Alcohol advertising and alcohol consumption amongst youth, the influence of social norms and religion

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Abstract

Objective: Consuming alcohol forms an important aspect for the young and old in many cultures despite the fact that it is the most harmful drug. To gain more knowledge on determinants that are of influence on alcohol consumption, this research attempts to create a theoretical European model based on determinants of which already has been proven that they have a direct effect on alcohol consumption but of which a possible mediating effect have not been established yet. It states that social norms and religion have a direct and indirect effect mediated by a direct effect on outcome expectancies on alcohol consumption. Furthermore, it is hypothesized that alcohol advertising has a direct and indirect effect, mediated by a direct effect on outcome expectancies, on alcohol consumption as well. Therefore, it is also hypothesized that social norms and religion are of influence on the indirect effect of alcohol advertising on alcohol consumption via outcome expectancies. **Method**: The data for this cross sectional research was collected in four different countries in Europe, namely Germany, Italy, the Netherlands and Poland. The total number of respondents was 9060 of youth with an average age of 14.05. Using an online questionnaire that was similar for each country data on alcohol consumption, exposure to alcohol advertising, religion, perceived social norms on alcohol consumption and alcohol outcome expectancies were obtained. **Results**: Using structural equation modeling, the proposed model turned out to have a good fit with the data and is therefore a correct theoretical model. The results indicated that social norms were the strongest predictors of alcohol consumption amongst youth. Alcohol advertising and religion turned out to have a direct effect on social norms, therefore an indirect effect on alcohol consumption mediated by social norms as well. The expected direct effect of religion turned out to be non significant. **Conclusion:** The assumption that social norms and religion influence the indirect effect of alcohol advertising on alcohol consumption via outcome expectancies turned out to be true. Since social norms were the strongest predictors and alcohol advertising turned out to have a direct effect on social norms, a clear image is created on how much alcohol advertising influences the shaping of positive norms towards alcohol use and therefore influences alcohol consumption amongst youth. Religion turned out to have, unexpectedly, a non significant direct effect on consumption and a significant direct effect on social norms, therefore indirect on alcohol consumption. This implies that more research is needed on the relation of religion, alcohol consumption and possible mediating factors. Implications for interventions that are aimed at stopping and preventing the influence of alcohol advertising on social norms and therefore on alcohol consumption amongst youth are discussed.

Introduction

Despite the fact that alcohol is the most harmful drug for an individual as well as for society (Nutt, King & Phillips, 2010), alcohol is integrated in many cultures as an aspect of everyday life and as an aspect of a variety of social situations (Babor et al, 2003). Alcohol is integrated in such a way that literature even speaks of the term alcohol culture; the norms about the use of alcohol in the culture and the relation of drinking to other aspects of the culture (Room & Mäkelä, 2002).

Alcohol advertising is shown to help in sustaining an environment and culture in which consuming alcohol is seen as a favorable and normal activity (Gerbner, 1995) and is of direct influence on the alcohol consumption behavior of adolescents as well (Anderson, de Bruijn, Angus, Gordon & Hastings, 2009). This shows that alcohol advertising is of importance when it comes to alcohol consumption amongst under adolescents. A lot of research has already been done on the direct effect of alcohol advertising, however, this research aims to learn more on possible mediating factors that can affect the influence of alcohol advertising.

The aim of this research is therefore to develop an European model on the influence of alcohol advertising on alcohol consumption amongst adolescents and possible mediating determinants on the influence of alcohol advertising on alcohol consumption of adolescents.

Alcohol advertising

Mass media is known to be used as a communication device to transmit social norms on alcohol beverages and alcohol consumption. Alcohol advertising can be seen as an expression form of mass media. It plays an important role in sustaining a cultural environment in which drinking is seen as a normal or even a favorable activity and shapes adolescents perception and attitudes towards alcohol consumption (Gerbner, 1995). This effect of alcohol advertising on consumption can be found in the effect of alcohol ads on the alcohol consumption behavior of adolescents. Exposure to alcohol advertising increases the likelihood that an adolescent will start with consuming alcohol. Adolescents who already consume alcohol will be more likely to consume more after exposure to alcohol advertising (Anderson et al., 2009). So the chance that an adolescent will start with drinking or drink more if he/she already drinks, will increase with exposure to alcohol ads. Besides, the effect of exposure to advertising on alcohol is a strong predictor of drinking behavior and intention to drink on a later age (Collins, Ellickson, McCaffrey & Hambarsoomians, 2007).

Alcohol Outcome Expectancies

Apart from the direct effect that alcohol advertising has on the alcohol consumption behavior of adolescents, it also has a direct effect on positive alcohol outcome expectancies amongst youth (Fleming, Thorson, & Atkin, 2004). Outcome expectancies determine to what extent a person will carry out a certain behavior. The Outcome Expectancy Theory explains this by stating that behavior is explained by individuals having expectations of particular reinforcing effects as the outcome of performing the behavior in question (Jones, Corbin & Fromme. 2001). Alcohol consumption is therefore explained by consuming alcohol in such a matter that it delivers the effect an individual expects. Besides positive expectancies, an individual can have negative expectancies, arousal expectancies and sedation expectancies towards consuming alcohol (Wiers, van Woerden, Smulders & de Jong, 2002)

It cannot be said with certainty that the effect of alcohol ads applies to all alcohol outcome expectancies when it comes to alcohol consumption amongst adolescents, however, the theory on this subject tends to lead to the hypothesis that alcohol ads might have a direct effect on all outcome expectancies. Since outcome expectancies do have a direct effect on alcohol consumption, it can also be hypothesized that alcohol advertising has an indirect effect on alcohol consumption via outcome expectancies.

Social norms

Several other determinants have been shown to be of influence on alcohol consumption. An important determinant is positive social norms regarding alcohol consumption. When it comes to consuming alcohol, social norms are among the strongest predictors of alcohol use (Kypri & Langley, 2003; Perkins, Haines & Rice, 2005). The theory on social norms that explains the influence of social norms on behavior is the social norms approach. It is a theory that states that human behavior is influenced by incorrect perceptions of how other members of our own social group think and act. Applied to alcohol consumption amongst adolescents, this means that an adolescent assumes that other adolescents attitudes towards alcohol are more permissive than expected and that they assume that other adolescents consume more than what they really consume. The consuming behavior of adolescents is influenced by these misconceptions and induce them to drink more (Berkowitz, 2004).

In a way, social norms can also be linked to outcome expectancies. This is because the interesting thing about alcohol outcome expectations is they are not, despite what might be commonly assumed, influenced by the substance ethanol. The way people behave after consuming alcohol, meaning the alcohol outcome expectancies, is determined by the norms concerning alcohol consumption. This can be explained by taking a look at the term alcohol culture. An alcohol culture states the way a society deals with alcohol consumption. An alcohol culture, specifically the norms in an alcohol culture, influences the extent to which drinking to intoxication is a characteristic of the drinking pattern, how intoxicated people get and how they behave while being intoxicated (Room & Mäkelä, 2002). In other words, norms influence how a person reacts to alcohol, how they behave after consuming alcohol meaning the alcohol outcome expectancies.

Due to extensive literature on the relation of social norms and alcohol consumption, it can be hypothesized that social norms have a direct effect on alcohol consumption amongst youth as well as an indirect effect on alcohol consumption via outcome expectancies.

Religion
Religion is for a lot people, an aspect of everyday life. It can also be of influence on alcohol consumption, religious variables like religious preference, religiosity and alcohol prohibition are important for certain drinking patterns, especially abstention (Michalak, Trocki & Bond, 2007). It is also known that students who indicate to be part of a religion, report less alcohol consumption than students who report not to follow a certain religion. Also, students with no religious affinity report significantly higher levels of frequency and quantity of drinking, getting drunk, reasons for drinking and perceived drinking norms than students that do have an affinity for a religion like Catholic or Protestant (Patock-Peckham, Hutchinson, Cheong & Nagoshi, 1998). These data create a clear image of the effect religion could have on consumption of alcohol. However, little is known on possible mediating factors on the direct effect of religion on alcohol consumption and on whether the direct effect of religion can also be applied to the alcohol consumption behavior of adolescents nowadays.

Hypothesized Model
Considering the literature on the influences on alcohol consumption amongst youth, a theoretical model has been proposed to investigate possible influences of social norms and religion on the indirect effect of alcohol advertising via outcome expectancies on alcohol consumption amongst adolescents. Based on this assumption derived from literature on this subject, the theoretical model shown in figure 1 has been proposed.

The hypothesized model is formulated in the following hypotheses;
1. Alcohol advertising has a direct effect on alcohol consumption.
2. Alcohol advertising has a direct effect on alcohol outcome expectancies.
3. Alcohol advertising has an indirect effect on alcohol consumption mediated by the direct effect of alcohol ads on alcohol outcome expectancies.
4. Social norms concerning alcohol consumption and religion have a direct effect on alcohol consumption of youth
5. Social norms concerning alcohol consumption and religion have a direct effect on the alcohol outcome expectancies of youth.
6. Social norms concerning alcohol consumption and religion have a indirect effect on alcohol consumption, mediated by the direct effect of social norms and religion on alcohol outcome expectancies.
7. Social norms concerning alcohol consumption and religion influence the indirect effect of alcohol advertising on alcohol consumption of youth via the mediating direct effect of alcohol advertising on alcohol outcome expectancies.
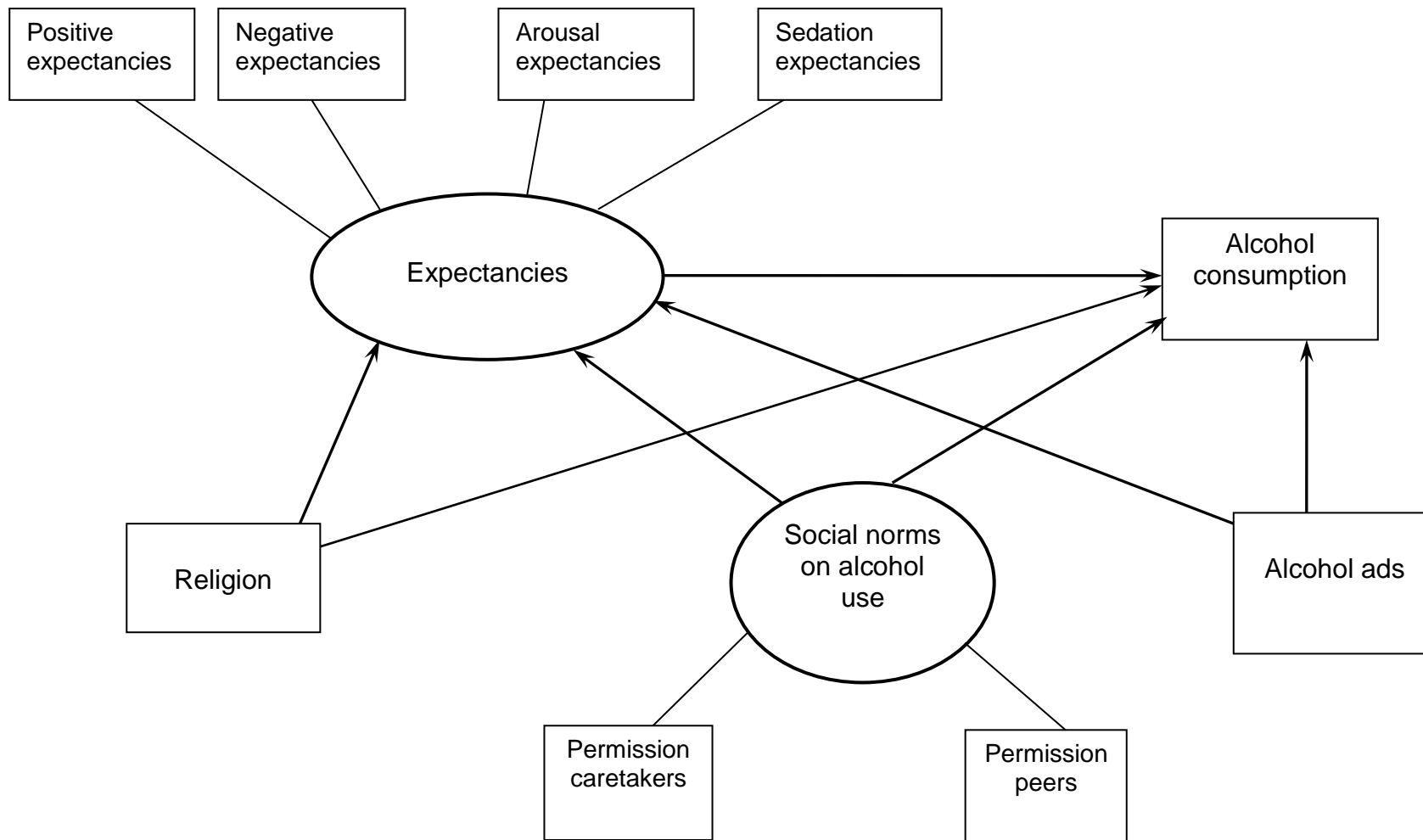
Figure 1

Method
Sample
Since the aim of this research was to create an European model, data needed to be collected from several European countries that have different alcohol cultures and therefore different drinking patterns. A common used distinction between the different alcohol cultures in Europe is based upon the different level of consumption, preferred type of beverage and drinking pattern. The different alcohol cultures that derive from these distinctions are the Northern countries, the Western countries, the Central countries, the Eastern countries and the Southern countries in Europe (Österberg & Karlsson, 2002; Anderson & Baumberg, 2006). The selection of the four countries participating, Germany, Italy, the Netherlands and Poland, are all good examples of the variety in alcohol cultures with different drinking patterns in Europe (Hibell et al., 2007).

A minimum of 2500 respondents per country was needed and the study took place in November 2010. Within each country a sample of schools was drawn stratified with respect to level of urbanization and level of education. There was a general protocol for the partners in the countries to promote homogeneity of used sample procedure. This general procedure consisted of four steps;

1. The use of a common used definition in each country on level of urbanization and the difference between rural and urban areas.
2. Consideration of the distribution of educational levels of adolescents in the selected region(s)
3. Create a list with all the schools in the selected region(s) and label the schools according to urbanization of the municipality in which they are situated and the educational level they teach.
4. Within the clusters, draw a random selection of the schools, with an average of 20 schools per country that need to be approached.

In general, the definition of urbanization was based on the number of inhabitants per region. For example in Germany the difference between rural and urban was respectively less than 20.000 inhabitants and more than 20.000 inhabitants. Per country there were some differences in the procedure, Germany, Italy and Poland selected two main regions, a rural and an urban region and in the Netherlands, the province Overijssel was divided according to the definitions of rural and urban regions.

Within Poland there were no differences between level of education, all students were enrolled in a Gymnasium. The educational levels for Germany were Gesamtschule, Realschule, Hauptschule and Gymnasium, within the Netherlands the educational levels were VMBO, Havo and VWO.

In Italy the educational levels were Instituto Professionale, Instituto Technice and Liceo. Distribution of students attending the different level of education in the two selected regions was used as a baseline to select schools and students. For example for the rural area in order to be in line with the percentages of students per education level in the selected region, 525 students from the lyceum were needed, 412 students from technical schools and 313 students from vocational schools were needed. For both the rural and urban region the aim was to have a sample of 1250 respondents to be able to achieve the total minimum of 2500 respondents per country.

In order to ensure that the minimum of 2500 respondents per country was reached, the partners in Germany and Poland continued to approach schools per phone until the needed number was achieved. In Poland all the schools in both regions were approached for participating in the survey to ensure that a higher number that the minimum was achieved. In the Netherlands all schools in the region were approached for participation in the study, however a large group of schools was reluctant to participate due to involvement in another study running at the same time on alcohol and drugs as well. Consequently, only 1900 respondents could be reached in the selected region, therefore 2 schools outside of the region were asked to participate.

General reasons for not participating of schools in all the countries were time related, the schools were too busy to be able to participate in a research, several schools were already participating in similar studies and simply no interest in participating. Reasons for non-response were due to non-response at the school level. A main reason of a lower turnout than the anticipated number of students was a lack of personal involvement or interest of the contact persons in the schools. For example, the schools seemed to not feel responsible to make that the students would hand their consent forms to their parents and bring them back to school in order to make sure the whole class could participate which lead to exclusion of students. There was also a general problem with the fact that an internet survey requires higher coordination efforts for the school themselves because of limited numbers of computer rooms and computers. Higher coordination effort means higher school's involvement, which became a problem for some of the schools.

Table 1 displays an overview of the number of schools that were approached and a number of schools that eventually participated in the survey per country.

Country	Approached schools	Participating schools
Germany	36	31
Italy	54	38
Netherlands	18	112
Poland	104	70

Respondents
The total number that was aimed for was 10.000 respondents, eventually a total of 9152 respondents participated in the research. Per country the number of respondents was; Germany 1604 students, Italy 2920 students, the Netherlands 2079 students and Poland 2549 students.

The demographic composition of the total group of respondents consisted of 4514 (49,3%) boys and 4592 (50,7%) girls, with a mean age of 14.05. The main religion amongst the respondents was Catholic (54%), 33,5% indicated that they were Atheists. Per country the distribution of the religions was quite different. In Italy and Poland Catholic was the most common religion (respectively 61,3% and 83,1%), while in the Netherlands most respondents were Atheist (73,9%). The most common religion in the Netherlands was Protestant (8,08%) In Germany Catholic was also the most common religion (47,8%), however less reported than in Italy and Poland.

Not all data turned out to be valid for the data analysis. Respondents with missing answers on the variables needed for the analysis were deleted from the data set. Missing answers were created due to malfunctions of the online questionnaire. Some classes experienced errors while filling in the questionnaire and could therefore not finish the questionnaire. Several respondent accidentally skipped questions due to errors, something that was noticed while decoding the data set . In the questionnaire there were several routings present that were activated when a respondent gave a particular answer to a certain question, sometimes these routings did not function properly and caused the respondent to skip an important question.
Eventually the data of 9060 respondents could be used for the analysis. For Germany the data of 1592 students was valid, for Italy of 2886 students, for the Netherlands of 2065 students and for Poland of 2517 students.

Procedure
The students completed measures assessing amongst other things their alcohol use, their perceptions of approval of caretakers and peers of alcohol use and of alcohol advertising. These aspects were measured with the aid of an online questionnaire. All respondents received an unique id number with which they could log in to the online questionnaire. The unique id numbers were handed out by means of papers that functioned as consent forms as well. Since the respondents were under aged during the measurement parents were asked on forehand for their consent for their children to participate in the research. The questionnaires were taking classical and it took the students about a hour to complete the questionnaire.

Questionnaire
The questionnaire was originally written in English and consisted of a total number of 77 questions. As mentioned before, several routings were present in the questionnaire. For example if a respondent answered that he/she was not religious, the questions on which religion and restrictions of this religion towards alcohol were skipped. The same goes for example for respondents that indicated that they did not consume alcohol, these respondents skipped questions on quantity, frequency and occasion of alcohol consumption all together. In annex 1 the English questionnaire can be found and in the questionnaire the routing as well.

The data of the questions that was used for this research were questions concerning the variables alcohol advertising on television, self reported frequency and quantity alcohol consumption, perceived norms of caretakers and peers toward consuming alcohol, religion and expectancies towards alcohol consumption. Background variables were gender, age, education level and ethnicity.
For each country, the questionnaire was translated to the language of origin. In general the questionnaire remained the same for each country, differences between the questionnaires were answer categories for example for the ethnicity question, the television programs in the question on alcohol commercials during certain programs and the alcohol commercials shown in the questionnaire.

Analysis
In order to analyze the data using AMOS 18.0 for structural equation modeling, the data had to be operationalized first using SPSS 17.0. The questionnaire was put online by using the program Persues and via this program the data could be downloaded into a spss file. There was a separate data file for each country that had to be merged into one large data file. Before this could happen, each country file had to be recoded in similar ways so that merging was possible. In the data set from all four countries the questions used for this research were operationalized. For example the three questions on religion were brought back to one religion question, that is if there are any constrictions from a religion towards alcohol consumption. The question on outcome expectancies existed of 24 categories that needed to be answered. Eventually, four scales were created out of these 24 variables. The recoding also needed to make sure that there were no missing variables in the data set, since Amos cannot process data sets with missing variables. Missing variables were therefore deleted from the data set, as mentioned above.

Amos 18.0 was used to test the theoretical model in combination with the data set of all four countries using structural equation modeling. First, the hypothesized model was created in Amos, the second step was to attach the data file to the model and then the analysis was performed. Criteria of fit of the model are discussed in the Results part of this report.

Measures
Dependent variables
Alcohol consumption
Alcohol consumption was measured by the use of several items based on frequency and quantity. Respondents were what the last day was on which they consumed alcohol. If they indicated that they had never drank alcohol, they skipped the further questions on alcohol consumption. Respondents that did indicate the last day they drank alcohol, were asked questions concerning the number of occasions on which they drank alcohol, the kind of beverage they drank during these occasions, the number of alcohol consumption they have had over the last 30 days and the number of consumption per specific beverage namely beer, wine, alcopops and spirits.
Alcohol use was computed by multiplying two created scales, a frequency and an average amount scale (Snyder, 2006). Table 2 shows the item descriptive and correlations.

Outcome expectancies
The items measuring alcohol outcome expectancies were based on previous research of Wiers et al. (2002) and Bot, Engels & Knibbe (2005). Respondents were asked to indicate on a 7-point Likert-scale to what amount a certain effect occurs when they drink alcohol or if they do not drink alcohol, what effect they would expect to occur. The items had been divided into four different scales, each measuring a different sort of outcome expectancy, namely positive expectancies (α=.918), negative expectancies (α=.846), arousal expectancies (α=.901) and sedation expectancies (α=.800). Table 2 shows the item descriptive and correlations.

Independent variables
Alcohol advertising
Exposure to alcohol advertising was measured using a item which constituted of asking the respondents how many times they watched a certain television program. The planning was to select programs that were the 8 most popular programs with alcohol ads among 13-17 year olds and the 4 most popular programs without alcohol ads among 13-17 years old. However, the data on the ratings of programs broadcasted in Italy, indicated that the most popular program without alcohol ads turned out be a specific broadcast of a television show. Other broadcasts of this show were also present in the list of most popular program with alcohol ads. Since the general name of the shows was used in the list with programs and not a specific broadcast, this show could not be used in the question. After all, if a respondent indicated to have watched the show, it would not have been clear whether this respondent had been exposed to alcohol advertising or not. Therefore, the decision had been made to use the numbers 2 till 5 of the most popular programs without alcohol ads for all countries.
The programs were all broadcasted in the month preceding of the month of the measurement. Respondents were asked to indicate how many times they watched each of the programs during the past month by using a 7 point Likert-scale consisting of never, very rarely, rarely, regularly, often, really often, and always. Table 2 shows the item descriptive and correlations.

Religion

Religion was measured by asking three questions. The first question was if the respondent was religious or not, the second question asked the religious respondents what kind of religion they followed and the third question asked if this religion had constrictions towards alcohol consumption. The answer categories to this question were 'Yes', 'No' and 'I do not know'. Recoding of this question created one question namely 'Does religion have any constrictions towards alcohol for you?' with two answer categories 'Yes', 'No'. Respondents that indicated not to follow a religion where off course divided into the 'No' category, as well as respondents that were religious and indicated that they did nt know whether their religion had any constrictions or that indicated that their religion did not have any restrictions. Table 2 shows the item descriptive and correlations.

S*ocial norms*

Social norms consisted of several items that were divided in two separate scales, namely permission of caretakers and permission of peers. Respondents were asked to indicate using a 5 point Likert-scale how likely or unlikely it is that parents, grandparents, other caretakers, brother/sister, boyfriend/girlfriend, best friends and peers think that it is okay for the respondent to drink alcohol. The items measuring the perceived opinions by the respondents for parents, grandparents and other caretakers were divided into the scale caretakers, the items measuring brother/sister, boyfriend/girlfriend, best friends and peers were divided into the scale peers. Together these two scales formed the latent variable social norms (α=.964).

Since the items asked about approval of caretakers and peers toward alcohol use, the items measured positive social norms towards alcohol use.

Table 2 shows the item descriptive and correlations.

Results

Using Amos 18.0, the hypothesized model estimated the extent to which the observed items loaded onto their respective latent variables and endogenous variables. In the hypothesized model, no observed error variances were allowed to co-vary with one another. Statistics that were used to indicate a good fit between the data and the model were the Chi-square estimate with the degrees of freedom, (χ^2; χ^2/df), the standardized root mean square residual (SRMR), the Tucker-Lewis Index (TLI), and the root mean square error of approximation (RMSEA). Recommended are a cutoff value for TLI close to .95, a cutoff value close to .09 for SRMR and the RMSEA close to .06 or less (Hu & Bentler, 1999). The ratio between Chi-square and degrees of freedom should not exceed 5 (Bentler, 1989), however when the sample size is large, such as it is the case in this research, the χ^2 statistic tends to be substantial (Jöreskog & Sörbom, 1993).

Structural model

The results obtained from testing the validity of a causal structure of the hypothesized model showed a poor fit, χ^2(24) = 4242.459, χ^2/df = 214.896, SRMR= .0688, TLI= .802, RMSEA= .139 (CI: .136, .143). Post hoc modifications suggested an improved fit of the unified model to predict alcohol consumption by adding a path from alcohol advertising to social norms and from religion to social norms. Correlations were suggested between negative expectancies and arousal expectancies, negative expectancies and sedation expectancies. The respecified model generated a good fit, χ^2(19) = 376.819, χ^2/df= 19.833, SRMR = .0276, TLI=.979, RMSEA=.046 (CI: .042, .050). These statistics indicate a good fit of the model with the data. The correlation matrix of the observed variables, social norms and alcohol use is shown in Table 1. Table 2 summarizes the original (uncorrected) mean and standard deviation, Cronbach's α, the factor loadings (β), and the squared of multiple correlation (R^2) of the observed indicators and latent variables to explain alcohol use.

	Religion	Alcohol ads	Alcohol use	Care	Peers	Sedation	Arousal	Negative	Positive
Religion	-								
Alcohol ads	,000	-							
Alcohol use	-,062	,191	-						
Care	-,075	,115	,266	-					
Peers	-,130	,198	,460	,373	-				
Sedation	-,002	,055	,322	,136	,235	-			
Arousal	-,002	,062	,360	,152	,263	,708	-		
Negative	-,001	,034	,196	,083	,143	,689	,558	-	
Positive	-,002	,065	,381	,161	,277	,747	,835	,455	-

Table 2
Correlation Matrix of the observed variables, outcome expectancies, social norms and alcohol use

Note. Correlations significant at p <.05. Sedation = Sedation expectancies, Arousal = Arousal expectancies, Negative = Negative expectancies, Positive = positive expectancies.

	M	SD	β	R^2
Alcohol consumption (α=.872)	4.66	6.6		.376
Alcohol Outcome Expectancies (α=.951)				.140
Positive Expectancies	2.24	1.17	.939	.882
Negative Expectancies	1.82	.93	.484	.234
Arousal Expectancies	2.38	1.20	.889	.791
Sedation Expectancies	1.94	.91	.796	.633
Social norms (α=.964)				.087
Caretakers	1.97	1.00	.465	.216
Peers	2.64	1.14	.802	.643
Alcohol Advertising	.33	.25		
Religion	.107	.31		

Table 3
Descriptive Statistics, Factor Loadings, Squared Multiple Correlations and Cronbach's Alpha of the Observed and Unobserved items.

Path model
The path model with standardized path coefficients is featured in Figure 1. The standardized path coefficients show a significant direct effect of social norms, alcohol outcome expectancies and alcohol ads on alcohol consumption amongst youth. The direct effect of religion on alcohol consumption is not significant. Direct significant effects of religion, social norms and alcohol ads on alcohol outcome expectancies are shown as well as significant effects of alcohol ads and religion on social norms.
The indirect effect of alcohol ads on alcohol consumption (β = -.005) is mediated by the direct effect of alcohol ads on alcohol outcome expectancies. The indirect effect of alcohol ads on alcohol consumption is also mediated by the direct effect of alcohol ads on social norms (β = .012). The consecutive effect of social norms and outcome expectancies mediates the indirect effect of alcohol ads on alcohol consumption as well (β = .02)
The indirect effect of religion on alcohol consumption (β = .013; β = -.07) is mediated by the direct effect of religion on outcome expectancies and the direct effect of religion on social norms. The indirect effect of religion (β = -.03) is also mediated via the consecutive effect of social norms and outcome expectancies
Social norms has an indirect effect on alcohol consumption (β = .09) that is mediated by the direct effect of social norms on outcome expectancies.
The strongest contributors of outcome expectancies were positive expectancies and arousal expectancies. The weakest contributor was negative expectancies.
In this model it is shown that alcohol consumption was accounted for 37% (Table 2).

Hypotheses
With the results obtained from the analysis in Amos, the answers to the hypotheses can be given. Hypothesis 1 can be confirmed, alcohol advertising does have a direct effect on alcohol consumption amongst youth. Hypothesis 2 can also be confirmed, alcohol advertising also has a direct effect on outcome expectancies. The proposed indirect effect of alcohol advertising on alcohol consumption via outcome expectancies also turned out to be true, therefore hypothesis 3 is confirmed. Hypothesis 4 turned out to be partly true. Social norms do have a direct effect on alcohol consumption, religion however did not have a direct effect on alcohol consumption in this research, so hypothesis 4 had to be partly rejected. Hypothesis 5 did turned out to be true, both social norms and religion had a direct effect on outcome expectancies. Therefore, hypothesis 6 could be also be confirmed. Both social norms and religion had an indirect effect on alcohol consumption mediated by the direct effect of social norms and religion on outcome expectancies.
Hypothesis 7 could therefore also be confirmed. It is shown in this research that alcohol advertising has a direct and indirect effect on alcohol consumption mediated by outcome expectancies. Social norms and religion directly influence outcome expectancies and therefore indirectly alcohol consumption. Since these variables are of influence on outcome expectancies, they influence the indirect of alcohol ads on alcohol consumption of youth via outcome expectancies as well.
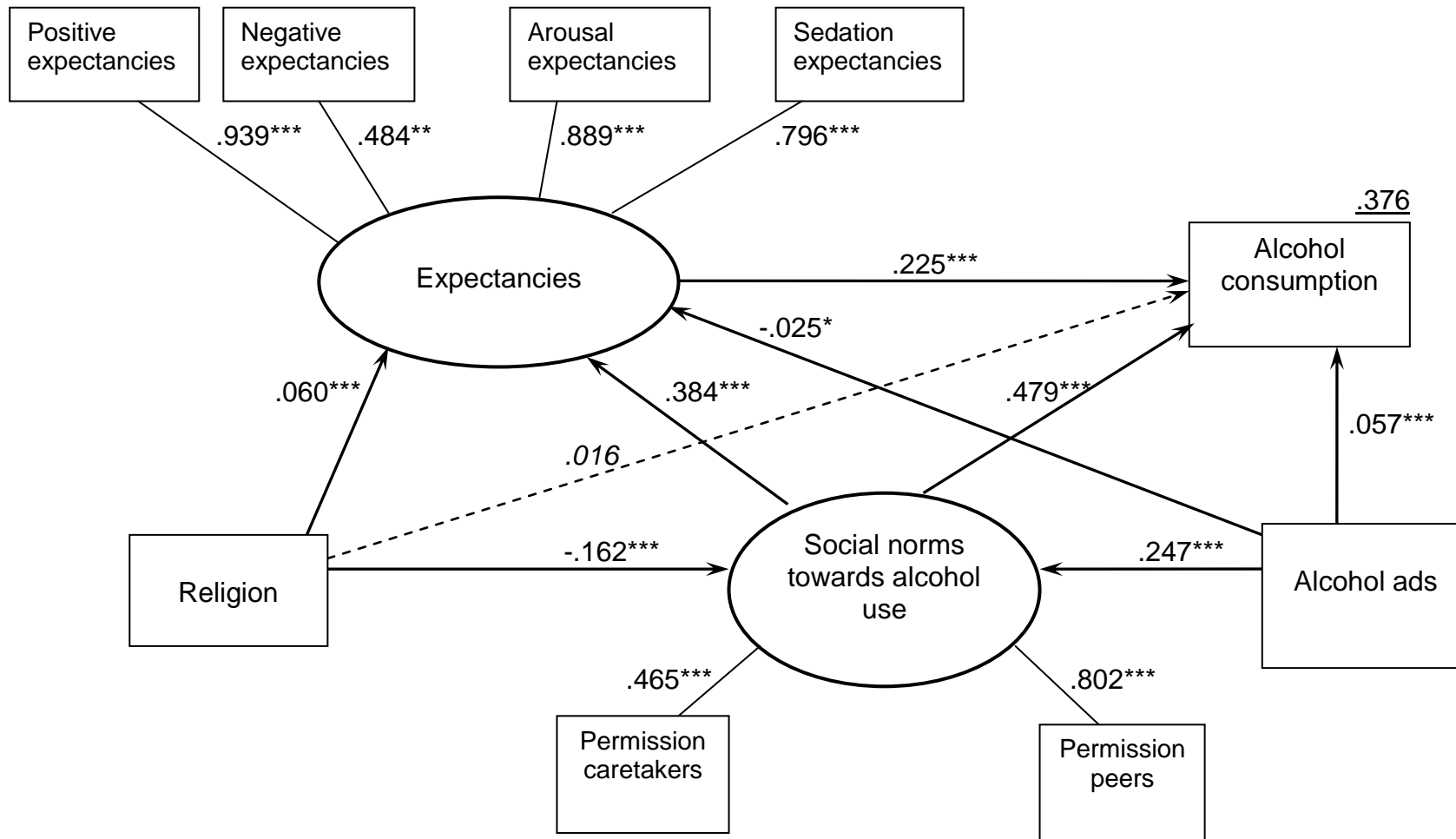
Figure 2

Note. ***p<.001, * p <.05. Dotted lines are non-significant paths (non-significant loadings in Italic). Squared multiple correlations are underlined.

Discussion

The proposed model turned out to be a well fitting model, therefore it turned out to be a correct theoretical model. Most of the proposed effects in the model were significant, the only non significant effect was the direct effect of religion on alcohol consumption. Social norms and religion did influence the indirect of alcohol advertising on alcohol consumption via outcome expectancies since social norms and religion both directly influence outcome expectancies.

The most important predictor of alcohol consumption turned out to be social norms towards alcohol use. Since social norms turned out to be influenced by alcohol advertising and religion, both these factors had an indirect effect on alcohol consumption mediated by social norms.

All these results, the limitations of the research and recommendations for further research will be discussed in this section.

General Path Model

Alcohol advertising

Alcohol advertising did turned out to have a direct and indirect effect via outcome expectancies on alcohol consumption. The indirect effect via outcome expectancies however, did not turn out the way that it was expected. It was significant, however it had a negative standardized path coefficients, which would imply that exposure to alcohol advertising leads to having less expectancies. This outcome is perhaps caused due to the fact that in previous research when the effect of alcohol advertising on outcome expectancies was measured, only the effect on positive expectancies was considered instead of on positive, negative, arousal and sedation expectancies (Fleming et al., 2004).

Previous research has also been aimed at college student while this research measures the effect amongst 13 till 14 year old respondents (Fleming et al., 2004).

Alcohol advertising turned out to have an indirect effect on alcohol consumption via social norms as well. Although this indirect effect was not originally suspected, it can be explained though by a behavioral theory, the Social Cognitive Theory (SCT) (Bandura, 1986). Taking a look at the SCT, the effect of alcohol advertising on social norms can be explained with reasonable arguments. The SCT describes five major determinants of behavior, perceived behavior of others and environment are two of these determinants. Perceived behaviors of others is, besides a determinant of behavior, a very effective method for behavioral change: modeling. Modeling (mass media modeling) is used to transmit social norms (Bouman, Maas & Kok, 1998; Steckler et al., 1995). Two aspect of environment are social environment and physical environment, an aspect of physical environment can be advertising.

So, advertising is a part of the environment of an individual and therefore already of influence on behavior. Moreover, due to the fact that mass media modeling is being used to transmit social norms and that alcohol advertising can be seen as an expression form of mass media, the effect of alcohol advertising on social norms and therefore on alcohol consumption that has been found in this research can be explained and supported by the SCT. Although the direct effect of alcohol advertising on alcohol consumption is weak, the indirect effect of alcohol advertising on alcohol consumption mediated by the direct effect of alcohol advertising on social norms is much stronger and in consensus with underlying theories, therefore perhaps more trustworthy. Alcohol advertising plays in important role in shaping positive norms towards alcohol consumption and influences therefore alcohol consumption amongst youth.

Outcome expectancies

Consistent with previous research, alcohol outcome expectancies turned out to be a significant predictor of alcohol consumption. The Expectancy Theory underlines this effect by stating that behavior is explained by the expectancies that individuals have of particular reinforcing effects as the outcome of the behavior in question (Jones et al, 2001). So considering consuming alcohol, this implies that alcohol consumption is explained by consuming in such a matter that it delivers the outcome they expected. This theory is also known as the Alcohol Outcome Expectancy Theory (Jones et al., 2001). This research underlines this effect of outcome expectancies on behavior.

Social norms

Social norms turned out to be the strongest predictor of alcohol consumption. This was as expected and in line with previous research that states that social norms are one of the strongest predictors of alcohol consumption (Kypri & Langley, 2003; Perkins et al., 2005). The social norm approach also supports this outcome of the research. This approach states that the alcohol consumption behavior of an adolescents is influenced by incorrect assumptions on other adolescents attitudes towards alcohol and incorrect assumptions on alcohol consumption behavior of other adolescents (Berkowitz, 2004).

These misconceptions of adolescents induce them to drink more alcohol. With social norms being the strongest predictors in this research and with perceived norms of peers being the strongest predictors of social norms, perhaps this study also shows that wrongly perceived norms of peers leads to consuming more alcohol. However, this cannot be said with certainty due to the fact that although perceived norms of respondents are measured, it was not tested whether these assumptions were actually true or not.

The direct effect of social norms on outcome expectancies turned out to be significant as well, suggesting that norms indeed influence the way adolescents behave after consuming alcohol. As suggested, the norms in an alcohol culture influence the extent to which drinking to intoxication is a characteristic of the drinking pattern, how intoxicated people get and how they behave while being intoxicated (Room & Mäkelä, 2002). These are the outcome expectancies and this research has shown that norms are indeed of influence.

Religion
Unexpectedly, religion did not have a significant direct effect on alcohol consumption. Based on previous research that indicated that religion had a significant direct effect on alcohol consumption, it was suspected that this would also be true for this research. An explanation of this result could be found in the way religion was measured. Religion was measured with three quite simple question, the most important being if religion had any constrictions towards the alcohol consumption of the respondents. The respondents that indicated that they were religious were not asked if they followed a religion actively or if they were just religious but did not do anything with their religion. There is quite a large difference between these forms of being religious and it could be of importance when it comes to the influence of religion on alcohol consumption. Religion was probably not properly measured in order to create a clear image of the effect of religion on alcohol consumption amongst youth.

The direct effect of religion on social norms was not originally suspected as well. However, it is an effect that is in a way in consent with previous research that have indicated that religion may have an indirect effect on alcohol consumption mediated by the perceived approval or disapproval of close friends (Chawla, Neighbors, Lewis, Lee & Larimer, 2007). This previous research however had a different sample, namely college students and the mediating effect of social norms was positive in this research. This research had an under aged sample and the direct effect of religion on social norms was negative. Therefore it cannot be concluded with confidence that social norms indeed are mediators for the indirect effect of religion on alcohol consumption amongst youth.

Limitations
Missing variables created a problem in AMOS, due to the fact that AMOS is not capable of performing an analysis with a data set with missing variables. Respondents with missing had to be deleted because of this reason. However, this still left a data set large enough to generate significant results.

The communication with the partners in the other countries was in English. Most of the time this did not cause any inconvenience, however it did created misunderstandings and wrong translations sometimes. For example, a few questions in the Italian questionnaire had a different sequence than the original English questionnaire. This caused some problems with creating an uniform dataset.

A problem also occurred with the question measuring exposure to alcohol advertising. The data on the ratings of programs broadcasted in Italy, indicated that the most popular program without alcohol ads turned out be a specific broadcast of a television show. Other broadcasts of this show were also present in the list of most popular program with alcohol ads. Since the general name of the shows was used in the list with programs and not a specific broadcast, this show could not be used in the question. After all, if a respondent indicated to have watched the show, it would not have been clear whether this respondent had been exposed to alcohol advertising or not. Therefore, the decision had been made to use the numbers 2 till 5 of the most popular programs without alcohol ads for all countries.

Recommendations
The relation of religion, alcohol consumption and possible mediating norms amongst youth needs to be investigated more thoroughly. Since this research wields some interesting and unexpected results, there is a need to gain more knowledge on this subject to be able to solve and prevent the alcohol consumption amongst youth. Previous research have shown that religion does have an effect and that there are possible mediating factors, however this has not been shown yet for youth. Future research needs to focus more on religion, it needs to have a sample with sufficient followers of diverse religions and it needs to be aimed at youth.

Since this research shows that social norms are of importance when it comes to alcohol consumption amongst youth and that alcohol advertising is of influence on social norms, there is a need to create an intervention aimed at intervening the influence of alcohol ads on alcohol consumption via social norms. Alcohol ads help in creating positive social norms on alcohol consumption while mass media should be used create a more realistic image of alcohol consumption. It should be used to portrayal models that display reasons for adopting the new behavior (less or no alcohol consumption), models that demonstrate the skills that are used or needed to adopt the new behavior and to state the perceived reinforcing outcomes they received (McAlister, 1991). There is definitely a need to create an image of alcohol consumption that displays that alcohol consumption should be done with caution and that alcohol is the number 1 drugs that is not only bad for you, but for society as well (Nutt, King & Phillips, 2010).

References

Anderson, P., de Bruijn, A., Angus, K., Gordon, R. & Hastings, G. (2009). Impact of alcohol advertising and media exposure on adolescent alcohol use: A systematic review of longitudinal studies. *Alcohol & Alcoholism, 44 (3)*, 229-243.

Anderson, P. & Baumberg, B. (2006) Alcohol in Europe. London: Institute of Alcohol Studies.

Babor, T., Caetano, R., Casswell, S., Edwards, G., Giesbrecht, N., Graham, K. et al., 2003 (2003). Alcohol: no ordinary commodity. Research and public policy. Oxford University Press.

Bandura, A.(1986). *Social foundations of thought and action: A social cognitive theory.* In Bartholomew, L.K., Parcel, G.S., Kok, G. & Gottlied, N.H. (2006). Planning Health Promotion Programs, an Intervention Mapping Approach. Jossey-Bass.

Bentler, P.M. (1989). *EQS Structural Equations Program Manual.* Los Angeles, CA: BMDP Statistical Software.

Berkowitz AD (2004) The social norms approach: theory, research, and annotated bibliography. Higher Education Center for Alcohol and Other Drug Abuse and Violence Prevention. U.S. Department of Education.

Bouman, M., Maas, L. & Kok, G. (1998). Health education in television entertainment – Medisch Centrum West: a Dutch drama serial. *Health Education Research, 13*, 503-518.

Bot, S.M., Engels, R.C.M.E. & Knibbe, R.A. (2005). The effects of alcohol expectancies on drinking behaviour in peer groups: observations in a naturalistic setting. *Addiction, 100*, 1270-1279.

Chawla, N., Neighbors, C., Lewis, M.A., Lee, C.M. & Larimer, M.E. (2007). Attitudes and perceived approval of drinking as mediators of the relationship between the importance of religion and alcohol use. *Journal of Studies on Alcohol and Drugs, vol 68 (3)*, 410 – 418.

Collins, R.L., Ellickson, P.L., McCaffrey. D. & Hambarsoomians, K. (2007). Early adolescent exposure to alcohol advertising and its relationship to underage drinking. *Journal of Adolescent Health, 40 (6)*, 527-534.

Flemming, K., Thorson, E. & Atkin, C.K. (2004). Alcohol Advertising Exposure and Perceptions: Links with Alcohol Expectancies and Intentions to Drink or Drinking in Underaged Youth and Young Adults. *Journal of Health Communication: International Perspectives, 9 (1)*, 3-29.

Gerbner, George. (1995). Alcohol in American culture. In S. E. Martin (Ed.), The effects of the mass media on the use and abuse of alcohol (pp. 3–29); Research Monograph 28, Bethesda, MD: NIH Publication No. 95–3743. U.S. Department of Health and Human Services.

Hibell, B., Guttormsson, U., Ahlström, S., Balakireva, O., Bjarnason, T., Kokkevi, A. et al., (2007). The 2007 ESPAD Report. Substance use among students in 35 European countries. The Swedish Council for Information on Alcohol and Other Drugs (CAN) and Council of Europe Pompidou Group.

Hu, L.T. & Bentler, P.M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation modeling, 6*(1), 1-55.

Jones, B.T., Corbin, W. & Fromme, K. (2001). A review of expectancy theory and alcohol consumption. *Addiction, 96*, 57-72.

Jöreskog, K.G. & Sörbom, D. (1993). *Lisrel 8: Structural equation modeling with the SIMPLIS command language.* Chicago: Scientific Software International.

Kypri K, Langley JD (2003) Perceived social norms and their relation to university student drinking. *Journal of Studies on Alcohol 64*, 829–834.

McAlister, A.L. (1991). Population behavior change: a theory-base approach. *Journal of Public Heath Policy, 12*, 345-361.

Michalak, L., Trocki, K. & Bond, J. (2007). Religion and alcohol in the U.S. National Alcohol Survey: How important is religion for abstention and drinking? *Drug and Alcohol Dependence, 87 (3)*, 268-280.

Nutt, D.J., King, L.A. & Phillips, L.D. (2010). Drug harms in the UK: a multicriteria decision analysis. *The Lancet, 376*, 155-65.

Österberg, E. & Karlsson, T. (2002). Alcohol Policies in EU Member States and Norway. A Collection of Country Reports.

Patock-Peckham, J.A., Hutchinson, G.T., Cheong, J. & Nagoshi, C.T. (1998). Effect of religion and religiosity on alcohol use in a college student sample. *Drug and Alcohol Dependence, 49*, 81-88.

Perkins HW, Haines MP, Rice R (2005) Misperceiving the college drinking norm and related problems: a nationwide study of exposure to prevention information, perceived norms and student alcohol misuse. *Journal of Studies on Alcohol 66*, 470–478.

Room, R. & Mäkelä, K. (2000). Typologies of the cultural position of drinking. *Journal of Studies on Alcohol,* 61, 475-483.

Room, R. (1992). The impossible dream? Routes to reducing alcohol problems in a temperance culture. *Journal of Substance Abuse*, *4,* 91-106.

Snyder, L.B., Milici, F.F., Slater. M., Sun, H. & Strizhakoya, Y. (2006). Effects of Alcohol Advertising Exposure on Drinking Among Youth. *Arch Pediatr Adolesc Med., 160,* 18-24.

Steckler, A., Allegrante, J.P., Altman, D., Brown, R., Burdine, J.N., Goodman., R.M. et al. (1995). Health education intervention strategies: Recommendations for future research. *Health Education Quarterly, 22*, 307-328.

Wiers, R.W., van Woerden,N., Smulders, F.T.Y. & de Jong, P. (2002). Implicit and Explicit Alcohol-Related Cognitions in Heavy and Light Drinkers. *Journal of Abnormal Psychology, 111 (4)*, 648-658