Examining How Presumed Media Influence Affects Social Norms and Adolescents' Attitudes and Drinking Behavior Intentions in Rural Thailand

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Abstract

This study uses the influence of presumed media influence (IPMI) model as the theoretical framework to examine how perceived social norms (i.e., descriptive, subjective, and injunctive norms) will mediate the influence of pro- and anti-drinking media messages on adolescents' intention to consume alcohol in rural Thailand. Data collected from 1,028 high school students indicate that different mechanisms underlie drinking intentions between non-drinkers and those who have consumed alcohol or currently drink. Among non-drinkers, perceived peer attention to pro-drinking messages indirectly influenced adolescents' pro-drinking attitudes and intentions to consume alcohol through all three types of perceived social norms. Among drinkers, perceived peer attention to both pro- and anti-drinking messages indirectly influenced adolescents' pro-drinking attitudes and intentions to drink alcohol through perceived subjective norm. The findings provide support for the extended IPMI model and have practical implications for how anti-drinking campaigns targeted at teenagers in Thailand might be designed.

Keywords: Influence of presumed media influence; descriptive norms; subjective norms; injunctive norms; underage drinking

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The rising trend of underage drinking among adolescents has become a serious public health issue in Thailand (National Statistical Office [NSO], 2007). A national survey showed that adolescents are the second heaviest consumers of alcohol in Thailand (NSO, 2007). The survey indicated that in non-municipal areas the average age of initiation is 15.8 years (NSO, 2007), although the sale of alcohol to people under 20 years old is prohibited in Thailand (Alcohol Control Act, 2008). While anecdotal evidence suggests a number of undesirable consequences of underage alcohol consumption, research has shown that Thai female adolescents who drank alcohol were three times more likely to be at risk of having unwanted pregnancies than those who did not drink ("'Prae' most drinkers – 'Mookdaharn' highest consumption," 2007).

In Western populations, underage drinking has been associated with behavioral and emotional problems such as theft, fights, and drunk driving (Hingson & Kenkel, 2004*)*. Underage alcohol consumption has been linked to negative life outcomes in adulthood. Adolescents who consume alcohol tend to drop out of school, face difficulties in sustaining marriages, and encounter problems retaining jobs (Schulenberg, 1996). Symptoms of alcohol addiction tend to develop for people who began drinking during adolescence than for people who started to consume alcohol at the age of 21 (Grant & Dawson, 1997).

The Thai health authorities regard reducing underage drinking as a top public health goal. Laws were passed in 2003 making it illegal for vendors to sell alcohol within close proximity to educational institutions in Thailand ("Thai Regulations Against Alcohol Consumption," 2008).

Since 2008, the Thai government has imposed restrictions that only allow the sale of alcohol to consumers within certain hours[1] nationwide (Alcohol Control Act, 2008). Except for the Internet, all kinds of messages that explicitly encourage drinking have been restricted on television and films (Criteria and Conditions for Displaying the Symbol for Advertising or Public Relations of Alcoholic Beverage [CDSA], 2010). However, the trademarks of alcoholic beverages are allowed to be shown on television in Thailand, usually right after ads that highlight certain positive cultural values or lifestyles (CDSA, 2010). These ads do not contain any messages that directly persuade people to drink, but audiences may still associate the alcoholic beverage trademarks with the positive lifestyle portrayed.[2] As television is the most popular medium among adolescents in rural Thailand, they are likely to be exposed to these pro-drinking messages (NSO, 2008).

Anti-drinking campaigns focusing on themes such as values, legal punishments, and danger associated with drink driving have repeatedly run on Thai television (Thai Health Foundation Promotion [THFP], 2006). Recent anti-drinking messages on TV have focused on getting low-income adults to stop drinking. Themes of these messages include the financial loss as a result of drinking and the responsibilities of parenthood (THFP, 2006).[3] One of the few ads targeted at youth urges university students to stop drinking during their orientation, by

[1] The sale of alcohol to consumers is allowed from 11am to 2pm and from 5pm to 12am daily.

[2] For example, one particular beer brand showed how Thai office workers should stay optimistic. The ad portrayed a friendly environment where everyone was willing to help one another in a work place. Beer never appeared in this ad; only its trademark appeared very briefly at the end ("Benmore Office," 2009). The goal of alcoholic beverage ads is generally to promote and associate some kind of positive values or perceptions with the brand (Centre for Alcohol Studies, 2008; Kannika, 2009).

[3] Most campaign themes were relevant to adults, especially low-income workers. Before New Year celebrations, ads with themes related to the harms of drinking and driving are more frequently shown. There have also been ongoing efforts to stop people from giving alcoholic beverages as gifts in these ads (THFP, 2006).

highlighting that building friendship does not have to involve alcohol (THFP, 2006).[4] None of these ads utilizes social norms marketing techniques in the messages.

Generally, campaign messages aimed at addressing adolescents' attitudes and beliefs toward drinking have been ineffective in reducing underage drinking (Hansen, 1992; Moskowitz, 1989; Yanovitzky & Stryker, 2001). However, campaign messages with an emphasis on downplaying adolescents' perceptions of their peers' drinking prevalence have significantly decreased the incidence of drinking among adolescents (Barnett, Far, Mauss, & Miller, 1996). Research has shown that social norms marketing campaigns, which offer precise student statistics to rectify misperceptions of subjective drinking norms, are effective in certain types of campus communities (DeJong, 2010; DeJong et al., 2006, 2009; Scribner et al., 2011). Research indicates that it is important to consider perceptions of peer influence when examining the effects of media messages on adolescents. This is especially the case in collectivistic Thailand (Hosking et al., 2009), where most adolescents cite social norms and peer pressure as key reasons for drinking alcohol (NSO, 2007).

We aim to use the influence of presumed media influence (IPMI) model (Gunther & Storey, 2003) as the theoretical framework to examine how normative factors could potentially mediate the influence of pro- and anti-drinking media messages on Thai adolescents' intentions to consume alcohol. We will expand upon the concept of "perceived peer norms" in the original IPMI model by incorporating three types of social norms – descriptive, injunctive, and subjective norms – as mediating variables in the model. By providing a more nuanced concept explication of perceived peer norms, we hope to strengthen the IPMI model and provide useful recommendations for health communicators to address the problem of underage drinking.

[4] Another ad relates to the new Alcohol Control Act which bans drinking in educational institutions, conveying the key message that if anyone drinks within the school premises, they would be jailed (THFP, 2006).

The Influence of Presumed Media Influence (IPMI) Model

In the influence of presumed media influence (IPMI) model, Gunther and Storey (2003) postulated that people perceive some influence of a communication message on others (presumed influence) and then respond to that perception by changing their own attitudes or behaviors (influence of presumed influence). People respond to their anticipation of the influence of mediated communication on others, regardless of the accuracy of the perceived influence (Gunther & Storey, 2003). Gunther and Storey (2003) examined the effects of health campaign messages on Nepalese women's perceptions of maternal healthcare workers, and results showed that the campaign messages did not directly affect women's attitudes toward healthcare workers. Instead, the impact of health campaign messages on women's attitudes toward healthcare workers was mediated by the extent to which they perceived healthcare workers were affected by the campaign messages.

Research has provided empirical support for the IPMI model in the context of risky adolescent behavioral intentions (Chia, 2006; Gunther, Bolt, Borzekowski, Liebhart, & Dillard, 2006; Paek & Gunther, 2007). Chia (2006) showed that the extent to which adolescents believed their peers to be influenced by sexually explicit media content was positively associated with acceptance of premarital sex and the likelihood of engaging in risky sexual behaviors. Gunther et al. (2006) showed that presumed influence of pro-smoking ads on peers was positively associated with adolescents' intentions to smoke. Most adolescents regard their peers as an important referent group (Maxwell, 2002) and they derive their sense of identity from their perceptions of what their peers think (Harris, 1995). According to cognitive developmental theory (Bigler & Liben, 2007), adolescents' perceptions of the social environment play a more crucial role in influencing their behaviors than the actual environment itself. Hence, the IPMI

model provides a useful framework for us to examine how normative factors and media messages can influence adolescents' intention to consume alcohol.

Linking Attention to Drinking Messages with Perceptions of Peer Attention

The first component of the IPMI model posits that individuals make generalizations about other people's media exposure based on their own exposure to media messages (Gunther & Storey, 2003). This association between exposure to media messages and perceptions of other people's exposure to media messages can be explained using the persuasive press inference (PPI) theory (Gunther, 1998). According to the PPI, individuals are exposed to media messages and they make inferences about the valence of such content. The more individuals attend to such media messages, the more likely they are to assume that these messages have a wide reach and think that their peers would likewise pay attention to such media messages (Gunther et al., 2006). Gunther et al. (2006) demonstrated that individuals' exposure to both anti- and pro-smoking messages were positively associated with perceived peer exposure to anti- and pro-smoking messages, respectively. We hypothesize that:

H1a: Individuals' attention to pro-drinking media messages is positively associated with perceptions of peer attention to pro-drinking media messages.

H1b: Individuals' attention to anti-drinking media messages is positively associated with perceptions of peer attention to anti-drinking media messages.

Linking Perceptions of Peer Attention to Perceptions of Peer Norms

IPMI model posits that individuals' perceptions of peer exposure to media messages could in turn shape perceptions of their peers' attitudes and behaviors toward an issue. Gunther et al. (2006) found that the extent to which adolescents believed that their peers were exposed to pro- and anti-smoking messages was associated with perceptions of smoking prevalence.

Research suggests that people tend to use simple cognitive processing strategies when assessing the effects of media messages on others and assume that the more others are exposed to media messages, the more likely these media messages will have an effect on others' attitudes, behaviors, and perceptions of norms (e.g., Gunther et al., 2006). Gunther et al. (2006) showed that individuals' perceived peer exposure to pro- and anti-smoking messages were significantly associated with their perceived prevalence of smoking behavior. We can expect these findings to extend to the case of underage alcohol consumption.

The third person effect (TPE; Davison, 1983) can shed some light on perceived media influence on peers. TPE posits that individuals perceive that harmful media messages will exert stronger negative impact on others than on themselves. Studies have shown that individuals believe that others were more affected than themselves by advertisements for liquor and beer (David, Liu, & Myser, 2004; Gunther & Thorson, 1992; Shah, Faber, & Youn, 1999). Shin and Kim (2011) found that adolescents perceived greater effects of alcohol product placement in youth-oriented films on others than on themselves. We can expect that undesirable pro-drinking messages will be perceived as more persuasive to the assumed vulnerable others, relative to the beneficial anti-drinking messages, especially among adolescent non-drinkers.

One research gap in extant IPMI studies is that the various types of perceived norms have not been integrated into the model. Research has identified three main types of norms: descriptive, injunctive, and subjective norms (Ajzen, 1991; Cialdini, Reno, & Kallgren, 1990). Descriptive norms are defined as individuals' beliefs about how prevalent a particular behavior is among their referent others. Descriptive norms provide information about the strength of the norm and how common it is among others (Cialdini et al., 1990; Paek, 2009). Injunctive norms indicate the extent to which individuals believe the society would express disapprobation toward

certain behaviors (Schultz, Nolan, Cialdini, Goldstein, & Griskevicius, 2007). Subjective norms refer to individuals' perceptions regarding the degree to which members from their referent groups such as family members or friends would expect them to perform a given action (Ajzen, 1991).

Although injunctive and subjective norms both address perceptions of others' beliefs, subjective norms focus on perceptions of pressure from specific referent groups whereas injunctive norms are concerned with perceptions of how society at large expects them to behave (Rimal & Real, 2003). Bearman's (2002) concept of peer proximity, which posits that peer effects function at proximal (e.g., close peers) and distal (e.g., groups of friends) levels, illuminates the differences between subjective and injunctive norms. Put simply, the referent groups in subjective norms are closer in terms of social distance than the referent groups in injunctive norms. For adolescent drinking, subjective norms focus on proximate peers while injunctive norms concern distant peers.

While drinking alcohol often begins during adolescence, important referent groups and the public may express their disapproval of alcohol consumption among adolescents (Paek, 2009; Rimal & Real, 2005; Simons-Morton, 2002). Researchers have demonstrated that descriptive and injunctive norms could exist on two levels: (a) personal level, which refers to individuals' beliefs about the level of appeal and support of the behavior among their referent groups, and (b) societal level, which refers to individuals' beliefs about the level of appeal and support of the behavior in their society (e.g., Park, Klein, Smith, & Martell, 2009; Hong, Rice, & Johnson, 2012). Park et al. (2009) showed that five distinct norms, including subjective norms, university- and U.S.-level descriptive norms, and university- and U.S.-level injunctive norms had differential direct and moderating impact on drinking behavior intentions among undergraduates.

In the case of organ donation, Park and Smith (2007) found that personal descriptive norms, instead of subjective norms, significantly affected individuals' behavioral intent to sign the organ donation registry, but subjective norms stayed significant for individuals' behavioral intent to discuss with family about organ donation.

Perceived norms at the personal level seemed to have a larger impact on behavioral intent than perceived norms at the societal level in most studies. This is expected as people tend to regard close peers as an in-group with a common identity and characteristic more so than distant peers (Tajfel, 1982). People have a greater tendency to be influenced by perceptions of in-group behavior than that of out-groups, as they often base their behavior on social comparisons of important peers (Yanovitzky, Stewart, & Lederman, 2006). Given these differences, it is in the interest of our study to focus on how subjective, descriptive, and injunctive norms (all of which are distinct constructs) will influence drinking intention. Put simply, descriptive norms may not necessarily be reflective of injunctive norms or subjective norms in predicting alcohol consumption among adolescents (Rimal & Real, 2005; Voogt, Larsen, Poelen, Kleinjan, & Engels, 2012). It is important to parse out the effects of these norms on attitudinal and behavioral outcomes and gauge the effects of perceived peer attention on these norms:

H2a: Perception of peer attention to pro-drinking media messages is positively associated with perceived descriptive norm.

H2b: Perception of peer attention to pro-drinking media messages is positively associated with perceived injunctive norm.

H2c: Perception of peer attention to pro-drinking media messages is positively associated with perceived subjective norm.

H3a: Perception of peer attention to anti-drinking media messages is negatively associated with perceived descriptive norm.

H3b: Perception of peer attention to anti-drinking media messages is negatively associated with perceived injunctive norm.

H3c: Perception of peer attention to anti-drinking media messages is negatively associated with perceived subjective norm.

Linking Perceived Norms to Attitudes and Intention to Drink

The IPMI model posits that individuals' attitudes and behavioral intentions are influenced by the extent to which they believe that other people have been affected by media messages. Paek and Gunther (2007) found that adolescents tend to have positive attitudes toward smoking if they perceive that smoking is prevalent among their peers. Adolescents who believe that peer norms had been influenced by sexual content report more favorable attitudes toward risky sexual behaviors and greater likelihood to engage in sexual activities (Chia, 2006). We expect that social norms may be influential for adolescents regarding attitudes and intentions related to risky behavior.

The relationships among subjective norms, attitudes, and behavioral intentions were delineated in the theory of reasoned action (TRA; Ajzen & Fishbein, 1973) and later in the theory of planned behavior (TPB; Ajzen, 1991). Numerous studies that examined the TRA and TPB have shown that attitudes and subjective norms predict risky behaviors like drinking (Todd & Mullan, 2011), unsafe sex (Albarracin, Johnson, Fishbein, Muellerleile, 2001), and substance abuse (Kelly, Deane, McCarthy, & Crowe, 2011). Research has shown that perceptions of behavioral prevalence (descriptive norms) and perceptions of other peoples' expectations may elicit different influence on attitudes and behaviors, depending on the contexts. Paek (2009)

showed that injunctive norms were a better predictor of intentions to smoke than descriptive norms. However, Rimal and Real (2005) showed that injunctive and descriptive norms had significant main effects on college students intentions to consume alcohol. To sort out these inconsistencies, we will examine perceived descriptive, subjective, and injunctive norms concurrently as predictors of attitudes and behavioral intentions. We hypothesize that:

H4a: Perceived descriptive norm is positively associated with attitudes toward drinking.

H4b: Perceived injunctive norm is positively associated with attitudes toward drinking.

H4c: Perceived subjective norm is positively associated with attitudes toward drinking.

H5a: Perceived descriptive norm is positively associated with intention to consume alcohol.

H5b: Perceived injunctive norm is positively associated with intention to consume alcohol.

H5c: Perceived subjective norm is positively associated with intention to consume alcohol.

H6: Attitude toward drinking is positively associated with intention to consume alcohol.

Research suggests that separate analyses should be run for drinkers and non-drinkers as these two groups of adolescents tend to differ in a number of significant ways. Adolescent drinkers and non-drinkers differ in their pre-existing beliefs and attitudes toward alcohol consumption (Hastings, Anderson, Cooke, & Gordon, 2005) and their levels of response to pro- and anti-drinking media messages (Aitken, Eadie, Leathar, McNeill, & Scott, 1988; Hastings et al., 2005). Anderson et al. (2009) found that adolescent drinkers tend to be affected by alcohol advertising than non-drinkers. Underage drinkers tend to pay more attention and to derive greater pleasure out of alcohol commercials than non-drinkers (Aitken et al., 1988; Ellickson, Collins,

Hambarsoomians, & McCaffrey, 2005). Compared with non-drinkers, underage drinkers were more susceptible to social influences associated with peers who use alcohol and their own prior drinking experiences (Ellickson et al., 2005). Underage drinkers were more likely than non-drinkers to have more peers drinking, to have parents with more positive attitudes toward underage drinking, and to hold more positive attitude toward drinking (Aitken et al., 1988; Ellickson et al., 2005). Based on these differences, we should conduct separate analysis of the two groups for a clearer interpretation of our findings:

RQ1: Are the direct and indirect relationships hypothesized earlier different between drinkers and non-drinkers?

Method

Data for our study came from a survey administered to 1,028 high school students in nine small-size schools (schools with 250 students or less who are in grade 10-12) in the province of Uttaradit, Thailand, in June 2010. [5] Thailand, a country in Southeast Asia, has a GDP of USD263.9 billion (United Nations, 2009) and a population of approximately 66 million people (United Nations Thailand, 2011). The official language is Thai and more than 90% of its population is Buddhist (United Nations Thailand, 2011). The media are mostly privately owned and media content that is deemed to be religiously or culturally inappropriate is heavily regulated (United Nations Thailand, 2011). However, the country ranked fifth internationally in terms of the amount of alcohol consumed per person (StopDrink Network, 2010). Uttaradit, a province in the north of Thailand, was chosen as the locale for this study as it is a fairly typical rural area in

[5] Most students who attended the small-size schools in Uttaradit tend to reside in rural areas, as these schools were generally located in the remote areas. Likewise, most students who attended the larger schools tend to live in urban areas, as these schools were located in town. Therefore, high school students from small-size schools were chosen for our study since our focus is on the rural population.

terms of demographics (Ministry of Interior, 2009). Uttaradit ranked seventh out of 76 provinces in Thailand in terms of regular drinkers (Centre for Alcohol Studies, 2007), which can potentially enhance important variances.

Our sample comprised students from the following schools in Uttaradit: 22.4% Laplaepittayakom (n = 230); 14% Namritwittaya (n = 144); 10.3% Laplaesriwittaya (n = 106); 9.5% Bankhonpittaya (n = 98); 5.2% Darapittayakom (n = 53); 10.1% Wangkapeepittayakom (n = 104); 5.1% Santorwittaya (n = 52); 14.2% Thungkalowittaya (n = 146); and 9.2% Danmaekummun (n = 95). In total, 85% of the students from these schools participated in this study.[6] There were more females (57.6%) than males (42.4%) in the sample, which is consistent with the demographics of schools in the region. Most students (97%) were between 15 and 18 years old (M = 16.28, SD = 1.10).

Participants signed a consent form before participating in our study.[7] Participants were informed that their participation in our study was completely voluntary and their information would be kept confidential. The survey took approximately 15 minutes to complete. Each participant received a 15-baht incentive for completing the survey (approximately US50 cents which is enough to buy school lunch).[8] Those who indicated that they have drunk alcohol at

[6] Derived from the total number of students who attended school on the day the questionnaire was administered / total number of students in these schools.

[7] In Thailand, parental consent is not needed for surveys conducted in and approved by the schools.

[8] In smaller schools, the teachers assembled all the students into one big hall. In bigger schools, the teachers asked the research assistants to go to several classes to administer the paper-and-pencil survey at the same time. For all schools, everyone participated at the same time. Students were specifically asked not to look over each other's responses. In cases where the survey was conducted in a hall, students were asked to sit further apart from one another. Once the questionnaires were completed by the students, they were directly collected by our research assistants. The questionnaire was translated from English to Thai. The translation of all the questions was then checked with another translator in Thailand.

least once were categorized as drinkers, and those who indicated that they have never drunk were classified as non-drinkers (566 drinkers; 428 non-drinkers).[9]

Measures

Table 1 summarizes the descriptive statistics of the variables for the pooled, non-drinkers, and drinkers samples.

[Insert Table 1 about here.]

Behavioral intention. Using four items, rated on a 5-point Likert scale from 1 ("Definitely No") to 5 ("Definitely Yes"), participants were asked how likely they are to drink in the future (e.g., "Do you think that in the future you might try drinking alcohol?"). The four items were averaged to create a composite index (M = 2.24, SD = 1.05, Cronbach's alpha = .91).

Attitude. A semantic differential scale was used to measure personal attitude toward drinking, ranging from 1 to 5: "Immature – Grown up," "Not good-looking – Good-looking," "Boring – Exciting," "Not cool – Cool," and "Not popular – Popular." The five items were averaged to create a composite index (M = 2.17, SD = .83, Cronbach's alpha = .80).

Perceived descriptive norms. The four-item measure was adapted from past studies (e.g., Gunther et al., 2006) (e.g., "How many of your close friends drink alcohol?"). The items were standardized and averaged to form a composite index for descriptive norms (Cronbach's alpha = .72).

Perceived subjective norms. Measures were adapted from past studies (van den Putte, Yzer, Brunsting, & Willemsen, 2009). Based on five questions on a 5-point Likert scale from 1 ("Very unlikely") to 5 ("Very likely"), participants indicated how likely they think drinking is approved by people who are important to them (e.g., "Do you think your friends would approve

[9] Data from 34 participants were excluded from the analysis due to missing values and inconsistent responses.

of you drinking?"). The items were averaged to create a composite index (M = 2.04, SD = .75, Cronbach's alpha = .77).

Perceived injunctive norms. Using scales adapted from past studies (Rimal & Real, 2003; van den Putte, et al., 2009), participants were asked based on five items, how acceptable drinking is in the Thai society (e.g., "How acceptable is it if someone drinks alcohol in public spaces such as parks?"). The scale ranged from 1 ("Not acceptable at all") to 5 ("Very acceptable"). The items were averaged to create a composite index (M = 1.66, SD = .71, Cronbach's alpha = .84).

Media attention. Attention paid to pro- and anti-drinking messages in different media (e.g., In the past 30 days, how much attention do you pay to pro/anti-drinking messages from television/magazine/radio/Internet/newspaper?) was measured using a 5-point Likert scale from 1 ("Little attention") to 5 ("Very close attention"). The average was computed. The Cronbach's alpha for attention paid to anti-drinking message was .77 (M = 2.83, SD = .82) and .91 for pro-drinking messages (M = 1.73, SD = .90).

Drinking experience. Participants were asked to indicate whether they have ever consumed alcohol. Those who answered "No" were categorized as non-drinkers (N = 428) and those who answered "Yes" were grouped as drinkers (N = 566).

Demographic variables including age, school grade, religiosity, and gender were control variables in our study. For religiosity, three items were adapted from Gorsuch and Venable's (1983) religiosity scale (e.g., "My religion provides guidance to me in my daily life"). The scale ranged from 1 ("Strongly disagree") to 5 ("Strongly agree") (M = 4.00, SD = .91, Cronbach's alpha = .83).

Results

Separate structural equation models using maximum likelihood estimation in *AMOS 14* were run for the drinkers and non-drinkers samples. We used five fit indices to gauge our model fit: model chi-square (χ^2), relative chi-square (χ^2/df), comparative fit index (CFI), normed fit index (NFI), and root mean square error of approximation (RMSEA).[10]

Bivariate correlations among all the variables for both the drinkers and non-drinkers are shown in Tables 2a and 2b. Relationships among most of the endogenous variables of interests were significantly correlated at the zero-order level. In both sets of analyses, we controlled for gender, age, and religiosity. The model fit the data very well for the non-drinkers: $\chi^2 = 23.5$, $df = 19$, $p > .05$; $\chi^2/df = 1.24$; NFI = .97; CFI = .99; RMSEA = .02, accounting for 22.0% of the variance in behavioral intentions (Figure 1). The fit indices of the drinkers sample were acceptable: $\chi^2 = 48.4$, $df = 19$, $p < .001$; $\chi^2/df = 2.55$; NFI = .95; CFI = .97; RMSEA = .05, accounting for 32.0% of the variance in behavioral intentions (Figure 2).

[Insert Tables 2 and 3, and Figures 1 and 2 about here.]

Attention paid to pro-drinking messages was positively associated with perceived peer attention to pro-drinking messages (drinkers: $\beta = .39$; non-drinkers: $\beta = .39$), supporting *H1a*. Attention to anti-drinking messages was positively associated with perceived peer attention to anti-drinking messages (drinkers: $\beta = .26$; non-drinkers: $\beta = .41$), supporting *H1b*.

For drinkers, perceived peer attention to pro-drinking messages was positively associated with perceived subjective norms ($\beta = .13$) and perceived injunctive norms ($\beta = .15$) but not with

[10] If the model fits the data well, χ^2 should not be significant (Kline, 2004). The χ^2 is divided by its degrees of freedom to adjust for its sensitivity to large sample size (Bentler, 1989). Relative χ^2 values that fall in between 1.0 and 5.0 are considered as acceptable fit (Bollen, 1989). For CFI and NFI, values that fall in between .95 and 1.00 are considered as good fit (Hu & Bentler, 1999). For RMSEA, values of .05 or less are considered as good fit (Browne & Cudeck, 1993).

perceived descriptive norms. For non-drinkers, perceived peer attention to pro-drinking messages was positively associated with perceptions of all three types of norms (descriptive norms: $\beta = .19$; subjective norms: $\beta = .15$; injunctive norms: $\beta = .17$). *H2a* was partially supported, whereas *H2b* and *H2c* received full support.

Among drinkers, perceived peer attention to anti-drinking messages was negatively associated with perceived subjective norms ($\beta = -.10$) and perceived injunctive norms ($\beta = -.12$) but not with perceived descriptive norms. However, non-drinkers' perceptions of peer attention to anti-drinking messages showed no significant association with perceptions of all three types of norms. *H3a* was not supported, while *H3b* and *H3c* received partial support.

Perceived descriptive norms was positively associated with attitudes toward drinking for drinkers ($\beta = .12$) but not for non-drinkers. *H4a* was partially supported. Perceived injunctive norms was positively associated with attitudes toward drinking among non-drinkers ($\beta = .21$) but not for drinkers, partially supporting *H4b*. Drinkers ($\beta = .31$) and non-drinkers ($\beta = .26$) who perceived that referent groups approved of drinking were more likely to hold positive attitudes toward drinking, supporting *H4c*.

Perceived descriptive norms was a stronger predictor of intention to drink for drinkers ($\beta = .27$) than for non-drinkers ($\beta = .13$). *H5a* was supported. However, perceived injunctive norms was only positively associated with intention to drink among non-drinkers ($\beta = .16$), partially supporting *H5b*. Perceived subjective norms was positively associated with intention to drink among drinkers ($\beta = .31$) and non-drinkers ($\beta = .26$), supporting *H5c*. For both drinkers and non-drinkers, attitudes toward drinking were positively associated with intention to drink ($\beta = .23$ for drinkers and non-drinkers), supporting *H6*.

To answer *RQ1*, there were distinct differences between drinkers and non-drinkers. Perceived peer attention to anti- and pro-drinking messages was associated with perceptions of drinking prevalence among drinkers. However, non-drinkers' perceptions of peer attention to anti-drinking messages showed no significant association with perceptions of all three types of norms. Perceived descriptive norm was positively associated with attitudes toward drinking for drinkers but not for non-drinkers. Perceived injunctive norm was positively associated with attitudes toward drinking among non-drinkers but not for drinkers. Perceived subjective norm was positively associated with intention to drink among non-drinkers but not for ever- drinkers.

Discussion

We aimed to build on the IPMI model by examining the mediating roles of perceived descriptive, subjective, and injunctive norms on Thai adolescents' attitude toward drinking and behavioral intentions. The results demonstrate support for the key hypotheses in the model, especially for pro-drinking messages. Among the non-drinkers, perceived peers' attention to pro-drinking media content was positively associated with perceived drinking prevalence, societal acceptance of drinking, and referent group approval of drinking. However, perceived peer attention to anti-drinking messages had no significant association with all three types of norms among the non-drinkers.

The finding that non-drinkers consider pro-drinking messages to be considerably more convincing to their peers than anti-drinking messages is consistent with previous studies (e.g., Gunther et al., 2006). A likely explanation for this can be found in the TPE, in which individuals tend to see themselves as invulnerable to undesirable media messages and to see others as more at risk to these negative effects (Eveland, Nathanson, Detenber, & McLeod, 1999). Conversely, for desirable media content, individuals tend to perceive the beneficial message as having lesser

influence on others and greater impact on themselves (Eveland et al., 1999). Therefore, it is not surprising that the undesirable pro-drinking messages were perceived as more influential on the assumed susceptible others, while the beneficial anti-drinking messages were deemed as less influential on others. This suggests that the Thai health authorities should continue to restrict pro-drinking media messages to prevent alcohol initiation among non-drinkers.

Among the drinkers, peers' attention to pro- and anti-drinking messages affected social norms. That is, subjective and injunctive norms were influenced by peers' attention to pro- and anti-drinking messages but not descriptive norms. One reason for the difference in the influence of pro- and anti-drinking messages for drinkers and non-drinkers may be that drinkers do not perceive pro-drinking messages as harmful media content. While non-drinkers may regard pro-drinking messages as solicitations to engage in socially undesirable behavior, drinkers may regard them as advertisements promoting one product over another. As such, typical TPE patterns do not hold for the drinkers. Another explanation is that the drinkers interpret the pro- and anti-drinking messages in relation to their own drinking experiences (Hansen, 1988). Conversely, non-drinkers have no personal experience on which to draw and are likely to have different interpretive frames for pro- and anti-drinking messages.

These findings point to the ineffectiveness of the anti-drinking media campaigns in Thailand when it comes to youth. The goal of many anti-drinking messages in Thailand is to get heavy adult drinkers to quit rather than preventing youth from starting to drink.[11] The information that is highlighted in existing campaigns in Thailand tends to be of low relevance to adolescents and their peers. This may explain why non-drinkers tend to disregard and drinkers

[11] For example, one popular campaign attempted to persuade male adults to quit drinking in order to get them out of poverty (THPF, 2008).

tend to downplay the effect of perceived peer attention to anti-drinking messages on perceived peer norms in our study.

Research suggests that if campaign messages were framed to suit the target audience, adolescents may be more likely to recall the anti-drinking ads and to avoid drinking alcohol (Simons,Van den Bulck, & Van Gorp, 2007). Delays in the onset of drinking initiation can reduce alcohol related problems later in life (Pitkänen, Lyyra, & Pulkkinen, 2005). Our results suggest that besides sustaining the high volume of anti-drinking messages, health communicators could create norm-based anti-drinking campaigns to prevent non-drinking adolescents from drinking initiation. For example, health practitioners can create campaigns that address non-drinking adolescents' perceived subjective norms about drinking, by focusing on the key message that important referent group members (such as close friends and family members) actually do *not* approve of them drinking. In addition, anti-drinking messages that address injunctive norms toward drinking can be developed. These campaigns could contain the overarching message that most people do not think that it is acceptable for people to drink in public (e.g., in parks or on the bus) or in private (such as in a person's home).

Coupled with the fact that some of the perceived peer norms and adolescents' own drinking attitudes and behaviors were associated, our findings highlight the indirect influence of pro- and anti-drinking messages through its presumed influence on norms. Among the three types of norms, subjective norms had the largest influence on attitudes and intention to drink for both drinkers and non-drinkers, consistent with findings from past studies (Paek & Gunther, 2007; Thombs, Wolcott, & Farkash, 1997). It is logical for close referent groups such as friends or family members to be more persuasive in discouraging adolescents to drink than general perceptions of societal approval or drinking prevalence. This is because adolescents interact on a

frequent basis with specific members of proximal referent groups and derive their identities from socializing with them (Bearman & Bruckner, 1999; Paek & Gunther, 2007). As such, these proximal referent groups are likely to exert stronger and more immediate effects on adolescents' intentions to drink than general perceptions of societal approval or drinking prevalence.

Apart from referent group approval, perceived societal approval was positively associated with non-drinkers' intention to drink. For the non-drinkers, it is not perceived drinking prevalence but rather societal approval that predicted attitudes toward drinking and intention to drink. Conversely, for those who already have some drinking experience, our findings suggest that referent group approval, coupled with the proportion of peers around them who actually drink, are more important factors in motivating them to drink than their perceptions of what Thai society in general thinks about drinking. Although previous studies have shown that descriptive norms play a more influential role than injunctive norms in influencing attitudes and behavioral intent to drink (e.g., Rimal & Real, 2003, 2005), these studies ran analyses with pooled-samples (i.e., drinkers and non-drinkers combined). Our study shows that the results for non-drinkers were substantially different from that of drinkers. Perhaps, for non-drinkers, the *explicit approval* of significant others and society are much more compelling factors that motivate them to start drinking than just the mere prevalence of other people drinking. In contrast, it could be plausible for the "false-consensus" effect to be the predominant operating mechanism among drinkers in which their perceptions of the prevalence of risky behavior is related to their own behavior (Prentice &Miller, 1993). Future studies could better differentiate various levels of alcohol consumption (e.g., non-, light, moderate, and heavy drinkers) when examining the impact of social norms on drinking habits.

Our study has some limitations that future research could address. The cross-sectional nature of the data makes it difficult for us to infer causality. We tested rival causal models which yielded poorer fit in comparison to our original models.[12] Although the relationships among the variables established in our study were based on strong theoretical reasoning, future research should use panel designs to provide more convincing evidence. The adolescents examined in this study came from a rural province in Thailand, which may limit the extent to which our results can be generalized to urban populations in Thailand and other developing nations.

Our study makes several worthwhile contributions. Theoretically, we showed that the IPMI model can be applied to the context of adolescent drinking in Thailand. We expanded the IPMI model by integrating the three different types of perceived social norms as crucial mediating variables in the model. The addition of these conceptually distinct social norms into the model provides us with a more nuanced understanding of how perceived self and peer attention to drinking messages in the media could impact adolescents' attitudes and behavioral intentions. This has enabled us to build the original IPMI into a stronger theoretical model. For practical implications, our recommendations are in line with the strategic interventions proposed

[12] One potential rival model may be that adolescents' perceived social norms would impact their perceived media effects on their peers. However, when we tested this rival explanation by switching the causal arrows between perceived peer attention to drinking messages and the various perceived social norms, the models produced poorer fit in comparison with our original models (for non-drinkers: $\chi^2 = 282.7$, $df = 19$, $p < .001$, $\chi^2/df = 14.9$, RMSEA = .18, CFI = .60, NFI = .62; for drinkers: $\chi^2 = 367.1$, $df = 19$, $p < .001$, $\chi^2/df = 19.3$, RMSEA = .18, CFI = .62, NFI = .63). Another rival explanation may be that adolescents' own attitude toward drinking may drive the amount of attention they pay to media messages on drinking. We tested this rival explanation by switching the directions of the factors, but the alternative models yielded poorer fit (for non-drinkers: $\chi^2 = 130.0$, $df = 21$, $p < .001$, $\chi^2/df = 6.19$, RMSEA = .11, CFI = .83, NFI = .82; for drinkers: $\chi^2 = 183.1$, $df = 21$, $p < .001$, $\chi^2/df = 8.72$, RMSEA = .12, CFI = .82, NFI = .81). It is also likely that adolescents use their own attitudes and behaviors as a basis to infer about norms among their peers (i.e., the projection effect). We tested this alternative explanation by swapping the causal arrows between those factors, but the rival models produced poorer fit in comparison (for non-drinkers: $\chi^2 = 291.5$, $df = 23$, $p < .001$, $\chi^2/df = 12.67$, RMSEA = .17, CFI = .59, NFI = .60; for drinkers: $\chi^2 = 376.73$, $df = 23$, $p < .001$, $\chi^2/df = 16.38$, RMSEA = .17, CFI = .61, NFI = .62). Therefore, the evidence we presented do not support the rival causal paths.

by previous IPMI studies (e.g., Gunther et al., 2006). Efforts should be devoted to downplaying the tendency for adolescents to overestimate drinking prevalence, to perceive that drinking is accepted by the society, and to perceive that their referent group approves of them drinking; rectifying the misperception that pro-drinking media messages affects pro-drinking attitudes and behaviors of peers; and nurturing the belief that anti-drinking media content can affect peers' attitude and behaviors against drinking. More effort should first be put into developing anti-drinking messages that are relevant to adolescents, perhaps by showcasing adolescents as the main subjects in these messages rather than older adults in Thailand.

This study demonstrates that the use of a norm-based approach in campaign messages may be effective in countering underage drinking in Thailand. Norm-based campaign messages that target existing adolescent drinkers should place emphasis on referent group disapproval of underage drinking and downplay the prevalence of adolescent drinking. Finally, campaign messages should depict societal disapproval of underage drinking to effectively prevent non-drinkers from consuming alcohol.

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Table 1. Descriptive Statistics for Pooled Sample, Non-Drinkers, and Drinkers.

	Pooled Sample (N = 994)		Non-Drinkers (N = 428)		Drinkers (N = 566)	
Variables	*M*	*SD*	*M*	*SD*	*M*	*SD*
Attention to anti-drinking messages	2.83	.82	2.98	.85	2.72	.78
Attention to pro-drinking messages	1.73	.90	1.69	.93	1.76	.87
Perceived peer attention to anti-drinking messages	3.00	.96	3.17	1.02	2.87	.89
Perceived peer attention to pro-drinking messages	2.30	.99	2.20	1.02	2.38	.96
Perceived subjective norms	2.04	.75	1.76	.70	2.25	.72
Perceived injunctive norms	1.67	.71	1.51	.65	1.79	.74
Perceived descriptive norms	.00	.73	-.30	.74	.23	.65
Attitudes toward drinking	2.17	.82	1.80	.72	2.46	.77
Intention to drink	2.25	1.06	1.67	.81	2.69	1.01
Religiosity	4.00	.91	4.12	.92	3.92	.90
Age	16.28	1.10	16.03	1.02	16.48	1.11

Table 2a. Bivariate Correlations among the Independent and Dependent Variables for Non-Drinkers (N = 428)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Attention to pro-drinking messages (1)	--								
Perceived peer attention to anti-drinking messages (2)	-.02	--							
Perceived peer attention to pro-drinking messages (3)	.38***	.12**	--						
Perceived subjective norms (4)	.11*	-.05	.12**	--					
Perceived injunctive norms (5)	.19***	-.03	.14***	.58***	--				
Perceived descriptive norms (6)	.12*	-.04	.19***	.30***	.29***	--			
Attitudes toward drinking (7)	.09	.07	.02	.41***	.38***	.20***	--		
Intention to drink (8)	.09	.08	.09	.34***	.36***	.25***	.36***	--	
Religiosity (9)	-.08	.23***	.10*	-.09	-.13**	.07	-.05	-.03	--
Age (10)	.04	-.05	.05	.06	.07	.14***	.06	.03	.01

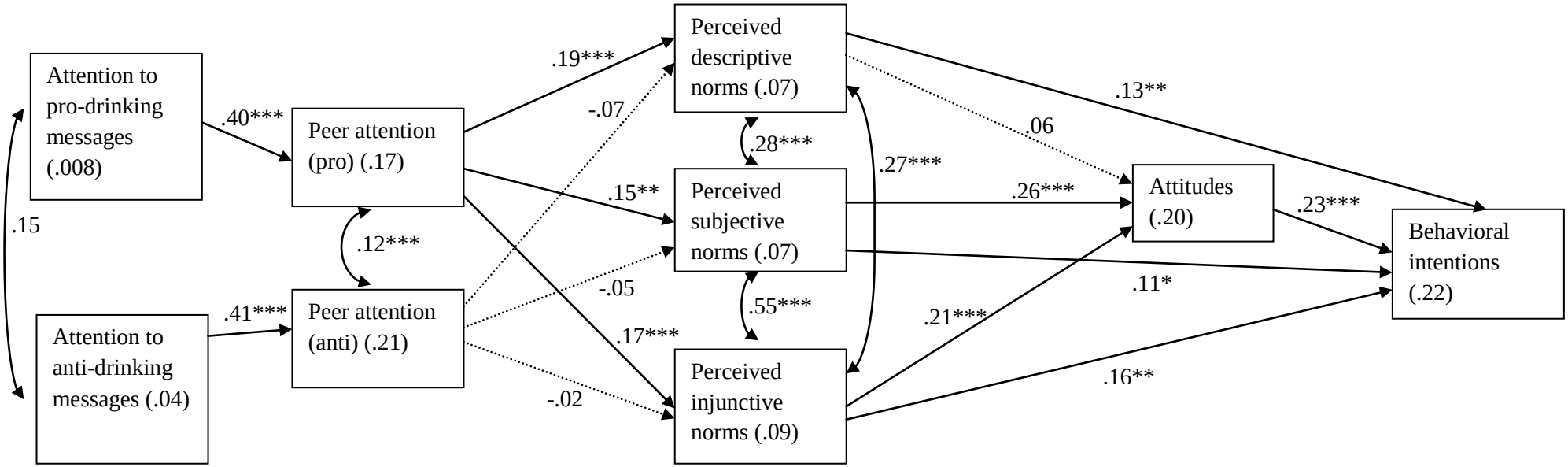
Note: *p < .05, **p < .01, ***p < .001

Table 2b. Bivariate Correlations among the Independent and Dependent Variables for Drinkers (N = 566)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Attention to pro-drinking messages (1)	--								
Perceived peer attention to anti-drinking messages (2)	.04	--							
Perceived peer attention to pro-drinking messages (3)	.39***	.16***	--						
Perceived Subjective norms (4)	.10*	-.13**	.12**	--					
Perceived Injunctive norms (5)	.15***	-.16***	.13**	.52***	--				
Perceived Descriptive norms (6)	.05	-.06	.07	.28***	.16***	--			
Attitudes toward drinking (7)	.04	-.11**	.09*	.42***	.31***	.23***	--		
Intention to drink (8)	.05	-.13**	.05	.42***	.21***	.40***	.40***	--	
Religiosity (9)	-.06	.20***	-.01	-.22***	-.27***	-.07	-.20***	-.11*	--
Age (10)	.00	-.05	-.01	.08	.02	.12**	.02	.14***	.03

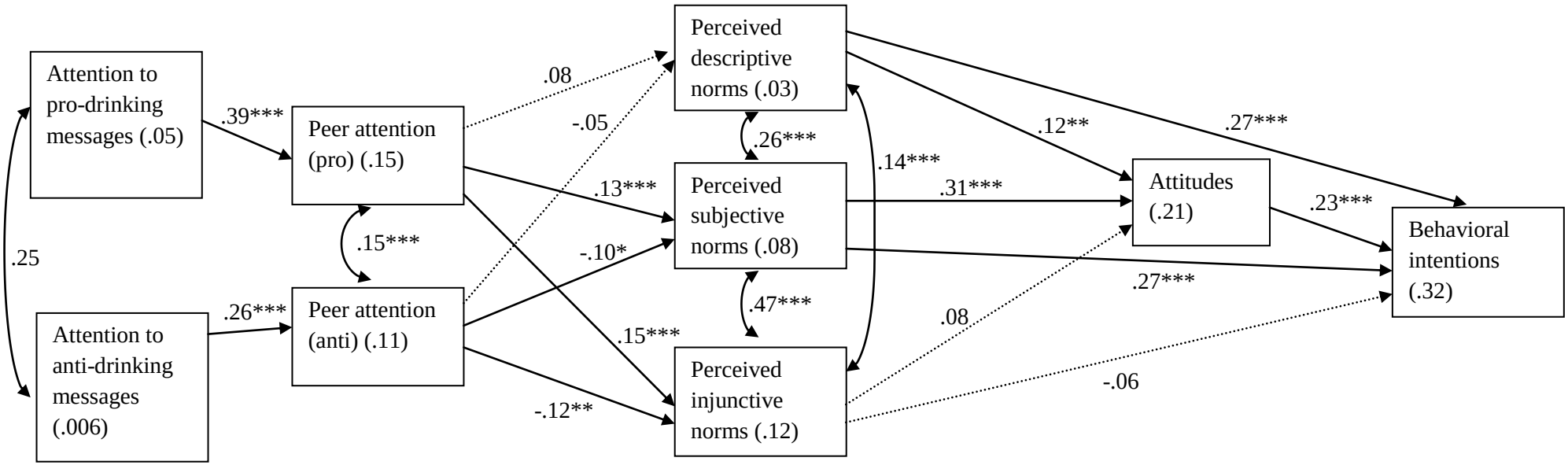
Note: *p < .05, **p < .01, ***p < .001

Figure 1. Structural equation model with standardized coefficients for non-drinkers (*N*=428).



Note. **p* < .05, ***p* < .01, ****p* < .001, χ^2 = 23.5, *df* = 19, *p* >.05, χ^2/df = 1.24, RMSEA = .02, CFI = .99, NFI = .97. Dotted lines indicate hypothesized non-significant paths. Numbers in parentheses indicate variance explained. Gender, age and religiosity served as control variables in the analyses.

Figure 2. Structural equation model with standardized coefficients for drinkers (*N*=566).



Note. *$p < .05$, **$p < .01$, ***$p < .001$, $\chi^2 = 48.4$, $df = 19$, $p < .001$, $\chi^2/df = 2.55$, RMSEA = .05, CFI = .97, NFI = .95. Dotted lines indicate hypothesized non-significant paths. Numbers in parentheses indicate variance explained. Gender, age and religiosity served as control variables in the analyses.