reported higher awareness than female smokeless users.

Mixed users showed a similar pattern as smokers — 73.6% of mixed users knew that cigarette packages had warning labels and 12.9% were aware of bidi warning labels. Awareness of warning labels was high overall among non users, with 82.2% aware of cigarette warning labels and 35.2% aware of warnings on bidi packages.

4.8.3.2 India

At the time of the Wave 1 India Survey, pictorial health warnings were required on all forms of tobacco products, including both smoked and smokeless tobacco packages. The warnings still did not meet the requirements of the FCTC as they covered only 40% of the front of the package, and the images and messages used were very weak.

Overall, 69.4% of all tobacco users were aware that smoked tobacco packages had warning labels and 73.8% were aware that smokeless tobacco packages had warning labels. Non users were either just as likely or slightly less likely than tobacco users to say that packages had warning labels – 69.9% were aware of smoked tobacco warning labels and 68.5% were aware of smokeless tobacco warning labels.

Of the three types of tobacco users, smokers were the most likely to know that smoked tobacco packages had warning labels (84.9%), compared to 83.4% of mixed users and 64.3% of smokeless users. Mixed users had the highest awareness of smokeless tobacco warning labels (79.6%) compared to 76.7% of smokers and 72.5% of smokeless users. Across all types of users and non users, men had higher awareness of both smoked and smokeless warning labels than women.

4.8.4 Summary

4.8.4.1 Anti-Tobacco Campaigns

Overall awareness of anti-tobacco information was fairly low in both countries, although respondents in India showed higher levels of noticing anti-tobacco information than

respondents in Bangladesh, and men were more likely than women in either country to notice anti-tobacco information. In both countries, television was the most commonly cited source for noticing anti-tobacco information.

4.8.4.2 Smoke-Free Law

Despite a lack of comprehensive legislation against smoking on public transport, most respondents in Bangladesh still reported a complete smoking ban on public transportation. Smokers (including mixed users and smokers only) were more likely to be aware of this ban than smokeless only users, and men were more aware than women.

Respondents in India were slightly more likely than those in Bangladesh to report a complete smoking ban on public transport, which would be expected because of the stronger smoke-free policy in India. Non users in India were the most likely to be aware of the complete ban, and men were more aware than women.

4.8.4.3 Warning Labels

Most smokers in Bangladesh were aware of the text warnings on tobacco packages, although awareness was only high for male smokers – less than half of female smokers knew that cigarette packages had warning labels. Awareness of warning labels on cigarette packages was also lower among smokeless tobacco only users. Awareness of the existing text warnings on bidi packages was extremely low.

Overall awareness of warning labels on smoked tobacco packages was slightly lower in India than in Bangladesh. Awareness was higher for the warnings on smokeless packages in India than the smoked tobacco warnings. As in Bangladesh, smokers in India had higher awareness of warning labels than smokeless users, and men had higher awareness of warning labels on any type of product than women.

4.9 Beliefs About Social Acceptability

Descriptive analyses were performed to examine levels of perceived social acceptability of tobacco use in Bangladesh and India, and to compare responses among men

and women. Two main measures of social acceptability were looked at for each type of tobacco use – whether society disapproves of smoking/smokeless tobacco use, and whether it is acceptable for females to smoke/use smokeless tobacco.

4.9.1 Society Disapproval of Tobacco Use

4.9.1.1 Bangladesh

The majority of all respondents in Bangladesh agreed or strongly agreed that Bangladeshi society disapproves of smoking. Of the tobacco users, smokeless only users were the most likely to agree that society disapproves of smoking (91.2%), followed by smokers (87.6%) and mixed users (87.6%). Non users were even more likely than tobacco users to agree that society disapproves of smoking (93.2%).

Among non users and smokeless users, male and female respondents had similar opinions of society disapproval of smoking – 94.4% of male non users and 92.4% of female non users agreed that society disapproves of smoking, and 92.6% of male smokeless users and 90.5% of female smokeless users agreed. Among smokers, however, men were more likely to agree that society disapproves of smoking than women (87.8% vs 82%). Female mixed users on the other hand were slightly more likely than male mixed users to agree (90.9% vs 87.4%).

Overall, respondents were much less likely to agree that society disapproves of smokeless use compared to smoking, as predicted. The majority of respondents had no opinion either way, that is, they neither agreed nor disagreed that society disapproves of smokeless tobacco use. Non users were more likely than tobacco users to agree that society disapproves of smokeless use (31.6%). Among the tobacco users, smokers were the most likely to agree that society disapproves of smokeless use (31.4%), followed by smokeless users (26.6%) and mixed users (23.3%).

Again, male and female non users had similar responses (30.7% of men and 32.2% of women said society disapproves of smokeless). Among smokers and mixed users, men were more likely to agree that society disapproves of smokeless use than women (31.7% vs 20.4% for smokers, 23.6% vs 17.4% for mixed users); however, female smokeless users were more

likely to agree that society disapproves of smokeless use than male smokeless users (27.9% vs 23.7%).

4.9.1.2 India

As expected, overall, the majority of all respondents in India agreed that Indian society disapproves of both smoking and smokeless use.

Smokeless tobacco users were the most likely to agree that society disapproves of smoking (69.4%), followed by non users (68.4%), mixed users (61.3%), and smokers (60.8%). Looking at gender differences, male and female respondents were about equally likely to agree that society disapproves of smoking among smokeless users (69.1% vs 69.9%) and non users (69.4% vs 67.7%). Among smokers and mixed users, however, men were more likely to agree that society disapproves of smoking than women – 61% vs 50.9% for smokers and 61.5% vs 41.8% for mixed users.

Levels of agreement that society disapproves of smokeless use were similar across the types of tobacco users – 55.7% of smokers, 59.8% of smokeless users, and 54.8% of mixed users agreed that society disapproves of smokeless tobacco use. Non users were more likely than tobacco users to agree that society disapproves of smokeless use (67.9%). Again, male smokers and mixed users were more likely than their female counterparts to agree that society disapproves of smokeless tobacco use – 56.4% vs 34.8% for smokers and 54.9% vs 43.5% for mixed users. Men and women had similar levels of agreement among the smokeless only users (60% vs 59.5%) and non users (68.8% vs 67.2%).

Figures 8 and 9 compare the levels of agreement that society disapproves of smoking and smokeless use across types of tobacco users and sexes in Bangladesh and India.
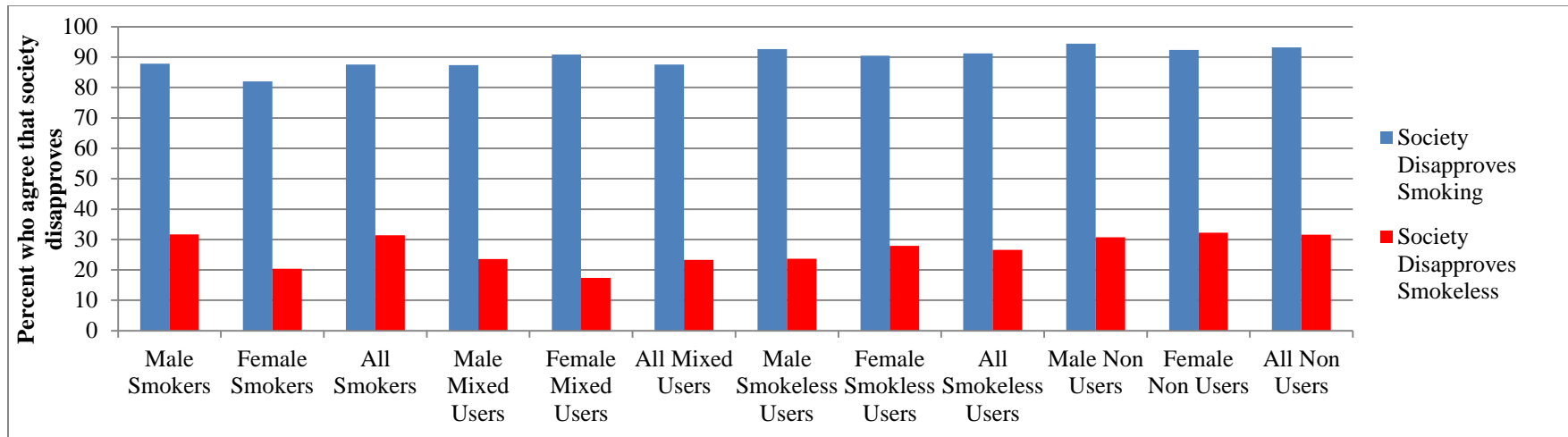
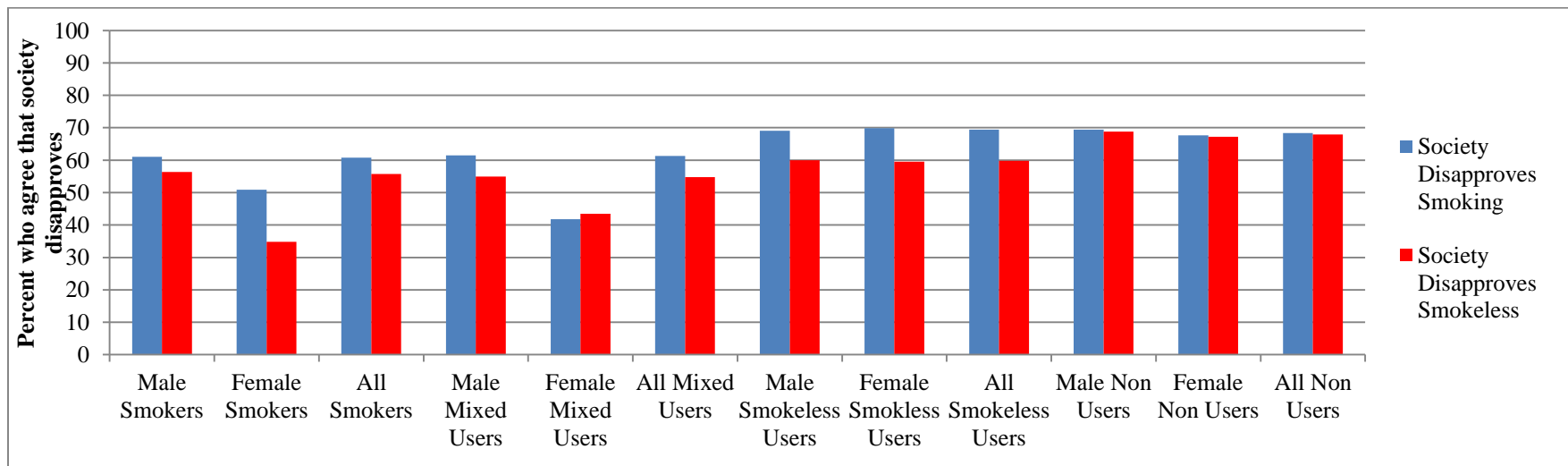**Figure 8: Perceived Society Disapproval of Tobacco Use in Bangladesh, by Tobacco User and Sex**

Figure 9: Perceived Society Disapproval of Tobacco Use in India, by Tobacco User and Sex

4.9.2 Acceptability of Female Tobacco Use

4.9.2.1 Bangladesh

Overall, respondents in Bangladesh strongly believed that female smoking (cigarettes and bidis) is not acceptable; however, opinions of female smokeless tobacco use were much less clear – while the majority disagreed that female smokeless use is acceptable, it was viewed as much more acceptable than female smoking.

Non users were the most likely to disagree that female cigarette smoking is acceptable (98.4%), and male and female respondents did not differ in this response (98.5% vs 98.2%). Of the tobacco users, smokeless only users were the most likely to disagree that female cigarette smoking is acceptable (97.5%), followed by smokers (96.8%) and mixed users (95.3%). The same pattern was observed for acceptability of female bidi use, as shown in Figure 10.

Female smokeless users were more likely than male smokeless users to disagree that female cigarette smoking is acceptable (98.8% vs 94.5%); however, the opposite pattern was observed for smokers and mixed users – 97.1% of male smokers compared to 82.8% of female smokers disagreed that female cigarette smoking is acceptable; and 96.3% of male mixed users compared to only 76% of female mixed users disagreed.

Non users were also the most likely of all the categories of respondents to disagree that female smokeless tobacco use is acceptable (60.2%), and female non users were slightly more likely than males to disagree (61.9% vs 57.7%). Of the tobacco users, 58.5% of smokers compared to only 50.6% of mixed users and 42.8% of smokeless users disagreed that female smokeless use is acceptable (meaning that the majority of smokeless users thought it was acceptable for females to use smokeless tobacco). Male and female smokers had similar opinions (58.5% of males and 57.1% of females disagreed), while mixed users and smokeless users showed different patterns in responses between the sexes. Male mixed users were slightly more likely than female mixed users to disagree that female smokeless use is acceptable (50.8% vs 46.3%); however female smokeless users were more likely to disagree than males (44.8% vs 38.5%).

4.9.2.2 India

Overall, respondents in India believed that all forms of tobacco use by women (cigarettes, bidis, and smokeless tobacco) are not acceptable; however, female smokeless use was viewed as more acceptable than female smoking, as predicted.

As seen in Figure 11, of the tobacco users, smokeless only users were the least likely to agree that female cigarette smoking is acceptable (97.7% disagreed), followed by mixed users (94.6%) and smokers (92.2%). The same pattern was observed for female bidi use. Non users were the most likely to disagree that female cigarette smoking is acceptable (98%).

Looking at differences between male and female respondents, smokeless users and non users showed little difference in beliefs about female acceptability of smoking – 97.7% of male smokeless users and 97.6% of female smokeless users disagreed that it is acceptable; and 97.5% of male non users and 98.5% of female non users disagreed. Smokers and mixed users, however, showed large differences in responses between men and women on this measure. 92.7% of male smokers compared to 75.7% of female smokers disagreed that female smoking is acceptable; and 95.1% of male mixed users and only 55.5% of female mixed users disagreed.

When asked about female smokeless tobacco use, non users were the most likely group to say that it is not acceptable (97.7%). Of the tobacco users, smokers were the most likely to disagree (90.9%), followed by mixed users (88.8%) and smokeless only users (87.1%). Male and female respondents showed similar patterns of responses on this measure among the smoker and non user categories – 91% of male smokers and 88.9% of female smokers disagreed that female smokeless use is acceptable; and 97.6% of male non users and 97.7% of female non users disagreed. Among smokeless users and mixed users, however, men were more likely to disagree than women – 91.8% vs 80.6% for smokeless users, and 89.2% vs 60.5% for mixed users.
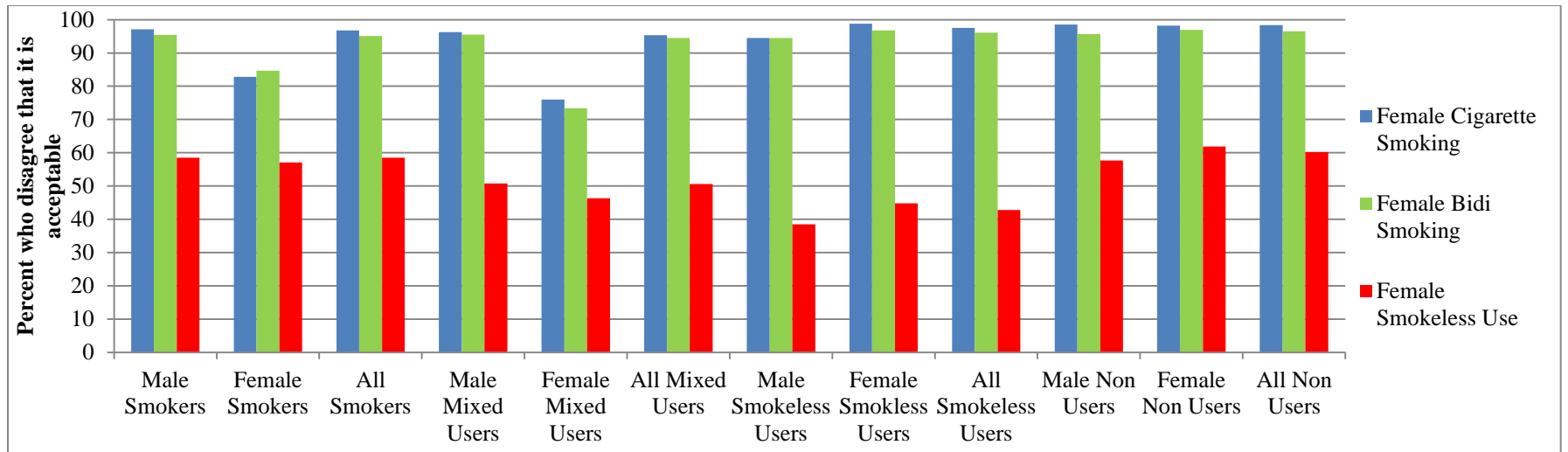
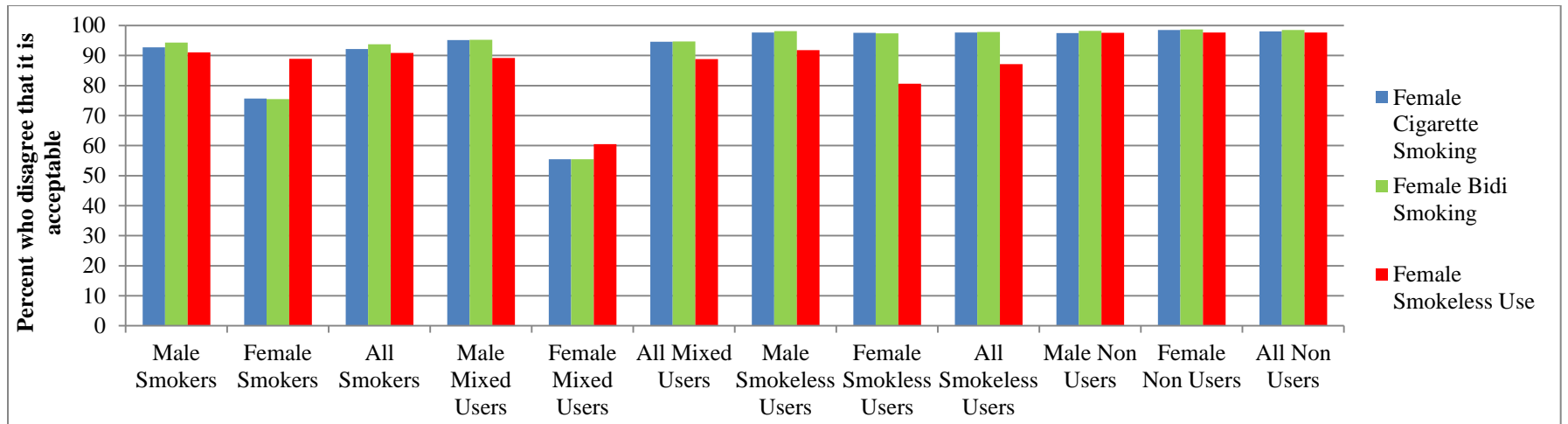**Figure 10: Perceived Unacceptability of Female Tobacco Use in Bangladesh, by Tobacco User and Sex**

Figure 11: Perceived Unacceptability of Female Tobacco Use in India, by Tobacco User and Sex

4.9.3 Summary

The strong majority of all respondents in both Bangladesh and India said that society disapproves of any tobacco use – smoking and smokeless use, but there were some differences in beliefs about social norms across type of tobacco user and sex. It was also clear that while any type of tobacco use by females is not approved of overall, female smokeless use is seen as much more acceptable than female smoking.

In both countries, non users generally had the most negative perceptions of social acceptability of smoking or smokeless tobacco use compared to tobacco users. Among tobacco users, those who did not use each product were more likely to say that society disapproves of that behaviour (i.e. smokeless users had more negative perceived norms against smoking than smokers did). In addition, responses were similar across the sexes for products that they did not use, but there was a sex difference for their own product beliefs, especially among smokers – female smokers in each country clearly had less negative perceived norms against smoking and against female smoking in particular, than male smokers did. This observation is in line with our predictions, which were that female smokers would be the least likely group to say that it is unacceptable for females to smoke. Also, as expected, the differences between men and women and between tobacco users were not as pronounced for smokeless tobacco, although male smokers did have more negative norms against smokeless use than female smokers did.

While respondents in Bangladesh and India showed similar patterns in their responses, there were also some country differences that should be noted. First, while Indian society disapproves of smoking to a greater extent than smokeless tobacco, this difference was not nearly as large as that seen in Bangladesh. In Bangladesh, not only were the societal norms against smoking much more negative than in India, but the norms against smokeless use were also more positive than in India, creating a large gap in the level of approval of smoking compared to smokeless use in Bangladesh. A similar discrepancy was found for the measures of female acceptability – while the levels of agreement that it is not acceptable for females to smoke cigarettes or bidis were approximately equally high across respondents in Bangladesh and India, there was a large difference in perceived acceptability of female

84

smokeless tobacco use – respondents in Bangladesh were much more likely to say it is acceptable than those in India. The greater acceptability overall of smokeless use, and female smokeless use in particular, in Bangladesh will be discussed further in the Discussion section.

4.10 Crosstabs Analyses

Crosstabs analyses in each country were used to examine whether responses on each of the measures of social acceptability significantly differed between men and women.

4.10.1 Acceptability of Female Tobacco Use

4.10.1.1 Bangladesh

In Bangladesh, the chi-square analyses of the difference in responses between men and women on the measures of female acceptability found significant differences only in certain categories of tobacco users.

Among smokers, the Pearson's chi-square was significant for acceptability of female cigarette and bidi smoking, with female smokers more likely to agree that either type of smoking is acceptable than male smokers, and men more likely to disagree (χ^2= 47.459, p<.001 for cigarette smoking; χ^2=15.910, p<.001 for bidi smoking). However, there was no difference between male and female smokers on the measure of whether they think it is acceptable for females to use smokeless tobacco (χ^2=.038, p=.942).

Mixed users showed the same pattern as smokers – there was a significant difference between male and female respondents on the questions about acceptability of female cigarette smoking (χ^2=17.579, p<.001) and bidi smoking (χ^2=18.112, p<.001), with women more likely to say it is acceptable, but there was no sex difference for the measure of acceptability of female smokeless tobacco use (χ^2=1.095, p=.104).

Both smokeless tobacco users and non users showed no significant differences between men and women on responses to all three questions about female acceptability in Bangladesh.

4.10.1.2 India

In India, there were significant differences between male and female tobacco users on the measures of female acceptability, but again, only in certain categories of users.

Male and female smokers had significantly different responses on the questions about female cigarette smoking ($\chi^2=25.916$, $p<.05$) and female bidi smoking ($\chi^2=32.712$, $p<.01$), with women being more likely to agree that each is acceptable, but not for female smokeless tobacco use ($\chi^2=3.434$, $p=.154$).

Among mixed users, there were significant differences between male and female respondents on all three measures of acceptability: female cigarette smoking ($\chi^2=29.662$, $p<.001$), female bidi smoking ($\chi^2=37.116$, $p<.001$), and female smokeless use ($\chi^2=8.917$, $p<.05$), with women more likely to agree that it is acceptable than men.

Smokeless tobacco users only showed a significant difference on the measure of acceptability of female smokeless use ($\chi^2=164.873$, $p<.001$), with women more likely to agree that it is acceptable than men.

Finally, there were no significant sex differences among non users on any of the measures of female acceptability.

4.10.2 Society Disapproval of Tobacco Use

4.10.2.1 Bangladesh

For the measures of society disapproval of smoking and smokeless tobacco use in general in Bangladesh, the only significant difference between male and female respondents in a Pearson's chi-square analysis was in the smoker category – male smokers were significantly more likely than female smokers to agree that society disapproves of smokeless tobacco use ($\chi^2=2.932$, $p<.05$). While male smokers were also slightly more likely than female smokers to agree that society disapproves of smoking, this difference was not significant.

None of the other comparisons of female and male respondents on the measures of society disapproval of smoking and smokeless use (among mixed users, smokeless users, and non users) were significant in the chi-square analyses.

4.10.2.2 India

While female smokers in India were less likely than male smokers to agree that society disapproves of smoking, the Pearson's chi-square test did not show a significant difference between men and women in their responses on this measure. There was also no sex difference in beliefs about society disapproval of smoking within the smokeless user and non user categories.

A similar pattern was observed for the measure of society disapproval of smokeless tobacco use – while female smokers and mixed users were less likely than men to agree that society disapproves of smokeless use, these differences were not significant. Female smokeless users and non users also did not significantly differ from men in their beliefs about society disapproval of smokeless use.

4.10.3 Summary

Some, but not all, of the observed differences between male and female respondents on the measures of social norms in the previous section were found to be statistically significant in chi-square analyses. In both countries, female smokers and mixed users were significantly more likely than their male counterparts to say that it is acceptable for females to smoke, and in India only, this same pattern was observed for female smokeless use. For the measures of society disapproval, the pattern of responses across the sexes was in line with the predictions; however, the only significant sex difference in either country was among smokers in Bangladesh (male smokers were more likely than females to say that society disapproves of smokeless tobacco use).

4.11 Linear Regression

4.11.1 Tobacco Policy Measures Predicting Social Acceptability

To examine which policy awareness factors were associated with social norms in each country, we first performed bivariate linear regression analyses for each type of tobacco

user separately and for each of four measures of social acceptability as outcome variables: society disapproval of smoking, society disapproval of smokeless tobacco use, acceptability of female cigarette smoking, and acceptability of female smokeless use (not shown in tables). Regressions were not done separately for men and women due to small sample sizes of women in the smoker categories; however, sex was included as a predictor variable in each model. The three policy awareness variables included in the regression were: awareness of warning labels (either awareness of warnings on smoked tobacco packages for smoking-related outcomes, or on smokeless packages for smokeless outcomes), awareness of smoke-free restrictions on public transit (a categorical variable), and awareness of anti-tobacco campaigns (the sum variable indicating the total number of places respondents reported seeing anti-tobacco information). Multiple linear regressions were then run controlling for the following demographic variables: state, urban/rural area, sex, age group, education level, and income level (shown in Tables 12 and 13).

4.11.1.1 India

Table 13: Linear Regression Predicting Social Acceptability in India

Outcome Variables and Predictors	Smokers Adjusted B (SE) n=1255	Mixed Users Adjusted B (SE) n=805	Smokeless Users Adjusted B (SE) n=5991	Non Users Adjusted B (SE) n=2534
Society Disapproval of Smoking[a]				
Policy Awareness				
Warning Label (ref=yes)				
No	.395 (.19)*	.294 (.16)	.476 (.16)**	.195 (.10)
Smoking Restrictions on Public Transit (ref=complete)				
None	.372 (.15)*	-.022 (.16)	-.194 (.20)	.101 (.19)*
Some	.350 (.22)*	.414 (.28)	.602 (.29)	.860 (.22)*
Anti-tobacco information	-.027 (.02)	.005 (.03)	.012 (.03)	.004 (.02)
State	-.019 (.02)	-.003 (.02)	-.012 (.02)	-.013 (.02)
Area (ref=urban)	-.032 (.19)	.057 (.24)	-.421 (.21)*	-.156 (.21)
Sex (ref=female)	.350 (.40)	-.624 (.55)	.263 (.07)***	-.040 (.07)
Age Group	-.025 (.05)	-.018 .05)	.030 (.03)	-.026 (.04)
Education Level	-.049 (.08)	.046 (.07)	-.174 (.10)	.025 (.04)
Income Level	-.022 (.06)	-.043 (.05)	-.016 (.03)	-.109 (.08)
Society Disapproval of Smokeless Tobacco[a]				
Policy Awareness				
Warning Label (ref=yes)				
No	.368 (.13)**	.158 (.17)	.432 (.10)***	.142 (.11)
Smoking Restrictions on Public Transit (ref=complete)				
None	.180(.14)*	-.088 (.22)	-.133 (.19)	-.071 (.17)
Some	.614 (.23)*	-.082 (.21)	.181 (.15)	.731 (.31)
Anti-tobacco information	.010 (.03)	-.026 (.03)	.006 (.03)	-.025 (.03)
State	-.026 (.02)	-.009 (.02)	-.020 (.02)	-.015 (.02)
Area (ref=urban)	.131 (.21)	-.099 (.02)	-.424 (.18)*	-.244 (.22)
Sex (ref=female)	.169 (.31)	-.398 (.46)	.180 (.07)**	.030 (.06)
Age Group	-.016 (.06)	-.064 (.05)	.017 (.03)	.001 (.04)

89

Table 14 (continued): Linear Regression Predicting Social Acceptability in India

Outcome Variables and Predictors	Smokers Adjusted B (SE) n=1255	Mixed Users Adjusted B (SE) n=805	Smokeless Users Adjusted B (SE) n=5991	Non Users Adjusted B (SE) n=2534
Education Level	-.137 (.09)	-.017 (.07)	-.163 (.10)	-.021 (.04)
Income Level	-.047 (.05)	-.007 (.05)	-.016 (.03)	-.064 (.09)
Acceptability of Female Cigarette Smoking[b]				
Policy Awareness				
Warning Label (ref=yes)				
No	.035 (.07)	.033 (.07)	-.070 (.05)	.021 (.04)
Smoking Restrictions on Public Transit (ref=complete)				
None	-.289 (.11)*	-0.67 (.06)*	-.178 (.09)***	-.101 (.06)
Some	-.041 (.12)*	-.399 (.15)*	-.373 (.09)***	-.072 (.14)
Anti-tobacco information	.023 (.01)	.010 (.02)	.010 (.011)	.027 (.01)*
State	-.006 (.01)	-.012 (.01)	-.013 (.01)*	-.001 (.01)
Area (ref=urban)	.114 (.09)	.170 (.10)	.047 (.08)	.003 (.08)
Sex (ref=female)	.828 (.27)**	.915 (.36)*	-.033 (.04)	-.066 (.03)*
Age Group	.031 (.03)	.005 (.03)	.021 (.01)	.021 (.01)
Education Level	-.096 (.06)	.041 (.05)	.047 (.02)*	.006 (.01)
Income Level	-.008 (.02)	-.038 (.04)	-.005 (.01)	.070 (.02)**
Acceptability of Female Smokeless Use[b]				
Policy Awareness				
Warning Label (ref=yes)				
No	.095 (.08)	.154 (.09)	-.110 (.07)	.079 (.035)*
Smoking Restrictions on Public Transit (ref=complete)				
None	-.372 (.18)*	-0.112 (.13)	-.254 (.16)	-.181 (.07)*
Some	.111 (.14)*	-.379 (.20)	-.153 (.17)	-.048 (.07)*
Anti-tobacco information	.035 (.01)*	.051 (.02)*	.046 (.02)**	.025 (.01)*

Table 15 (continued): Linear Regression Predicting Social Acceptability in India

Outcome Variables and Predictors	Smokers Adjusted B (SE) n=1255	Mixed Users Adjusted B (SE) n=805	Smokeless Users Adjusted B (SE) n=5991	Non Users Adjusted B (SE) n=2534
State	-.011 (.01)	-.031 (.01)***	-.019 (.01)**	-.011 (.00)*
Area (ref=urban)	.128 (.12)	.165 (.10)	.123 (.12)	-.002 (.08)
Sex (ref=female)	.174 (.17)	.821 (.26)**	.219 (.04)***	-.030 (.03)
Age Group	.019 (.03)	-.043 (.03)	-.020 (.02)	.003 (.01)
Education Level	-.024 (.08)	-.010 (.05)	.033 (.03)	.050 (.02)*
Income Level	-.008 (.02)	.019 (.02)	-.002 (.02)	.027 (.01)*

*p< 0.05; **p< 0.01; ***p< 0.001.
[a] Higher values indicate less agreement that society disapproves and lower values indicate greater perceived society disapproval
[b] Higher values indicate less agreement that it is acceptable and lower values indicate greater perceived acceptability

4.11.1.1.1 Society Disapproval of Smoking

In India, awareness of warning labels on smoked tobacco packages was a significant predictor of society disapproval of smoking in bivariate analyses for smokeless users (Wald F=8.969, $p<.01$) and for non users (F=6.033, $p<.05$), whereby those who were aware of the warnings were more likely to agree that society disapproves of smoking, but this relation was not significant for smokers or mixed users. Awareness of smoke-free laws on public transit was a significant predictor for smokers (Wald F=3.751, $p<.05$), and for non users (F=10.362, $p<.001$). Awareness of anti-tobacco campaigns was not a significant predictor in any bivariate analyses.

After adjusting for demographic variables, the multiple regression found that greater perceived society disapproval of smoking was significantly associated with greater awareness of warning labels for smokers and for smokeless users; and with greater awareness of smoke-free laws on public transit for smokers and non users (see Table 12). Gender was also a significant predictor for smokeless users, where women were more likely to say that society disapproves of smoking than men.

4.11.1.1.2 Society Disapproval of Smokeless Use

In bivariate analyses, greater awareness of warning labels on smokeless packages was significantly associated with greater perceived society disapproval of smokeless tobacco use for smokers (F=10.002, *p*<.01) and for smokeless users (F=16.110, *p*<.001). Awareness of smoke-free laws on public transit was a significant predictor for smokers (F=4.578, *p*<.05) and for non users (F=3.851, *p*<.05). Anti-tobacco campaign awareness was not significant for any of the bivariate analyses.

In multiple linear regression analyses controlling for demographic variables, warning label awareness was still a significant predictor of society disapproval of smokeless use among smokers and smokeless users, and smoke-free law awareness was a significant predictor for smokers only. Other significant predictors included urban/rural area and sex, with women and those living in rural areas more likely to agree that society disapproves of smokeless use.

4.11.1.1.3 Acceptability of Female Cigarette Smoking

Warning label awareness was not a significant predictor of perceived acceptability of female cigarette smoking for any of the bivariate analyses in India. Awareness of smoke-free laws on public transit was a significant predictor for smokers (F=4.038, *p*<.05), mixed users (F=3.204, *p*<.05), and smokeless users (F=8.812, *p*<.001). Finally, awareness of anti-tobacco campaigns was a significant predictor for non users (F=6.490, *p*<.05), where those with greater awareness were less likely to agree that it is acceptable for females to smoke.

After adjusting for demographic variables, awareness of smoke-free laws remained a significant predictor for smokers, mixed users, and smokeless users; and awareness of anti-tobacco campaigns remained a significant predictor for non users, with those who had greater awareness of each policy less likely to agree that it is acceptable for females to smoke. In addition, sex was a significant predictor among smokers, mixed users and non users, with males more likely to disagree that is acceptable for females to smoke. State was a significant predictor among smokeless users, and education level was a significant predictor for

92

smokeless users and non users, where higher education was associated with lower perceived acceptability.

4.11.1.1.4 Acceptability of Female Smokeless Use

In bivariate analyses, awareness of warning labels on smokeless packages was significantly associated with perceived acceptability of female smokeless use only for non users (F=9.323, $p<.01$). Awareness of smoke-free laws on public transit was a significant predictor for smokers only (F=5.401, $p<.01$), and awareness of anti-tobacco campaigns was a significant predictor for all categories (smokers: F=5.225, $p<.05$; mixed users: F=9.899, $p<.01$; smokeless users: F=14.658, $p<.001$; non users: F=9.721, $p<.01$).

In multiple linear regression analyses, smokers and non users who were more aware of smoke-free laws on public transit were significantly less likely to agree that it is acceptable for females to use smokeless tobacco (see Table 12). Awareness of warning labels on smokeless packages was significantly associated with acceptability of female smokeless use for non users, but in the opposite direction than expected – those who were more aware were more likely to agree that it is acceptable for females to use smokeless. Greater awareness of anti-tobacco campaigns was associated with less perceived acceptability for all types of users. State was a significant predictor among mixed users, smokeless users, and non users, and sex was significant for mixed users and smokeless users (women were more likely to say it is acceptable). Education and income level were significant predictors among non users.

4.11.1.2 Bangladesh

Table 16: Linear Regression Predicting Social Acceptability in Bangladesh

Outcome Variables and Predictors	Smokers Adjusted B (SE) n=1875	Mixed Users Adjusted B (SE) n=452	Smokeless Users Adjusted B (SE) n=404	Non Users Adjusted B (SE) n=1649
Society Disapproval of Smoking[a]				
Policy Awareness				
Warning Labels	-.137 (.05)**	-.259 (.07)**	-.121 (.06)*	.009 (.02)
Smoking Restrictions on Public Transit (ref=complete)				
None	.030 (.04)	.011 (.19)	-.189 (.06)**	.100 (.08)
Some	.099 (.09)	-.152 (.07)	.235 (.12)**	-.004 (.06)
Anti-tobacco information	.019 (.02)	.004 (.01)	.052 (.02)*	.009 (.01)
Area (ref=urban)	-.050 (.05)	-.006 (.07)	.113 (.06)	.011 (.05)
Sex (ref=male)	.146 (.05)**	-.139 (.12)	.068 (.07)	.028 (.04)
Age Group	-.055 (.02)*	-.021 (.05)	.052 (.04)	.001 (.02)
Education Level	.016 (.02)	-.132 (.06)*	.010 (.09)	-008 (.02)
Income Level	.014 (.02)	.080 (.04)*	.033 (.04)	.001 (01)
Society Disapproval of Smokeless Tobacco[a]				
Policy Awareness				
Warning Labels	-.046 (.06)	-.212 (.11)	-.103 (.08)	-.176 (.03)***
Smoking Restrictions on Public Transit (ref=complete)				
None	.159 (.05)**	.098 (.07)*	-.076 (.06)	.172 (.09)*
Some	-.038 (.04)**	-.361 (.13)*	-.191 (.09)	-.060 (.09)*
Anti-tobacco information	.047 (01)**	.039 (.02)	.006 (.04)	.048 (.01)***
Area (ref=urban)	-.006 (.06)	-.019 (.08)	-.048 (.08)	.089 (.07)
Sex (ref=male)	.059 (.04)	-.091 (.11)	-.151 (.12)	-.004 (.05)
Age Group	.062 (.02)***	-.053 (.04)	.067 (.06)	.043 (.02)

94

Table 17 (continued): Linear Regression Predicting Social Acceptability in Bangladesh

Outcome Variables and Predictors	Smokers Adjusted B (SE) n=1875	Mixed Users Adjusted B (SE) n=452	Smokeless Users Adjusted B (SE) n=404	Non Users Adjusted B (SE) n=1649
Education Level	-.064 (.03)*	-.236 (.05)***	-.105 (.07)	-.030 (.04)
Income Level	-.001 (.02)	.055 (.02)*	-.032 (.02)	.003 (.01)
Acceptability of Female Cigarette Smoking[b]				
Policy Awareness				
Warning Label	-.096 (.08)	-.411 (.15)*	-.136 (.07)	-.143 (.05)*
Smoking Restrictions on Public Transit (ref=complete)				
None	-.281 (.14)	-.673 (.16)**	-.394 (.28)	-.143 (.12)
Some	.049 (.06)	-.249 (.15)	-.059 (.11)	-.052 (07)
Anti-tobacco information	-.008 (.01)	.021 (.02)	-.015 (.03)	.001 (.02)
Area (ref=urban)	-.012 (.05)	-.345 (.13)*	-.043 (.11)	.003 (.07)
Sex (ref=male)	-.082 (.18)	-.281 (.40)	.036 (.14)	.013 (.08)
Age Group	-.013 (.02)	.016 (.05)	-.026 (.05)	.050 (.02)*
Education Level	.020 (.03)	.046 (.08)	-.026 (.09)	.076 (.06)
Income Level	-.023 (.01)	.031 (.04)	.023 (.01)	-.036 (.01)*
Acceptability of Female Smokeless Use[b]				
Policy Awareness				
Warning Label	-277 (.13)*	-.015 (.21)	-.523 (.32)	-.411 (.12)**
Smoking Restrictions on Public Transit (ref=complete)				
None	-.499 (.27)***	-1.717 (.33)***	-.838 (.47)**	-1.101 (.21)***
Some	1.677 (.32)***	-.097 (.31)***	1.712 (.46)**	.893 (.39)***
Anti-tobacco information	.028 (.03)	-.031 (.07)	.027 (.13)	-.002 (06)
Area (ref=urban)	-.369 (.22)	-.134 (.38)	-.474 (.62)	-.818 (.27)**
Sex (ref=male)	.445 (.27)	-.490 (.37)	-.036 (.51)	.268 (.20)
Age Group	.007 (.07)	.073 (.17)	-.364 (.15)*	-.200 (.07)**

Table 18 (continued): Linear Regression Predicting Social Acceptability in Bangladesh

Outcome Variables and Predictors	Smokers Adjusted B (SE) n=1875	Mixed Users Adjusted B (SE) n=452	Smokeless Users Adjusted B (SE) n=404	Non Users Adjusted B (SE) n=1649
Education Level	-.148 (.11)	-.222 (.26)	-.140 (.34)	.059 (.17)
Income Level	-.025 (.04)	.014 (.10)	.013 (.11)	-.096 (.04)*

*$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

[a] Higher values indicate less agreement that society disapproves and lower values indicate greater perceived society disapproval

[b] Higher values indicate less agreement that it is acceptable and lower values indicate greater perceived acceptability

Bivariate and multiple linear regressions were also performed among each category of tobacco user in Bangladesh – smokers, mixed users, smokeless users, and non users – to predict measures of social acceptability from the measures of tobacco policy awareness. Since certain questions were asked differently in the Bangladesh survey than in India, the variables used differ slightly here. For instance, the five-point scale question about society disapproval was not used for smokeless tobacco, so a three-point scale was used for both smokeless tobacco and smoking instead. Awareness of warning labels was also only asked about smoked tobacco products, so a continuous variable indicating total awareness of cigarette and/or bidi warning labels was used as a predictor, even for smokeless tobacco-related outcomes. Similarly, awareness of anti-tobacco campaigns was only asked about smoked tobacco products as well.

4.11.1.2.1 Society Disapproval of Smoking

In bivariate analyses, awareness of warning labels on smoked tobacco products was significantly associated with society disapproval of smoking among smokers (F=6.612, $p<.05$) and mixed users (F=7.464, $p<.01$). Awareness of smoke-free laws was associated with society disapproval for mixed users (F=6.133, $p<.01$) and smokeless users (F=4.403, $p<.05$), with greater disapproval among those with greater awareness of smoke-free restrictions on

public transit. Awareness of anti-smoking campaigns was associated with society disapproval for smokeless users ($F=9.971$, $p<.01$), but in the opposite direction than expected – those with greater awareness were less likely to agree that society disapproves of smoking.

In multiple linear regression analyses controlling for demographic variables, warning labels were a predictor of society disapproval of smoking for smokers, mixed users, and smokeless users (see Table 13). Awareness of smoke-free laws and anti-smoking campaigns were only significantly associated with society disapproval for smokeless users. Other demographic variables were predictors for certain groups – female smokers were less likely to say that society disapproves of smoking than male smokers, older smokers were more likely to agree that society disapproves of smoking, and income and education were significant predictors for mixed users.

4.11.1.2.2 Society Disapproval of Smokeless Use

Bivariate analyses showed significant associations between society disapproval of smokeless use and awareness of smoke-free laws on public transit for smokers ($F=5.243$, $p<.01$), mixed users ($F=7.966$, $p<.01$), and non users ($F=4.307$, $p<.05$), with those who were more aware being more likely to agree that society disapproves. Awareness of warning labels was only a significant predictor among non users ($F=21.494$, $p<.001$), and awareness of anti-smoking campaigns was associated with society disapproval for smokers ($F=8.070$, $p<.01$) and non users ($F=19.013$, $p<.001$), but with those who were more aware of campaigns being less likely to agree that society disapproves of smokeless use.

In multiple linear regression analyses, awareness of smoke-free laws remained a significant predictor for smokers, mixed users, and non users. Awareness of warning labels was again only significant for non users, and awareness of anti-smoking campaigns was significant for smokers and non users. Education level was also a significant predictor for smokers and mixed users, with greater agreement that society disapproves of smokeless use among those with higher education. In addition, age group was significant among smokers, and income was significant for mixed users.

4.11.1.2.3 Acceptability of Female Cigarette Smoking

In bivariate analyses predicting acceptability of female cigarette smoking, awareness of anti-smoking campaigns was not a significant predictor for any category of tobacco user. Awareness of smoke-free laws on public transit was significant only for mixed users ($F=6.925$, $p<.01$). Awareness of warning labels on smoked tobacco products was a significant predictor for mixed users ($F=5.225$, $p<.05$) and non users ($F=6.940$, $p<.05$), but in the opposite direction than expected – those who were more aware of warning labels were more likely to agree that it is acceptable for females to smoke.

After controlling for demographic variables, warning label awareness remained a significant predictor for mixed users and non users, and awareness of smoke-free laws was significant for mixed users only (see Table 13). Mixed users in rural areas were also more likely to agree that it is acceptable for females to smoke than those in urban areas. The only other significant demographic variables were age group and income for non users.

4.11.1.2.4 Acceptability of Female Smokeless Use

When predicting acceptability of female smokeless tobacco use, awareness of smoke-free laws on public transit was a significant predictor in bivariate regressions for all categories of tobacco users (smokers: $F=14.566$, $p<.001$; mixed users: $F=13.063$, $p<.001$; smokeless: $F=10.456$, $p<.001$; non users: $F=12.842$, $p<.001$), whereby those who reported no ban were more likely to agree that it is acceptable for females to use smokeless tobacco. Awareness of warning labels on smoked tobacco products was a significant predictor for smokers ($F=6.924$, $p<.05$) and for non users ($F=32.426$, $p<.001$), but again, the association was in the opposite direction than expected.

These associations held in a multiple linear regression controlling for demographic variables. Those who were more aware of smoke-free laws were less likely to agree that it is acceptable for females to use smokeless tobacco, and smokers and non users who were more aware of warning labels on smoked tobacco products were more likely to agree that it is acceptable for females to use smokeless tobacco. Other significant predictors included urban/rural area, age group, and income for non users, and age group was significant for

98

mixed users as well – older respondents were more likely to say it is acceptable for females to use smokeless tobacco.

4.11.2 Summary

Each of the three types of measures of awareness of tobacco control policies was significantly associated with measures of social acceptability in at least some categories, but the results were not consistent across the outcome measures. For instance, awareness of warning labels predicted society disapproval of smoking and smokeless tobacco for half of the types of tobacco users in India, and in Bangladesh this measure predicted society disapproval of smoking for most users, and female acceptability for only certain types of users. Awareness of smoke-free restrictions on public transit was a fairly good predictor of the different measures of social norms, although it was a better predictor of smokeless tobacco-related norms than smoking in Bangladesh. Awareness of anti-tobacco campaigns was associated with social norms for very few categories overall, although it was significant among all types of users for predicting acceptability of female smokeless use in India. While the most of the associations were in the expected directions, there were a couple of instances where the opposite pattern than expected was found. However, it should also be noted that the measures were not ideal for comparing across the two countries, as some smoking-related predictors had to be used for smokeless tobacco-related outcomes in Bangladesh whereas the measures were more product-consistent in India.

4.12 Logistic Regression

4.12.1 Social Acceptability Predicting Quit Intentions

4.12.1.1 India

For the next step, in order to see whether the measures of social acceptability predict quit intentions at the same survey wave, separate logistic regressions were run in each country for each type of tobacco user. Again, regressions were not done separately for men and women due to the small sample sizes of women in the smoker categories; however, sex

was included as a predictor variable in each model. The predictor variables included in the regressions included both measures of society disapproval (for smoking and for smokeless use), and two of the measures of acceptability of female tobacco use (cigarette smoking and smokeless tobacco use). Intention to quit smoking was used as the outcome variable for smokers and for mixed users, and intention to quit smokeless use was the outcome variable for smokeless users and again for mixed users. Non users were excluded from these regression analyses because they were not asked about intentions to quit. We also controlled for several demographic variables in the analyses (sex, state, urban/rural area, age group, income, and education).

In India, none of the predictors were significant in bivariate logistic regression analyses for any type of user. After including demographic variables in the multivariate analyses, only education was a significant predictor of quit intentions among smokers, mixed users (predicting smokeless quit intention) and smokeless users, whereby those with higher education were more likely to intend to quit. Age group was also a significant predictor of smokeless quit intentions for mixed users and smokeless users, with older smokeless users less likely to intend to quit. Perceived society disapproval of smoking or smokeless use, and perceived acceptability of female cigarette smoking or smokeless use were not significantly associated with quit intentions. Table 14 shows the odds ratios for the variables of interest.

Table 19: Logistic Regression Predicting Quit Intentions in India

Variable	Smokers OR (95% CI) n=1255	Mixed Users OR (95% CI) n=805	Smokeless Users OR (95% CI) n=5991
Intention to Quit Smoking			
Society disapproval of Smoking	1.064 (0.828-1.368)	1.005 (0.709-1.425)	n/a
Acceptability of Female Smoking	1.286 (0.756-2.188)	0.990 (0.560-1.750)	
State	0.998 (0.929-1.073)	0.952 (0.873-1.037)	
Area (ref=urban)	0.928 (0.488-1.766)	1.042 (0.329-3.299)	
Sex (ref=female)	0.558 (0.130-2.404)	2.056 (0.220-19.173)	
Age Group	1.131 (0.879-1.455)	0.880 (0.689-1.125)	
Education Level	1.807 91.310-2.493)**	1.440 (1.014-2.046)*	
Income Level	1.042 (0.893-1.218)	1.087 (0.921-1.283)	
Intention to Quit Smokeless			
Society disapproval of Smokeless	n/a	0.863 (0.578-1.288)	1.050 (0.741-1.488)
Acceptability of Female Smokeless Use		1.113 (0.623-1.986)	1.037 (0.839-1.283)
State		0.985 (0.895-1.083)	0.980 (0.915-1.049)
Area (ref=urban)		1.532 (0.518-4.529)	1.070 (0.396-2.890)
Sex (ref=female)		0.647 (0.107-3.925)	0.974 (0.734-1.292)
Age Group		0.767 (0.641-0.916)**	0.886 (0.800-0.980)*
Education Level		1.536 (1.038-2.273)*	1.302 (1.060-1.600)*
Income Level		1.196 (1.013-1.413)*	0.999 (0.887-1.124)

*p<.05, **p<.01

[a] Higher values indicate less agreement that society disapproves and lower values indicate greater perceived society disapproval

[b] Higher values indicate less agreement that it is acceptable and lower values indicate greater perceived acceptability

4.12.1.2 Bangladesh

In Bangladesh, only smoked tobacco users were asked about their intentions to quit tobacco at Wave 2, so the logistic regression was only run with smokers only and mixed users, using society disapproval of smoking and acceptability of female cigarette smoking as predictors, and intention to quit smoking cigarettes (bidi only smokers were excluded) as the outcome variable.

In bivariate analyses, the measure of society disapproval was significantly associated with intention to quit for smokers (F=10.183, $p<.01$) but not for mixed users, with greater intention to quit among those who were more likely to say that society disapproves of smoking. This relationship held in a multivariate regression controlling for demographic variables. Demographic variables that were significant predictors of quit intentions included urban/rural area (with those in rural areas more likely to intend to quit), and for mixed users, sex and education level were also significant (with women and those with higher education more likely to intend to quit). Table 15 shows the odds ratios for the variables of interest.

Table 20: Logistic Regression Predicting Quit Intentions in Bangladesh

Variable	Smokers OR (CI) n=1651	Mixed Users OR (CI) n=348
Intention to Quit Smoking		
Society disapproval of Smoking	0.678 (0.533-0.862)**	1.625 (0.864-3.058)
Acceptability of Female Smoking	0.890 (0.446-1.775)	1.058 (0.766-1.462)
Area (ref=urban)	2.046 (1.160-3.609)*	4.401 (1.881-10.300)**
Sex (ref=male)	0.717 (0.427-1.205)	12.730 (1.796-90.227)*
Age Group	1.032 (0.903-1.179)	1.033 (0.771-1.382)
Education Level	1.012 (0.973-1.052)	1.618 (1.292-2.026)***
Income Level	1.052 (0.925-1.196)	0.955 (0.760-1.201)

*$p<.05$, **$p<.01$, ***$p<.001$
[a] Higher values indicate less agreement that society disapproves and lower values indicate greater perceived society disapproval
[b] Higher values indicate less agreement that it is acceptable and lower values indicate greater perceived acceptability

4.12.2 Summary

Regression models predicting quit intentions from the measures of social acceptability failed to produce any significant associations in either country, except for one – society disapproval of smoking in Bangladesh was associated with stronger intentions to quit among smokers. However, the lack of significance may have been affected by the small sample sizes, as very few tobacco users had intentions to quit. We were also unable to look at quit intentions among smokeless users in Bangladesh as a comparison to smokers because smokeless users were not asked the measure of quit intentions.

4.13 Longitudinal Analyses

For the longitudinal analyses, we used the cohort sample of respondents who participated in both Wave 2 and Wave 3 of the ITC Bangladesh Survey (i.e. re-contact respondents). Data from the follow-up survey wave in India was not yet available at the time of this research, so longitudinal analyses were not possible with the India data. Of the 2945 tobacco users from the Wave 2 Survey in Bangladesh (including quitters), 2277 were successfully recontacted at Wave 3, and 1455 of the 1649 non users were successfully recontacted as well. This section describes the characteristics of respondents who quit tobacco, and factors associated with quitting.

4.13.1 Wave 3 Quitters

There were 242 quitters at Wave 3, almost all of whom (94.6%) were male. Most of the respondents who were quitters at Wave 2 remained quitters at Wave 3 (53.4%). Of the cohort respondents who were smokers at Wave 2, cigarette smokers were the most likely to become quitters at Wave 3 (7%), compared to bidi smokers (5.6%) or dual smokers (1.2%). Smokers who were also current smokeless users at Wave 2 (i.e. mixed users) had an even higher percentage of quitters at Wave 3 (10.5%). There were no smokeless-only users at Wave 2 who became quitters at Wave 3.

4.13.2 Prior Quit Intentions

Of those who had actually quit by Wave 3, only 10% had reported having plans to quit smoking cigarettes within the next 6 months at Wave 2, and a total of 44.9% (N=32) had some intention to quit at Wave 2. In addition, 55.1% of quitters had reported an intention to quit bidis at Wave 2. In comparison, of the smokers at Wave 2 who had not quit by Wave 3, 34.5% reported having intentions to quit, with 10% planning to quit within the next six months.

Respondents were also asked at Wave 2 (in 2010) whether they expected to be smoking more, less, or the same amount in one year (as reported in Section 4.7). 20.3% of those who had quit smoking at Wave 3 (about one and half years after Wave 2) had said at the previous wave that they expected not to be smoking at all in one year, and an additional 44.2% had said they expected to be smoking either a little or a lot less. In comparison, those who had not quit by Wave 3 were less likely to have expected to be smoking less or not at all — only 9.2% had said at Wave 2 that they expected not to be smoking at all one year from now, and 40.9% said they expected to be smoking less in one year.

4.13.3 Quit Attempts

All respondents were asked at Wave 3 whether they had made an attempt to quit tobacco (either cigarettes, bidis, or smokeless tobacco) in the past year. Across the categories of tobacco users, 15% of cigarette smokers (N=288) had tried to quit, compared to 13.1% of bidi smokers (N=80); also, 7.8% of mixed users tried to quit smokeless tobacco in the past year (N=64), compared to 11.4% (N=22) of smokeless-only users.

Female smokers were more likely than males to have made an attempt to quit smoking cigarettes in the past year (30.4% vs 16%) but this difference was not significant (χ^2=1.596, p=.083). Female mixed users were also significantly more likely to have made an attempt to quit smokeless tobacco (42.9% vs 7.2%, χ^2=13.421, p<.001). However, female smokeless-only users were less likely than male smokeless users to have tried to quit smokeless in the past year (9.2% vs 17.1%), although this difference was not significant (χ^2=2.666, p=.328).

4.13.4 Social Acceptability Predicting Quit Attempts

4.13.4.1 Bivariate Relationships between Social Acceptability and Quit Attempts

Bivariate analyses were done using crosstabs to examine the association between the measures of social acceptability (female acceptability of tobacco use and society disapproval of tobacco use) at Wave 2 and quit attempts at Wave 3.

Among recontact smokers overall, no clear pattern was observed between perceived social acceptability and attempts to quit. For instance, 16.3% of those who said at Wave 2 that it is not acceptable for females to smoke cigarettes tried to quit, compared to 19.6% of those who said it is acceptable. However, a different pattern was seen when men and women were considered separately – 27.4% of female smokers who said it is not acceptable for females to smoke tried to quit compared to only 16.3% of male smokers who agreed it is not acceptable.

The measure of society disapproval was more in the expected direction, but no significant association was found – 16.4% of smokers who said society disapproves of smoking at Wave 2 tried to quit by Wave 3, compared to 15.5% of those who disagreed that society disapproves of smoking. Again, female smokers who said society disapproves of smoking were more likely than their male counterparts to have tried to quit (34.7% vs 16.3%).

No significant associations were found among smokeless-only users in bivariate analyses between measures of acceptability of smokeless tobacco at Wave 2 and attempts to quit smokeless tobacco at Wave 3, however the sample size was very small for these analyses. Smokeless users who said it is not acceptable for females to use smokeless tobacco were more likely to have tried to quit than those who said it is acceptable for females to use smokeless (22.9% vs 1.3%). This pattern was more pronounced among males (32.9% vs 0%) than among female smokeless users (19.6% vs 1.4%).

A similar overall pattern was observed with the measure of society disapproval of smokeless tobacco – 17.9% of those who said society disapproves of smokeless tobacco tried to quit compared to only 3.4% who disagreed that society disapproves, and this association was similar among male and female smokeless users (15.8% of men and 18.9% of women

who said society disapproves of smokeless tried to quit; no men and 3.6% of women who said society approves of smokeless tried to quit).

4.13.4.2 Logistic Regression Predicting Quit Attempts

Next, logistic regression analyses were conducted to determine which factors at Wave 2 might predict quit attempts at Wave 3.

In bivariate regression analyses, the two measures of social acceptability for smoking were not significant predictors of attempts to quit smoking cigarettes. We also examined other potential predictors that have been found to be associated with quit attempts in previous research, such as beliefs about harm and measures of addiction; however, only one of these variables was significant in bivariate regression analyses – those smokers who said they were more addicted to cigarettes at Wave 2 were less likely to have tried to quit smoking cigarettes at Wave 3 (OR=0.712, CI=0.564-0.899; $p<.01$). This association held in a multivariate regression model including all predictors and controlling for demographic variables (urban/rural area, sex, age group, education, and income level): OR=0.736, CI=0.554-0.977, $p<.05$).

In parallel regression models predicting attempts to quit smokeless tobacco at Wave 3 from smokeless-relevant variables at Wave 2, measures of perceived harm were significant predictors, but not measures of addiction. Those who said that smokeless tobacco is less harmful than cigarettes were significantly less likely to have tried to quit smokeless than those who said there is no difference in harm (OR=0.163, CI=0.045-0.588, $p<.01$). In addition, those who said that smokeless tobacco is not good for their health were more likely to have tried to quit than those who said it is good for their health, although there was a separation in the data so these results are not reported. Of the two social acceptability measures, acceptability of female smokeless use was the only significant predictor of quit attempts – those who said it is acceptable for females to use smokeless tobacco were less likely to have tried to quit than those who disagreed that it is acceptable (OR=0.031, CI=0.005-0.185, $p<.01$).

In the multivariate logistic regression model, the only predictor that was significant was the measure of perceived acceptability of female smokeless use (OR=0.044, CI-0.007-0.279, *p*<.01).

4.13.5 Summary

Less than 15% of tobacco users in Bangladesh made an attempt to quit in the past year, which is much lower than quit rates found in other countries in the ITC Project, which vary from a low of less than 20% in China to almost 50% in Thailand and Korea (ITC Project, 2010a). While quit rates among the cohort sample of respondents in Bangladesh were low overall, there was some evidence that having a quit intention, or having an expectation that one will reduce or stop their smoking habit in the near future, may be associated with actual cessation, as those who did quit were more likely to have expressed an intention to quit in the past survey wave.

Quit attempts were slightly more common than successful quitting, with cigarette smokers most likely of all the tobacco users to have made an attempt to quit. Although it was difficult to get any meaningful results with the small sample size of female tobacco users, some sex differences in quit attempts were observed, with female smokers more likely than males to try to quit, and female smokeless users less likely than males to try to quit.

Perceived social norms about smoking seemed to have an impact on quit attempts, but only for female smokers, which was what we expected. For smokeless tobacco users, more negative perceived social norms appeared to be associated with quit attempts as well, although there were no obvious sex differences. This also supports our prediction that social norms may have a stronger effect on quitting for female smokers than for female smokeless users, because of the stronger negative norms against female smoking. However, social norms were not significantly associated with the measures of quitting in bivariate or multivariate analyses, except for the measure of acceptability of female smokeless use; the results suggest that other factors known to be associated with cessation may be stronger predictors of quit attempts, such as measures of addiction and perceived harm.

Chapter 5 — General Discussion

5.1 Summary of Findings

As expected, the proportion of smoked and smokeless tobacco use in Bangladesh and India followed prevalence patterns found in previous research and surveys. However, there was a significant difference in the distribution of tobacco users across products between the two countries – in India, the majority of tobacco users were smokeless tobacco users, while in Bangladesh the majority of tobacco users were smokers.

A greater proportion of the tobacco users in each country were male, despite efforts to recruit more female tobacco users in India. Women in either country were much more likely to be smokeless users than smokers; indeed, only 1.4% of the female tobacco users in India smoked and 16.2% of the female tobacco users in Bangladesh were smokers. As expected, male tobacco users in each country were more likely than female tobacco users to be smokers, although in India there were still more male smokeless users than smokers overall. It is important to note that these percentages are not prevalences; while the data was weighted, the results still represent the proportion of the survey sample that smoked or used smokeless tobacco, which was affected by selection procedures (i.e. tobacco users were over-sampled). Prevalence estimates can be produced by the survey enumeration data in each country. For instance, data from the Wave 1 enumeration in Bangladesh suggests that the prevalence of any form of tobacco use in Bangladesh has been increasing since 2005, from 36.8% to 43.2% in 2009 (ITC Project, 2010b). While there has been a rise in both smoking and smokeless tobacco use in Bangladesh, the increase in smokeless prevalence was greater than the increase in smoking, suggesting that more people in Bangladesh are taking up smokeless tobacco use. There was also evidence of a rise in smokeless use in our longitudinal sample from Wave 2 to Wave 3 – the proportion of smokeless use increased from 14.8% of tobacco users at Wave 2 to 20.3% at Wave 3, and this increase was seen among both men and women.

Smokeless tobacco users in the samples from both countries showed signs of nicotine dependence and addiction – they tended to use smokeless tobacco as often as cigarette

smokers and the majority used their first smokeless product of the day soon after waking. The majority of smokeless users also found it hard to go an entire day without using smokeless tobacco and reported having strong urges to use it several times a day. Indeed, the majority of smokeless users did consider themselves at least somewhat addicted, and smokeless users in India were just as likely to consider themselves addicted as smokers were.

Looking at general beliefs about smokeless tobacco rather than their own use, smokeless users were even more likely to agree that smokeless tobacco is addictive (although still less likely than non users) and the strong majority believed that it is not good for their health. Therefore, smokeless users in Bangladesh and India are aware that smokeless tobacco is harmful and addictive, yet they continue to use it, which would create a state of cognitive dissonance as discussed in the introduction. We would expect then to see some evidence of justification effects in the measures of society approval as discussed below, that is, tobacco users should justify their harmful behaviour by changing their beliefs to say that it is acceptable.

Both smokers and smokeless users mainly had friends who were also tobacco users, as indicated by their number of closest friends who smoke or use smokeless tobacco, providing evidence that unhealthy behaviours such as smoking tend to cluster within social networks. Moreover, most of these friends expressed no desire to quit, this further promoting positive social norms towards tobacco use and a lack of cessation support within one's closest social network. In addition to having friends who also use tobacco, tobacco users were more likely than non users to have parents and grandparents with the same habit as themselves, indicating that tobacco use behaviour tends to be passed on from generation to generation. This influence of parental smoking and smokeless use was especially strong for female respondents and their mothers' tobacco use – for example, in each country, female smokers were much more likely than any other category of user to report having a mother who also smoked, despite the very low prevalence of female smokers in each country.

However, even if many others in one's social network use tobacco, indicating a positive descriptive norm towards tobacco use, there could be a different pattern with subjective norms — whether the people most important to them actually approve of their

109

habit or want them to quit. This is indeed what we found in the current study — the majority of tobacco users in Bangladesh and India said that people important to them think they should not use tobacco, indicating a strong negative subjective norm against tobacco use. Women showed a stronger effect than men, indicating even less approval from close others for female tobacco users.

Despite the belief that other people want them to quit, the majority of tobacco users in either country did not express an actual desire to quit their habit in the near future. Less than one-third of smokers in Bangladesh and less than one-quarter of tobacco users in India expressed plans to quit, and a minority said they expected to have stopped using tobacco one year from now. However, there was some encouragement from the finding that most tobacco users do expect to be using tobacco less than their current amount in one year, rather than more.

Awareness of the tobacco control policies that we looked at was mixed. Overall awareness of anti-tobacco information in each country was low, with most respondents reporting seeing information about the dangers of tobacco or that supports quitting from only a couple of sources, mainly television. Awareness of a smoking ban on public transport was slightly higher, with 65-85% of tobacco users across both countries reporting that smoking is not allowed on any public transportation vehicles. This is a somewhat surprising finding given that the smoke-free laws in Bangladesh were not comprehensive at the time of the survey, although there was evidence of higher awareness in India, where the smoke-free law was stronger. Again, awareness of warning labels on tobacco packages was also mixed – there were no warnings on smokeless tobacco packages at the time of the Bangladesh survey, and awareness of warnings on cigarette packages was fairly high but extremely poor for bidi packages. The majority of tobacco users in India were aware of warning labels on smoked and smokeless tobacco packages, but this level of awareness was still lower than that found in other countries and thus needs improvement. This is not surprising given that the warnings in either country at the time of the surveys did not meet international standards.

The two measures of injunctive norms showed that most respondents perceived strong negative social norms against tobacco use – the majority said that Bangladeshi and

Indian society disapprove of any tobacco use, although there were some differences for sex and type of tobacco. As expected, female smokeless use was seen as much more acceptable than female smoking (although either type was not approved of overall). Also as expected, perceived acceptability was lower among non users than among tobacco users, with those who actually use each product reporting the highest levels of perceived acceptability for that product. For example, female smokers and mixed users in each country were the least likely to say that female smoking is not acceptable (i.e. less likely than their male counterparts and less likely than other categories of tobacco users). This effect was stronger for smoking acceptability than for smokeless tobacco, which was expected because of the stronger norms against smoking, and against female smoking in particular in South Asia. The effect was also stronger for the more specific measure of female acceptability than the more general societal approval measure, which was in line with our predictions as well.

When we tested whether the measures of awareness of policies predicted responses on the measures of social norms, we found that each of the types of policies was associated with social norms in at least some categories, but the results were not consistent across countries or types of tobacco users. Awareness of warning labels on tobacco packages seemed to be the best predictor, with those who were aware of the health warnings more likely to say that tobacco use is not acceptable.

Next, regression models predicting quit intentions from the measures of social norms failed to produce any significant associations in either country, except for one – society disapproval of smoking in Bangladesh was associated with stronger intentions to quit among smokers. Therefore, perceived society approval may not be a very strong predictor of intentions to quit compared to other factors, although it was difficult to test this accurately with limited sample sizes in some of the cells.

Looking at actual quit attempts in the longitudinal analyses, we found that just as very few tobacco users intended to quit at the previous wave, a minority made a quit attempt in the follow-up survey period as well. However, we found some evidence that those who expressed an intention to quit at the previous survey wave were indeed more likely to have made a quit attempt by the next wave (even if it was not successful). There was also some

evidence that perceived social acceptability of tobacco use was associated with quit attempts. This effect was only found for female smokers, which is line with our predictions that social norms may have a stronger effect on behaviour for women because the norms against female smoking are more salient than those against male smoking or female smokeless use. Overall, the link between social acceptability and quitting was not very strong in multivariate analyses, suggesting that other factors known to be associated with quitting may be better predictors.

5.2 Country Differences

Although Bangladesh and India are both countries in the South Asia region with similar cultural traditions and social norms about tobacco, there are important differences between the two countries that should be noted, including differences in tobacco control policies, and their effects on tobacco use and beliefs about tobacco in the present study should be examined.

We did find some differences between Bangladesh and India in our results that will be discussed briefly. First, as noted in the results chapter, the difference in perceived society disapproval for smoking compared to smokeless use was much larger in Bangladesh than it was in India — the norms against smoking were more negative in Bangladesh than in India, and the norms against smokeless use were less negative in Bangladesh than in India. A similar pattern was found for the measures of acceptability of female smoking and smokeless use. Even though smokeless tobacco use was more acceptable in Bangladesh, a larger majority of tobacco users in India were smokeless users compared to Bangladesh (where smoking was more common).

The findings on quit intentions between the two countries suggest that social norms may have had a stronger effect in Bangladesh, where the norms against smoking were stronger. Smokers in Bangladesh were more likely to have intentions to quit than Indian smokers, and regression models predicting quit intentions from social norms were only significant in Bangladesh. Therefore, as predicted, norms may have a stronger influence on quitting behaviour when those norms are more salient. While we were not able to test the

112

effect on female smokers separately from males due to the small number of female smokers in our sample, we would expect the effect to be even stronger for female smokers than for male smokers because norms against female smoking in particular are so strong.

As noted by other researchers who have done cross-country comparisons within the ITC Project data (e.g. Rennen et al., 2014), reasons for differences between countries could be due to differences in the extent of tobacco control activity, how well current policies have been implemented and enforced, as well as differences between the samples interviewed in each country. While every effort was made to make the samples and surveys comparable for Bangladesh and India, there were some limitations in the datasets that are discussed in the Limitations section below. It is clear that further longitudinal research using data from future survey waves in both India and Bangladesh is needed to determine whether the country differences observed here are trends that persist over time, or whether responses become more similar in future waves.

However, we did find some effect of the variation in tobacco control policies between the two countries as well. For example, we found slightly higher levels of awareness of smoke-free laws in India, where the smoke-free legislation was more comprehensive, than in Bangladesh. Overall awareness of warning labels on smoked tobacco packages was slightly lower in India than in Bangladesh. While India had pictorial warnings, which are generally more effective than text-only warnings as in Bangladesh, studies have shown those warnings that were in place in India at the time to be very weak (ITC Project, 2013).

5.3 Important Contributions of this Research

As discussed in Chapter 2, most research on tobacco use worldwide has focused on smoking – much less is known about smokeless tobacco use, especially the various forms of smokeless tobacco products used in countries like Bangladesh and India. It is important to study the patterns of tobacco use among women in countries such as Bangladesh and India, including predictors of smokeless tobacco use and of quitting behaviour, in order to reduce health risks and improve cessation rates for women who currently use smokeless tobacco, while at the same time preventing more women in these countries from taking up smoking.

113

When gender is not acknowledged and accounted for in tobacco research, the tobacco problem can be wrongly minimized or misidentified, especially in LMICs like Bangladesh and India. For instance, by focusing on the low smoking rates among women in these countries, the health effects of other types of tobacco may be ignored. It is important to take into account more traditional forms of tobacco use that are actually more common among women in these countries and pose their own health risks, such as bidi smoking and smokeless tobacco use.

A more gender-sensitive approach should also acknowledge other aspects of diversity that may interact with gender to increase the risk of tobacco use or the magnitude of health effects from tobacco for women in countries such as Bangladesh and India (Amos et al., 2012). For example, age, low SES, education, religion, ethnicity, and occupation are all factors that may influence tobacco use and its impact differently for women than men, and women who also face poverty may need even greater attention and resources to help reduce the burden of tobacco.

In addition, even when few women in a country smoke, they are still at high risk of exposure to second-hand smoke (SHS) and its hazards. There is concrete evidence that SHS causes increased morbidity and mortality among women, such as lung cancer and CHD, and in 2004, SHS was responsible for about 600,000 deaths, most of which were among women and children (Samet & Yoon, 2010). Therefore, women who live with family members or spouses who smoke are still in great danger from tobacco even if they do not use any tobacco themselves, especially because homes are not protected by smoke-free laws. Indeed, in the findings presented here, female respondents were much more likely to have smoking spouses than males were, putting them at higher risk of the health effects of second-hand smoke.

Moreover, even though smoking rates among women in LMICs are currently very low, there is still concern that the prevalence of female smoking may increase as a result of a number of factors, such as changing norms and beliefs, the influence of Western culture, and the spending power of women (e.g. Flora et al., 2009).

Previous research on gender empowerment and smoking has shown a link between higher empowerment of women (using the gender empowerment measure, GEM) and higher cigarette smoking rates among women compared to men within a country (Hitchman & Fong, 2011). These findings may have implications for countries in South Asia like Bangladesh and India, where female smoking rates are currently very low, and indicators of gender equality are also low. The most recent CPIA gender equality ratings from the World Bank on a scale of 1 to 6 (where 6 means greater equality) are only 3.5 for Bangladesh and 3.0 for India (The World Bank, 2013). In the 2013 Global Gender Gap Report, an index of gender gaps according to economic, political, education, and health criteria, Bangladesh and India ranked 75 and 101 respectively out of 136 countries (World Economic Forum, 2013).

As Western culture continues to have a greater influence on values and norms in LMICs, more women may start smoking, or switch from more traditional forms of tobacco to cigarettes. One study has found that greater identification with Western culture among Indian students was associated with more tobacco use, while identification with a more traditional Indian way of life was associated with less tobacco use (Stigler et al., 2010). We did not have measures of Westernization in the current ITC Survey, but this could be explored further in future research.

The tobacco industry is also well aware of the growing market for female smokers in these countries and stronger policies in line with the WHO Framework Convention on Tobacco Control (FCTC) are needed to prevent the tobacco industry from targeting women through aggressive marketing strategies. It is important and timely to monitor smoking rates as well as smokeless tobacco use in these countries to prevent more women from switching to smoked tobacco or initiating smoking at a young age. Changes in norms and female smoking rates would also have implications for the present research. As more women begin to smoke, female smoking may become more socially acceptable, which could lead to higher prevalence and lower quitting rates. We did include age group as a predictor in the current analyses to see whether perceived acceptability of tobacco use differs among older versus younger respondents. The only significant findings were that older respondents were more likely to say it is acceptable for females to use smokeless tobacco, and older smokeless

tobacco users were less likely to intend to quit. This could be an indication that norms against any tobacco use, including smokeless tobacco, are becoming more negative among younger generations, but further longitudinal research would be needed to measure the potential impact of changes in gender empowerment over time.

Besides providing more information about female tobacco use in Bangladesh and India, this research also demonstrates the importance of social norms in explaining the observed patterns of tobacco use among women in these countries. Cialdini noted that there is a distinction between cultural, situational, and dispositional factors, all of which are important in the realm of norms (Cialdini et al., 1990). This paper supports the idea that norms operate at these different levels – societal norms are important as well as more individually relevant norms, such as those specific to female tobacco users. We also looked at the role of both descriptive and injunctive norms separately. As predicted, we found that the greatest variation in perceived norms were for injunctive norms (whether society approves of one's own tobacco use), as indicated by the finding that tobacco users were more likely to say that their own behaviour was acceptable than their counterparts believed it to be, especially for female smokers. This is also evidence of a cognitive dissonance effect – female tobacco users faced stronger negative social norms against their behaviour, and they were the most likely to hold different beliefs than the rest of the population; that is, they were more likely to justify their behaviour by saying that it is acceptable. However, we also saw that the differences in perceived norms were still constrained by the reality of the harms of tobacco use – the majority of tobacco users were aware that tobacco is harmful and that society overall disapproves of any tobacco use.

While we already know that cultural factors and misconceptions of the harm are primary reasons for smokeless tobacco use in Bangladesh and India, we wanted to explore the role of tobacco control policies further in this research. There is some research linking perceived norms to smoking, but according to Hamilton (2008), there is little empirical evidence that tobacco control policies actually influence norms. Recent studies from the ITC Project using large, nationally representative samples in different countries have demonstrated that the strength of policies, or awareness of policies, is associated with social

116

norms in a country. For instance, Rennen et al. (2014) found a positive association between awareness of anti-tobacco information and feeling uncomfortable about smoking (one of their measures of social norms) in Germany, France, and the Netherlands. A comparison of smokers in Uruguay and Mexico found stronger societal norms against smoking in Uruguay, where smoke-free tobacco policies were stronger (Thrasher et al., 2009). The current findings supported this previous research – we found some evidence that awareness of anti-tobacco information, smoke-free laws, and warning labels were associated with social norms, but the findings were mixed, as discussed above. This may be partly because these tobacco policies were not as strong in India and Bangladesh at the time of the surveys as compared to other countries.

We also wanted to examine whether perceived social norms influenced quit-related behaviour, such as intentions to quit and quit attempts. The previous study by Rennen et al. (2014) of the influence of social norms in three European countries found that subjective norms predicted attempts to quit in at least one of the three countries. In our results, injunctive norms against smoking (perceived society approval) were associated with quit intentions in Bangladesh. As noted by other researchers (e.g. van den Putte, Yzer, & Brunsting, 2005), it is important to understand the potential effects of social norms on quit intentions in order to develop health promotion strategies and interventions that might reduce smoking by targeting aspects of social norms. Moreover, an understanding of how policies influence social norms is important at a broader level within a society to create more effective tobacco control strategies. This will be discussed further in the implications section.

5.4 Limitations

The most important strength of this study is the use of large representative samples of both tobacco users and non users from two South Asian countries with high burden of tobacco. However, there were also several limitations that come from using this data.

First, because of the procedures that were followed in each country to collect information about the members of the household, select members to interview, and conduct the interviews face-to-face in the home, there may have been some underreporting of tobacco

use, especially for female respondents. Previous research (e.g. Rani, Bonu, Jha, Nguyen, & Jamjoum, 2003) suggests that prevalence estimates may be underestimated by the use of informants, and the ITC Surveys in Bangladesh and India did rely on key informants for each household to provide the tobacco status of each household member. Reports from the survey interviewers who conducted the Wave 1 Bangladesh Survey also confirmed that it was difficult to obtain female respondents because many women refused to participate, especially if the head of their household was present at the time, which led them to be even more shy about their answers if they did agree to participate (ITC Project, 2010d). Procedures were followed to try to prevent this from happening. For example, once household members were selected to participate in the survey, their tobacco status was confirmed individually before assigning the appropriate survey, so we did not rely solely on the report of the household informant. In addition, adult respondents were interviewed alone whenever possible, and if another person insisted on being present, the respondent had to agree to this in order for the interview to proceed.

Some respondents may have also felt uncomfortable answering questions about their tobacco use or their beliefs about tobacco. For instance, the interviewers who conducted the Wave 1 surveys in India reported that most respondents were uncomfortable answering the section of questions on psychosocial beliefs, which includes our measures of society disapproval of tobacco use and acceptability of female use. Therefore, there may have been some underreporting of positive social norms towards tobacco, although this would have affected all respondents.

Within the survey measures themselves, there was a certain amount of inconsistency across constructs, products, and countries that limited our analyses. For example, while it was more important to ask about perceptions of female acceptability, a more complete analysis would have been possible if the equivalent question about male acceptability had been asked as well. To date, no ITC Survey has included this measure, although future surveys in China will include it. In addition, because the set of questions about smokeless tobacco was limited at Wave 2 in Bangladesh compared to the India Survey and to the Wave 3 Bangladesh Survey, we did not always have a complete set of measures for smokeless

118

tobacco compared to smoking. For example, we had no data on smokeless tobacco use among respondents' friends at Wave 2, or quit intentions among smokeless users. While this information was available in the data from India, it would have been more useful to have the comparison data from Bangladesh as well, especially as a baseline for the longitudinal analyses.

Most items were assessed with a single question in the survey, which may have limited our ability to fully examine constructs such as social acceptability and awareness of tobacco control policies; however, each survey is carefully developed and created based on items that have been well tested and found to have high reliability and consistency in other surveys in order to diminish this problem. Because so many various aspects of tobacco use and key policy domains are evaluated in each survey, the total number of items is restricted as much as possible to try to reduce the length of the survey and fatigue from respondents. Nevertheless, it is possible that there are other aspects of social acceptability that were not covered by the survey measures available to us. For instance, the survey included only one measure of norms at the societal level, and a couple of measures of norms at the level of close others, but this limited set of questions does not provide a complete picture of the role of descriptive versus injunctive norms, at both the broader and more immediate levels. Moreover, because of the self-report nature of the surveys, we were only able to measure perceived norms, which may be different from actual norms in society; however, for the purposes of this research we were more interested in the impact of these perceived norms on behaviour rather than objective measures.

In addition, the surveys were given in different languages between the two countries and even within each country depending on the area, thereby increasing the risk of differences in interpretation of the survey questions. However, we do not have evidence of such effects for the questions reported on here, and careful procedures were followed in the translation process to ensure that the English version of each question was translated appropriately into the local languages, such as verification from the in-country collaborators.

Other than potential measurement issues, some caution should also be taken in interpreting the analyses presented here. First, while the overall samples in each country were

large, some of the samples that we ended up with for certain analyses were too small to create meaningful or statistically significant results. For example, the number of female smokers in each country was so small that we could not run regressions separately for men and for women as we had initially planned. Also, the number of respondents who had intentions to quit was fairly small, which affected the logistic regressions that used quit intentions as an outcome variable.

An additional cautionary note is needed when interpreting any of the results from India – as mentioned earlier, the sample from India was not nationally representative. In fact, each of the four states is quite different from each other in many aspects, from the types of smokeless products used to the prevalence ratios. We did not have room in the present study to separate and compare each of the results for the four individual states, therefore it must be remembered that the findings cannot be assumed to be representative of India as a whole.

Finally, as is the case in many cross-sectional analyses, there is the issue of causal direction in interpreting many of the findings. Because most of the analyses were conducted on data from a single survey wave, we cannot say whether measures such as perceptions of social norms influenced quit intentions, or vice versa. While we can be sure that the policies that were asked about were implemented before the survey took place, respondents' awareness of these policies may not have preceded their perceptions of social acceptability.

5.5 Implications for Health Interventions

The findings of this research have implications for tobacco control policies, cessation strategies and interventions — to be more effective, these strategies need to account for smokeless tobacco, gender, and social norms.

Compared with smoking, smokeless tobacco consumption and prevention has been a more neglected policy area. As noted by a recent gathering of experts on smokeless tobacco policies in South Asia, any existing policies on smokeless tobacco are either inadequate or poorly enforced, and there is a need for greater coordination of policies and improvement of existing legislation (Khan et al., 2014). Current barriers to effective implementation of policies relevant to smokeless tobacco include a lack of knowledge about the harms and

addictive potential of smokeless tobacco products, poor surveillance and monitoring of smokeless use, interference from the tobacco industry, lack of resources and capacity to conduct awareness campaigns and research, and high levels of social acceptance. At the time of data collection for the research presented here, smokeless tobacco was not even included in the definition of tobacco products in the law in Bangladesh, making it difficult to regulate smokeless tobacco use. This has been corrected in the 2013 amendments to the legislation in Bangladesh so that the law applies to all forms of tobacco, but it remains to be seen how strongly these new amendments are enforced. The previous law, enacted in 2005, did comply with many of the articles of the FCTC, but because there were still so many loopholes in the law, it has not been very effective thus far in controlling or reducing tobacco use in the country (Hossein, Shahriar, & Alam, 2013). India, on the other hand, has been proactive in implementing strong tobacco control legislation that complies with most of the FCTC Articles; they were even the first country in the world to introduce warning labels on smokeless tobacco packages. However, there are still issues with enforcement of the law and loopholes in certain policy domains; therefore it is not surprising that evaluations of tobacco control policies in India have found that they have not yet achieved their intended results in terms of reducing tobacco use. According to ITC Project findings, quit intentions among tobacco users in India are the lowest of all 22 countries in the ITC Project (ITC Project, 2013).

There is a need to improve the existing legislation on smokeless tobacco in both countries, including banning indirect advertising, raising taxes on smokeless tobacco products, controlling the illegal sale of smokeless tobacco in informal markets and across borders, increasing awareness of the harms of smokeless tobacco, and offering more cessation services for smokeless users.

In Bangladesh and India in particular, there is also a need to take a more gendered perspective in tobacco control, which has largely been missing thus far in most of the world (Amos et al., 2012). Because of the higher use of smokeless tobacco among women in these countries, tobacco cessation strategies for smokeless tobacco must also address the specific needs of women. Little is known about smokeless tobacco cessation and any gender

121

differences in quit attempts or success, but research on smoking has found that women are less confident in their ability to quit, have fewer successful smoking cessation attempts, and greater chance of relapse than men (Gritz, Nielsen, & Brooks, 1996; Wetter et al., 1999). Given the widespread misconceptions about the harms of smokeless tobacco and lack of awareness of its addictive potential, interventions should be targeted especially towards female smokeless tobacco and mixed tobacco users. At a broader level, tobacco control strategies should also focus on preventing the tobacco industry from targeting women through marketing campaigns in order to prevent more women from taking up smoking. In summary, cessation strategies must be combined with comprehensive tobacco control legislation in a multifaceted approach, all of which must recognize and address gender along with other aspects of diversity that can affect tobacco use in LMICs such as Bangladesh and India (Amos et al., 2012; Samet & Yoon, 2010).

Finally, research on the importance of social norms for behaviour, and the findings reported here showing the difference in perceived norms between smokeless and smoked tobacco, suggests that a norm-based approach may also be effective in tobacco control strategies in Bangladesh and India. Smokeless tobacco is still seen as a fairly socially acceptable behaviour in South Asian society, especially for women, so in order to reduce smokeless tobacco use, we need to aim to denormalize this behaviour. One way to do this is through policies that prohibit the use of smokeless tobacco in public – if less people are seen using it, then descriptive norms should tell people that it is not acceptable to use smokeless tobacco. Tobacco control strategies should also focus on changing perceptions of close others' approval or disapproval in one's social networks – if more of the people who are important to them express negative views of smokeless use and encourage quitting, then injunctive norms should lead less people to use smokeless tobacco. Anti-tobacco campaigns are one way to reach the population with the message that society does not approve of tobacco use, or can at least make more people think about the important people in their lives and whether they would approve of smokeless tobacco use.

A better understanding of the ways that social norms and social acceptability influence tobacco use behaviour and quitting can therefore have a valuable impact on

designing and implementing more effective tobacco control strategies and programs. Moreover, this is not a one-way influence — these policies can also influence perceived norms in society, so evaluating the effects of policies on norms can also inform the development of stronger policies.

5.6 Future Research

Future analyses building on the present research could also expand to include more countries varying in levels of gender equality, smoking rates, and tobacco control policy strength. In countries where norms have already begun to change so that female smoking is more acceptable than it was in the past, we might expect less of a gender difference in perceptions of female smoking acceptability. Because female smokeless use is relatively acceptable in Bangladeshi and Indian society, the questions on approval of smokeless tobacco in the present research may actually show more similarities to equivalent survey measures on smoking in high-income countries.

In addition to looking at countries with greater gender equality and higher female smoking rates, we could make comparisons with countries that have stronger histories of tobacco control. In these countries, we would expect higher knowledge of the harms of tobacco, and thus it may be harder for women to justify their smoking habit by saying that it is socially acceptable.

It would also be beneficial to add to the existing literature on social norms by carrying out more detailed and thorough analyses comparing the different types of social norms (i.e. descriptive, injunctive, and subjective) and evaluating their effects on health behaviour. For instance, as mentioned by Rennen et al. (2014), studies that help to establish the different dimensions of social acceptability of tobacco use with validated measures would be valuable for future research on the present topic. In addition, since we did not control for all potential confounding factors on quitting outcomes in the present study, future research could also seek to establish the predictive utility of social norms on quitting behavior beyond those factors that are known to be associated with quitting, such as tobacco dependence, frequency and intensity of use, and previous quit attempts.

Chapter 6 — References

Agaku, I. T., Ayo-Yusuf, O. A., Vardavas, C. I., & Connolly, G. (2013). Predictors and patterns of cigarette and smokeless tobacco use among adolescents in 32 countries, 2007-2011. *The Journal of Adolescent Health*, *54*(1), 47–53. doi:10.1016/j.jadohealth.2013.07.037

Ahmed, S., Rahman, A., & Hull, S. (1997). Use of betel quid and cigarettes among Bangladeshi patients in an inner-city practice: Prevalence and knowledge of health effects. *The British Journal of General Practice*, *47*(420), 431–4. Retrieved from http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=1313053&tool=pmcentrez&rendertype=abstract

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. doi:10.1016/0749-5978(91)90020-T

Alamar, B., & Glantz, S. A. (2006). Effect of increased social unacceptability of cigarette smoking on reduction in cigarette consumption. *American Journal of Public Health*, *96*(8), 1359–63. doi:10.2105/AJPH.2005.069617

Alesci, N. L., Forster, J. L., & Blaine, T. (2003). Smoking visibility, perceived acceptability, and frequency in various locations among youth and adults. *Preventive Medicine*, *36*(3), 272–81. doi:10.1016/S0091-7435(02)00029-4

Amos, A., Greaves, L., Nichter, M., & Bloch, M. (2012). Women and tobacco: A call for including gender in tobacco control research, policy and practice. *Tobacco Control*, *21*(2), 236–243.

Banerjee, S. C., Ostroff, J. S., D'Agostino, T. A., Bari, S., Khera, M., Acharya, S., & Gany, F. (2014). Disengagement beliefs in South Asian immigrant smokeless tobacco users: A qualitative study. *Addiction Research & Theory*, *22*(3), 229–238. doi:10.3109/16066359.2013.825718

Bush, J., White, M., Kai, J., Rankin, J., & Bhopal, R. (2003). Understanding influences on smoking in Bangladeshi and Pakistani adults: Community based, qualitative study. *BMJ (Clinical Research Ed.)*, *326*(7396), 962. doi:10.1136/bmj.326.7396.962

Campaign for Tobacco-Free Kids. (2013). Bangladesh Details - Tobacco Control Laws. Retrieved from http://www.tobaccocontrollaws.org/legislation/country/bangladesh/summary

Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of*

Personality and Social Psychology, *58*, 1015–1026. Retrieved from http://psycnet.apa.org/journals/psp/58/6/1015.html

Cohen, S., & Lichtenstein, E. (1990). Partner behaviors that support quitting smoking. *Journal of Consulting and Clinical Psychology*, *58*(3), 304–9. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/2365893

Croucher, R., Islam, S., Jarvis, M., Garrett, M., Rahman, R., Shajahan, S., & Howells, G. (2002). Tobacco dependence in a UK Bangladeshi female population: A cross-sectional study. *Nicotine & Tobacco Research*, *4*(2), 171–6. doi:10.1080/14622200210123171

Dwivedi, S., Aggarwal, A., & Dev, M. (2012). All in the name of flavour, fragrance & freshness: Commonly used smokeless tobacco preparations in & around a tertiary hospital in India. *The Indian Journal of Medical Research*, *136*(5), 836–41. Retrieved from http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=3573606&tool=pmcentrez&rendertype=abstract

Feng, G., Jiang, Y., Li, Q., Yong, H.-H., Elton-Marshall, T., Yang, J., … Fong, G. T. (2010). Individual-level factors associated with intentions to quit smoking among adult smokers in six cities of China: Findings from the ITC China Survey. *Tobacco Control*, *19 Suppl 2*, i6–11. doi:10.1136/tc.2010.037093

Festinger, L. (1962). *A Theory of Cognitive Dissonance* (p. 291). Stanford University Press.

Flora, M. S., Mascie-Taylor, C. G. N., & Rahman, M. (2009). Gender and locality differences in tobacco prevalence among adult Bangladeshis. *Tobacco Control*, *18*(6), 445–50. doi:10.1136/tc.2008.028142

Forward, S. E. (2009). The theory of planned behaviour: The role of descriptive norms and past behaviour in the prediction of drivers' intentions to violate. *Transportation Research Part F: Traffic Psychology and Behaviour*, *12*(3), 198–207. doi:10.1016/j.trf.2008.12.002

Fotuhi, O., Fong, G. T., Zanna, M. P., Borland, R., Yong, H.-H., & Cummings, K. M. (2013). Patterns of cognitive dissonance-reducing beliefs among smokers: a longitudinal analysis from the International Tobacco Control (ITC) Four Country Survey. *Tobacco Control*, *22*(1), 52–8. doi:10.1136/tobaccocontrol-2011-050139

Ghouri, N., Atcha, M., & Sheikh, A. (2006). Influence of Islam on smoking among Muslims. *BMJ (Clinical Research Ed.)*, *332*(7536), 291–4. doi:10.1136/bmj.332.7536.291

Gritz, E. R., Nielsen, I. R., & Brooks, L. A. (1996). Smoking cessation and gender: The influence of physiological, psychological, and behavioral factors. *Journal of the*

American Medical Women's Association (1972), *51*(1-2), 35–42. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/8868547

Grossmann, I., Ellsworth, P. C., & Hong, Y. (2012). Culture, attention, and emotion. *Journal of Experimental Psychology*, *141*(1), 31–36. doi:10.1037/a0023817

Gu, F., Wacholder, S., Kovalchik, S., Panagiotou, O. A., Reyes-Guzman, C., Freedman, N. D., … Caporaso, N. E. (2014). Time to smoke first morning cigarette and lung cancer in a case-control study. *Journal of the National Cancer Institute*, *106*(6), dju118. doi:10.1093/jnci/dju118

Gupta, P. C., & Ray, C. S. (2003). Smokeless tobacco and health in India and South Asia. *Respirology*, *8*(4), 419–31. doi:10.1046/j.1440-1843.2003.00507.x

Hamilton, W. L., Biener, L., & Brennan, R. T. (2008). Do local tobacco regulations influence perceived smoking norms? Evidence from adult and youth surveys in Massachusetts. *Health Education Research*, *23*(4), 709–22. doi:10.1093/her/cym054

Hammond, D., Fong, G. T., McNeill, A., Borland, R., & Cummings, K. M. (2006). Effectiveness of cigarette warning labels in informing smokers about the risks of smoking: Findings from the International Tobacco Control (ITC) Four Country Survey. *Tobacco Control*, *15*(Suppl 3), iii19–25. doi:10.1136/tc.2005.012294

Health Development Agency. (2000). *Tobacco and England's ethnic minorities: A research report*. London, UK. Retrieved from http://www.nice.org.uk/nicemedia/documents/tobac_ethnmins.pdf

Hitchman, S. C., & Fong, G. T. (2011). Gender empowerment and female-to-male smoking prevalence ratios. *Bulletin of the World Health Organization*, *89*, 195–202. doi:10.2471/BLT.10.079905

Hitchman, S. C., Fong, G. T., Zanna, M. P., Thrasher, J. F., & Laux, F. L. (2014). The relation between number of smoking friends, and quit intentions, attempts, and success: Findings from the International Tobacco Control (ITC) Four Country Survey. *Psychology of Addictive Behaviors*, *Epub*. doi:10.1037/a0036483

Hossain, M. S., Kypri, K., Rahman, B., Arslan, I., Akter, S., & Milton, A. H. (2014). Prevalence and correlates of smokeless tobacco consumption among married women in rural Bangladesh. *PloS One*, *9*(1), e84470. doi:10.1371/journal.pone.0084470

Hossein, M., Shahriar, H., & Alam, M. S. (2013). *Public Health on Top: Unveiling Tobacco Industry Strategies to Combat Tobacco Epidemic in Bangladesh*. Dhaka, Bangladesh. Retrieved from http://www.mediafire.com/download/5asgo4yxuag3jlz/Public+Health+on+Top.pdf

Hyland, A., Borland, R., Li, Q., Yong, H.-H., McNeill, A., Fong, G. T., … Cummings, K. M. (2006). Individual-level predictors of cessation behaviours among participants in the International Tobacco Control (ITC) Four Country Survey. *Tobacco Control*, *15 Suppl 3*(suppl_3), iii83–94. doi:10.1136/tc.2005.013516

Hyland, A., Li, Q., Bauer, J. E., Giovino, G. A., Steger, C., & Cummings, K. M. (2004). Predictors of cessation in a cohort of current and former smokers followed over 13 years. *Nicotine & Tobacco Research*, *6 Suppl 3*, S363–9. doi:10.1080/14622200412331320761

India Details - Tobacco Control Laws. (n.d.). Retrieved August 18, 2014, from http://www.tobaccocontrollaws.org/legislation/country/India/summary

International Agency for Research on Cancer (IARC). (1985). Tobacco habits other than smoking; betel-quid and areca-nut chewing; and some related nitrosamines. *IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans*, *37*.

International Institute for Population Sciences (IIPS). (2010). *Global Adult Tobacco Survey India Report*. New Delhi, India. Retrieved from http://www.who.int/tobacco/surveillance/gats_india/en/index.html

ITC Project. (2009). *FCTC Article 11: Tobacco Warning Labels. Evidence and Recommendations from the ITC Project*. Waterloo, Ontario, Canada.

ITC Project. (2010a). *FCTC Article 14: Tobacco dependence and cessation*.

ITC Project. (2010b). *ITC Bangladesh National Report*. Waterloo, Ontario, Canada; Dhaka, Bangladesh. Retrieved from http://www.itcproject.org/key_findings/national

ITC Project. (2010c). *ITC Bangladesh Survey Summary*. Waterloo, Ontario, Canada; Dhaka, Bangladesh.

ITC Project. (2010d). *ITC Bangladesh Technical Report Wave 1*. Waterloo, Ontario, Canada; Dhaka, Bangladesh. Retrieved from http://www.itcproject.org/countries/bangladesh

ITC Project. (2011). *ITC Bangladesh Report on Smoke-Free Policies*. Waterloo, Ontario, Canada; Dhaka, Bangladesh. Retrieved from http://www.itcproject.org/key_findings/policy

ITC Project. (2013). *TCP India National Report. Findings from the Wave 1 Survey (2010-2011)*. Waterloo, Ontario, Canada; Navi Mumbai, India.

John, R. M., Rao, R. K., Rao, M. G., Moore, J., Deshpande, R. S., Sengupta, J., … Jha, P. (2010). *The Economics of Tobacco and Tobacco Taxation in India*. Paris.

Kakde, S., Bhopal, R. S., & Jones, C. M. (2012). A systematic review on the social context of smokeless tobacco use in the South Asian population: Implications for public health. *Public Health*, *126*(8), 635–45. doi:10.1016/j.puhe.2012.05.002

Khan, A., Huque, R., Shah, S. K., Kaur, J., Baral, S., Gupta, P. C., … Siddiqi, K. (2014). Smokeless tobacco control policies in South Asia: A gap analysis and recommendations. *Nicotine & Tobacco Research*, *16*(6), 890–4. doi:10.1093/ntr/ntu020

Krishna, K. (1978). Tobacco chewing in pregnancy. *British Journal of Obstetrics and Gynaecology*, *85*(10), 726–8. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/708654

Kunda, Z. (1990). The case for motivated reasoning. *Psychological Bulletin*, *108*(3), 480–498.

Lee, H. (2011). The role of descriptive norm within the theory of planned behavior in predicting Korean Americans' exercise behavior. *Psychological Reports*, *109*(1), 208–18. doi:10.2466/06.07.PR0.109.4.208-218

Lee, W. B., Fong, G. T., Zanna, M. P., Omar, M., Sirirassamee, B., & Borland, R. (2009). Regret and rationalization among smokers in Thailand and Malaysia: Findings from the International Tobacco Control Southeast Asia Survey. *Health Psychology*, *28*(4), 457–64. doi:10.1037/a0014669

Mead, E. L., Rimal, R. N., Ferrence, R., & Cohen, J. E. (2014). Understanding the sources of normative influence on behavior: The example of tobacco. *Social Science & Medicine*, *115*, 139–43. doi:10.1016/j.socscimed.2014.05.030

Messina, J., Freeman, C., Rees, A., Goyder, E., Hoy, A., Ellis, S., & Ainsworth, N. (2013). A systematic review of contextual factors relating to smokeless tobacco use among South Asian users in England. *Nicotine & Tobacco Research*, *15*(5), 875–82. doi:10.1093/ntr/nts193

Nargis, N., Ruthbah, U. H., & Fong, G. T. (2010). *Taxation of tobacco products in Bangladesh: Findings from the 2009 ITC Bangladesh Survey*. Waterloo, Ontario, Canada.

Nargis, N., Ruthbah, U. H., Hussain, A. K. M. G., Ashiquzzaman, S. M., Fong, G. T., & Huq, I. (2011). *Pricing and taxation of tobacco products in Bangladesh: Findings from Wave 1 (2009) and Wave 2 (2010) of the ITC Bangladesh Survey*. Waterloo, Ontario, Canada.

Nargis, N., Ruthbah, U. H., Hussain, A. K. M. G., Fong, G. T., Huq, I., & Ashiquzzaman, S. M. (2014). The price sensitivity of cigarette consumption in Bangladesh: Evidence from

the International Tobacco Control (ITC) Bangladesh Wave 1 (2009) and Wave 2 (2010) Surveys. *Tobacco Control*, *23 Suppl 1*, i39–i47. doi:10.1136/tobaccocontrol-2012-050835

Pearson, N., Croucher, R., Marcenes, W., & O'Farrell, M. (1999). Dental service use and the implications for oral cancer screening in a sample of Bangladeshi adult medical care users living in Tower Hamlets, UK. *British Dental Journal*, *186*(10), 517–21. doi:10.1038/sj.bdj.4800156

Perkins, H. W., Meilman, P. W., Leichliter, J. S., Cashin, J. R., & Presley, C. A. (1999). Misperceptions of the norms for the frequency of alcohol and other drug use on college campuses. *Journal of American College Health*, *47*(6), 253–8. doi:10.1080/07448489909595656

Post, A., Gilljam, H., Rosendahl, I., Bremberg, S., & Galanti, M. R. (2010). Symptoms of nicotine dependence in a cohort of Swedish youths: A comparison between smokers, smokeless tobacco users and dual tobacco users. *Addiction*, *105*(4), 740–6. doi:10.1111/j.1360-0443.2009.02852.x

Rahman, M. A., Mahmood, M. A., Spurrier, N., Rahman, M., Choudhury, S. R., & Leeder, S. (2012). Why do Bangladeshi people use smokeless tobacco products? *Asia-Pacific Journal of Public Health / Asia-Pacific Academic Consortium for Public Health*. doi:10.1177/1010539512446957

Rani, M., Bonu, S., Jha, P., Nguyen, S. N., & Jamjoum, L. (2003). Tobacco use in India: Prevalence and predictors of smoking and chewing in a national cross sectional household survey. *Tobacco Control*, *12*(4), e4. doi:doi:10.1136/tc.12.4.e4

Raute, L. J., Sansone, G., Pednekar, M. S., Fong, G. T., Gupta, P. C., Quah, A. C. K., … Sinha, D. N. (2011). Knowledge of health effects and intentions to quit among smokeless tobacco users in India: findings from the International Tobacco Control Policy Evaluation (ITC) India Pilot Survey. *Asian Pacific Journal of Cancer Prevention*, *12*(5), 1233–8. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21875273

Reddy, K. S., & Gupta, P. C. (Eds.). (2004). *Report on Tobacco Control in India*. New Delhi, India: Ministry of Health and Family Welfare.

Reid, J. L., Hammond, D., Boudreau, C., Fong, G. T., & Siahpush, M. (2010). Socioeconomic disparities in quit intentions, quit attempts, and smoking abstinence among smokers in four western countries: Findings from the International Tobacco Control Four Country Survey. *Nicotine & Tobacco Research*, *12*(1), S20–33. doi:10.1093/ntr/ntq051

Rennen, E., Nagelhout, G. E., van den Putte, B., Janssen, E., Mons, U., Guignard, R., … Willemsen, M. C. (2014). Associations between tobacco control policy awareness, social acceptability of smoking and smoking cessation. Findings from the International Tobacco Control (ITC) Europe Surveys. *Health Education Research*, *29*(1), 72–82. doi:10.1093/her/cyt073

Rivis, A., & Sheeran, P. (2003). Descriptive norms as an additional predictor in the theory of planned behaviour: A meta-analysis. *Current Psychology*, *22*(3), 218–233. doi:10.1007/s12144-003-1018-2

Roski, J., Schmid, L. A., & Lando, H. A. (1996). Long-term associations of helpful and harmful spousal behaviors with smoking cessation. *Addictive Behaviors*, *21*(2), 173–85. doi:10.1016/0306-4603(95)00047-X

Samet, J., & Yoon, S. (2010). *Gender, Women, and the Tobacco Epidemic*. Retrieved from http://whqlibdoc.who.int/publications/2010/9789241599511_eng.pdf

Sankaran, S., Hiilamo, H., & Glantz, S. A. (2014). Implementation of graphic health warning labels on tobacco products in India: The interplay between the cigarette and the bidi industries. *Tobacco Control*, *Epub*, tobaccocontrol–2013–051536–. doi:10.1136/tobaccocontrol-2013-051536

Schensul, J. J., Nair, S., Bilgi, S., Cromley, E., Kadam, V., Mello, S. D., & Donta, B. (2013). Availability, accessibility and promotion of smokeless tobacco in a low-income area of Mumbai. *Tobacco Control*, *22*(5), 324–30. doi:10.1136/tobaccocontrol-2011-050148

Singh, P. K. (2012). Tobacco control in the WHO South-East Asia Region. *Indian Journal of Cancer*, *49*(4), 319–20. doi:10.4103/0019-509X.107714

Sinha, D. N., Gupta, P. C., Ray, C., & Singh, P. K. (2012). Prevalence of smokeless tobacco use among adults in WHO South-East Asia. *Indian Journal of Cancer*, *49*(4), 342–6. doi:10.4103/0019-509X.107726

Stigler, M., Dhavan, P., Van Dusen, D., Arora, M., Reddy, K. S., & Perry, C. L. (2010). Westernization and tobacco use among young people in Delhi, India. *Social Science & Medicine*, *71*(5), 891–7. doi:10.1016/j.socscimed.2010.06.002

Summers, R. M., Williams, S. A., & Curzon, M. E. (1994). The use of tobacco and betel quid ('pan') among Bangladeshi women in West Yorkshire. *Community Dental Health*, *11*(1), 12–6. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/8193977

Teo, K. K., Ounpuu, S., Hawken, S., Pandey, M. R., Valentin, V., Hunt, D., … Yusuf, S. (2006). Tobacco use and risk of myocardial infarction in 52 countries in the

INTERHEART study: a case-control study. *Lancet*, *368*(9536), 647–58. doi:10.1016/S0140-6736(06)69249-0

The World Bank. (2013). CPIA gender equality rating. Retrieved November 01, 2013, from http://data.worldbank.org/indicator/IQ.CPA.GNDR.XQ

Thrasher, J. F., Boado, M., Sebrié, E. M., & Bianco, E. (2009). Smoke-free policies and the social acceptability of smoking in Uruguay and Mexico: Findings from the International Tobacco Control Policy Evaluation Project. *Nicotine & Tobacco Research*, *11*(6), 591–9. doi:10.1093/ntr/ntp039

Thrasher, J. F., Pérez-Hernández, R., Swayampakala, K., Arillo-Santillán, E., & Bottai, M. (2010). Policy support, norms, and secondhand smoke exposure before and after implementation of a comprehensive smoke-free law in Mexico City. *American Journal of Public Health*, *100*(9), 1789–98. doi:10.2105/AJPH.2009.180950

Van den Putte, B., Yzer, M. C., & Brunsting, S. (2005). Social influences on smoking cessation: A comparison of the effect of six social influence variables. *Preventive Medicine*, *41*(1), 186–93. doi:10.1016/j.ypmed.2004.09.040

Vink, J. M., Willemsen, G., & Boomsma, D. I. (2003). The association of current smoking behavior with the smoking behavior of parents, siblings, friends and spouses. *Addiction*, *98*, 923–931. doi:10.1046/j.1360-0443.2003.00405.x

Wetter, D. W., Kenford, S. L., Smith, S. S., Fiore, M. C., Jorenby, D. E., & Baker, T. B. (1999). Gender differences in smoking cessation. *Journal of Consulting and Clinical Psychology*, *67*(4), 555–562. doi:10.1037/0022-006X.67.4.555

World Economic Forum. (2013). *The Global Gender Gap Report 2013*. Geneva. Retrieved from http://www.weforum.org/reports/global-gender-gap-report-2013

World Health Organization. (1997). *Tobacco or health: A global status report*. Geneva: World Health Organization (WHO).

World Health Organization. (2008). *The global burden of disease: 2004 update*. Geneva.

World Health Organization. (2009). *Global Adult Tobacco Survey Bangladesh Report*. Dhaka, Bangladesh. Retrieved from http://www.who.int/tobacco/surveillance/gats_bangladesh/en/index.html

World Health Organization. (2011). *Global status report on noncommunicable diseases 2010*. Geneva.

Appendix A: Technical Reports and Survey Questionnaires

As mentioned in the Methods Chapter, additional information about the International Tobacco Control (ITC) Project, including the survey methods, sampling designs, and survey questionnaires can be found at the following public website: http://itcproject.org/. I have not included the full copies of the technical reports and surveys applicable to this dissertation in the appendices due to the number and length of each of these documents; rather, I have provided the links to access these documents online in order to save space and paper.

Technical Reports for each survey wave in each ITC country (including the ones used in this dissertation) are available online at the following link: http://itcproject.org/technical-report/. These reports detail the specific procedures that were followed throughout the course of each survey wave, from survey planning and design, to survey protocols, quality control procedures, retention rates and weights construction.

The survey questionnaires for the ITC Bangladesh and India Surveys can also be found online at the following link: http://itcproject.org/surveys. There are nine individual surveys for Wave 2 of the Bangladesh Project specific to the various types of tobacco users (four recontact surveys and five replenishment surveys including one for Quitters), in addition to a Household Survey and a Screener questionnaire. Each survey can be viewed in either English or Bengali. For Bangladesh Wave 3, there are six individual tobacco surveys available online in English only, as well as one Quitter Survey for recontact respondents, a supplement of questions for replenishment respondents, a Household Survey, and a Screener questionnaire. Finally, there are four main surveys available online for Wave 1 of the India Project, as well as a Household Survey and a Screener questionnaire. Each of these surveys can be viewed in English, Marathi, Hindi, or Bengali.