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Alcohol Consumption among Turkish Adolescents: A Test of General Strain Theory

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ALCOHOL CONSUMPTION AMONG TURKISH ADOLESCENTS: A TEST OF GENERAL STRAIN THEORY

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ABSTRACT

The current study examined alcohol consumption among Turkish adolescents through the lens of Agnew's General Strain Theory (GST) using data drawn from the 2008 Youth in Europe Survey. Although considerable attention has been paid to problematic alcohol consumption among adolescents, extant research has remained limited to western countries. Similarly, much of the support for GST was derived from research conducted in United States. The current study explores factors associated with alcohol consumption in Turkey and tests the generalizability of GST to countries with sociocultural and religious values differing from those in western countries. Results from ordinal logistic regression analyses indicate that school strain, economic strain, and peer strain were significantly associated with drinking behavior, while family strain was not associated with drinking behavior. Although students' negative affective states were significantly associated with drinking behavior, they did not mediate the relationships between the strain variables and alcohol consumption as would be expected given the logic of GST. Implications for future research were discussed.

1. INTRODUCTION

Problematic alcohol consumption, as a deviant behavior, has recently attracted researchers' interests due to its deleterious consequences. According to World Health Organization's Global Status Report (WHO 2014), excessive alcohol consumption was found to be associated with serious physical and mental health problems such as cardiovascular diseases, cancer, depression, and anxiety disorders. WHO (2014) also explained that it could result in negative socioeconomic consequences such as loss of earnings, unemployment, and family problems. Excessive alcohol consumption was also one of main indicators of increases in crime rates, homicide, rape, and motor vehicle accidents in the U.S. (White and Hingston 2013).

Along with the negative consequences resulting from excessive alcohol consumption, extensive patterns of drinking among youth have also rendered alcohol consumption a significant social problem. WHO (2014) noted that 34.1 percent of adolescents between 15 to 19 years of age, worldwide, identified themselves as regular drinkers and 12 percent reported they had drunk alcohol at least once in their lifetime. More importantly, 11.7 percent of youth aged 15-19 years, worldwide, exhibited heavy episodic drinking patterns, which was more than that of all individuals aged 15 years and older (WHO 2014). Consistently, Turkish Statistics Institute's Health Report showed that about 53 percent of individuals reported that they began drinking between the ages of 15 and 19 (TurkStat 2012). This suggested that adolescents were the group at highest risk for learning and emulating problematic drinking behaviors. Given the fact that so many youth started drinking in their late teens, research on drinking during adolescence was shown to be necessary and in turn indicated an important aspect of the current study.

Although alcohol consumption could also give rise to significant social problems in Muslim-majority countries, it has been a relatively understudied topic in these countries (Michalak and Trocki 2006). Alcohol consumption is illegal in most Muslim-majority countries even though consumption rates are somewhat high in some of them (Table 1). Since alcohol is forbidden or illegal in most Islamic or Muslim-majority countries, so many people conceal their actual drinking behaviors. This has made it very difficult to study alcohol consumption among adherents to the Muslim faith. The fact that alcohol consumption is relatively common in Turkey makes it an interesting case study for research on alcohol consumption among Muslim-majority countries. As a Muslim-majority country in which secular and religious motives are applied harmoniously, Turkey seems to be one of the best research settings to investigate reasons for excessive alcohol consumption in Muslim-majority countries. The current study, therefore, uses data obtained in Istanbul, Turkey to address this concern.

Table 1. Alcohol Consumption in Some Muslim-Majority Countries

Country	Consumption*	Status
Egypt	0.40	Legal
Lebanon	2.40	Legal
Turkey	2.00	Legal
Afghanistan	0.70	Illegal
Bangladesh	0.20	Illegal
Iran	1.00	Illegal
Kuwait	0.10	Illegal
Libya	0.10	Illegal
Malaysia	1.30	Illegal
Mauritania	0.10	Illegal
Pakistan	0.10	Illegal
Saudi Arabia	0.20	Illegal
Somalia	0.50	Illegal
Sudan	2.70	Illegal
Yemen	0.30	Illegal

Source: World Health Organization (2010).   *Liters per Person in a Year

The current study uses Agnew's general strain theory (GST) framework to explain excessive alcohol consumption among Turkish youth. The GST framework suggests that certain kinds of strain

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increase the likelihood of crime such as physical assault, violent crime, and robbery; and make it more likely that individuals will engage in deviant behaviors such as substance use and excessive alcohol consumption (Agnew 1992). Although several studies explored causes of alcohol consumption through the lens of GST, much of this research was conducted in the United States (Carson 2007; Pierce, Frone, Russel, and Cooper 1994; and Swatt, Gibson, and Piquero 2007). This creates an issue for the generalizability of GST, especially regarding countries influenced by eastern culture and Islamic beliefs. Therefore, this study assesses the generalizability of the GST by extending research to a non-western and Muslim-majority country using the Turkish sample of Youth in Europe Survey, which was conducted by Reykjavik University and University of Iceland in 2008.

2. BACKGROUND

a. Factors Associated with Alcohol Consumption and Overconsumption

Excessive alcohol consumption can result in a variety of unpleasant situations such as inadequate job performance, deteriorating relations with people, health problems, and even death (White and Hingston 2013). Statistics collected by National Institute on Alcohol Abuse and Alcoholism (2010) showed that 87.6 percent of Americans reported that they drank alcohol at least once in their life time and 56.3 percent of them reported that they drank alcohol in the last month. The same statistics also demonstrated that 24.6 percent of individuals reported that they engaged in binge drinking in the last month. According to Swan, Sheran, and Phelps (2014), however, 40 percent of American college students are binge drinkers and, in 2005, 1,982 college students died of alcohol-related complications. Overall, this suggests that drinking has become a widespread problem among individuals and can be very deadly if not brought under control. Hence, the reason behind why people consume or overconsume alcohol serve a significant sociological question that should be investigated.

Extant literature found that numerous factors affected individuals' alcohol consumption and overconsumption. Age, for example, was an important factor associated with alcohol consumption. Heavy drinking declines by age, because it causes serious health problems as individuals grow older (WHO 2014). Evidence suggests that increased levels of alcohol use in older ages exacerbates existing health problems such as stroke, risk of falling, and causes some psychological problems such as depression and anger. Older individuals were also more vulnerable to mental problems such as cognitive impairment and risk of Alzheimer's, which might have resulted from excessive alcohol consumption. Older individuals, therefore, behave more cautiously with regards to excessive alcohol consumption. However, older individuals tend to exhibit a more frequent drinking pattern when compared to younger

individuals (Philips 2014; WHO 2014). In other words, they drink alcohol more frequently, but less heavily than younger individuals.

Since women have greater vulnerability to alcohol-related harms than men, they tend to have lower consumption rates (WHO 2014). According to Baron (2007), the main predictors of excessive alcohol consumption with regards to gender differences were levels of social support and social control, number of deviant peers, internalization of deviant values, and presence of negative emotionality. From this point of view, Asselin (2009) stated that women were less likely to engage in excessive alcohol consumption, as they have lower numbers of deviant peers and values; and higher social controls and constraints than men. Women who internalize traditional gender roles are particularly less likely to drink alcohol to conform to standard gender norms and to protect the structure of the family institution (Christie-Mizell and Peralta 2009).

Parents' alcohol use and parental approval of alcohol consumption were also important factors, as they increased the likelihood that children developed drinking patterns (WHO 2014). Familial alcohol use increased the vulnerability of children's alcohol use, as a result of genetic and environmental reasons (WHO 2014). Higher perceived parental approval of alcohol consumption also positively affected individuals' alcohol consumption. Messler, Quevillon, and Simons (2014) suggested that parents impacted their children's alcohol use indirectly, as they influenced the peer selection. In other words, parents that encouraged or gave countenance to their children to fraternize with alcohol-using peers, indirectly increased their children's likelihood of drinking alcohol. In contrast, parents who prevent their children from having alcohol-using peers, indirectly reduce their children's probability of consuming alcohol.

Along with age, sex, and parental behaviors, socioeconomic status (SES) was also an important factor associated with excessive alcohol consumption. Lower SES groups were more vulnerable to alcohol consumption, since they were not able to avoid the adverse results of their behaviors due to a lack of resources (WHO 2014). For example, higher SES groups could find safer places to drink and they had better health-care networks. Lower SES groups also had less extensive support and had fewer factors and motivators; which could explain the severe consequences of excessive alcohol consumption (Schmidt, McCarty, and McConnell 2010). Furthermore, lower SES groups were exposed to the destructive consequences of excessive alcohol consumption more frequently than higher SES groups. According to Schmidt et al. (2010), lower SES groups tend to overconsume alcohol in one occasion although they drink less often than higher SES groups.

Excessive alcohol consumption can cause serious health problems. It was considered a component cause for more than 200 diseases (WHO 2014). It could lead to some physical health problems such as cardiovascular diseases, diabetes, some kinds of cancer, and gastrointestinal diseases. As well as these physical health problems, it could also lead to psychological and mental disorders. For example, it was one of the main predictors of suicide attempts and violence (Cherpitel 2013). Depression and anxiety disorders were also considered mental problems which could be caused by excessive alcohol consumption (Kessler 2004).

Along with health problems, excessive alcohol consumption could also entail negative socioeconomic consequences for people. When people cross the boundaries, they tend to suffer socioeconomic consequences such as loss of earnings, unemployment, family problems, stigma, and barriers to health care access (WHO 2014). Consistently, Kenkel and Ribar (1994) stated that excessive alcohol consumption was negatively associated with youth's earnings, labor supply, and marriage. In

other words, excessive alcohol consumption among youth reduced the amount of earnings, labor supply, and their marriage potential.

Aside from its physical, psychological, and financial harms for individuals, excessive alcohol consumption might also jeopardize the security of society. According to White and Hingson (2013), excessive alcohol consumption increased instances of crimes such as homicide, rape, and seizure in the United States. Approximately 640,000 students, whose ages likely range from 18 to 24, were assaulted each year by another drunk student. Furthermore, 97,000 students were victims of alcohol related sexual assaults in 2009 (White and Hingson 2013). In addition, excessive alcohol consumption was one of the main causes of motor vehicle accidents which result in death or serious injuries. Roughly 2.7 million college students drive under the influence of alcohol each year in the United States (White and Hingson 2013). For these destructive consequences, reasons and results of alcohol consumption have attracted the attention and interest of social scientists and especially that of criminologists.

b. Alcohol Consumption in Turkey

Although the destructive results of excessive drinking have called researchers' attention to study its criminological background, they have generally focused on drinking behavior in western context, and paid no attention to the issue in Muslim-majority countries (Agnew et al. 2002; Asselin 2009; Cullen et al. 2008; Swatt et al. 2007). The primary reason why alcohol use was understudied in Islamic or Muslim-majority countries was due to alcohol being forbidden in most of these countries, which resulted in ostensibly lower consumption rates than western countries. As stated earlier, even though alcohol is legal in some Muslim-majority countries, individuals generally tend to conceal their drinking behaviors as it is considered as an inappropriate behavior among individuals. Therefore, it is difficult to collect data that capture all segments of societies in terms of their alcohol use in these countries. This highlights

the importance of Turkey—which is a Muslim-majority country—in which alcohol consumption is widespread and generally acceptable behavior among individuals.

Although alcohol use is forbidden by Islam, rules and regulations related to alcohol consumption vary depending on the regime of countries and attitudes of their governments towards religion. For example, the sale and use of alcoholic beverages is non-regulated in Syria and Lebanon, but in Saudi Arabia, even individuals who do not identify with the Muslim faith cannot use alcohol (Matthee 2014). Along with religiosity, individuals' attitudes towards alcohol use were also shaped by social and cultural values of their society. Due to its geographical position and historical background, Turkish culture was influenced by eastern Muslim culture, in which alcohol is mostly forbidden, and by European culture, in which sale and use of alcohol are totally free (Ilhan, Yildirim, Demirbas, and Dogan 2008). Due to this cultural richness, alcohol consumption is a socially and legally acceptable behavior in Turkey.

Despite the fact that alcohol consumption is non-objectionable among Turkish people, the proportion of drinkers still remains lower than western countries (mostly non-Muslim) due to the role of Muslim religiosity. Statistics collected by the World Health Organization indicated that alcohol consumption rates among Turkish people in 2000 were 19.6 percent (Ilhan et. al 2008). This is far below the alcohol consumption rates in European countries such as Germany, in which the proportion of drinkers is 80.3 percent and as France, in which the proportion of drinkers is 95.8 percent (WHO 2014). Nonetheless, considering the consumption rates of other Muslim countries such as Egypt (0.5 percent), and Iran (7.3 percent), rates in Turkey seem very high.

Drinking behavior in Turkey was also shaped by individuals' gender and age. According to the Turkish Statistics Institution's Health Report (2012), the proportion of males who used alcohol in 2012

was 17.2 percent, while it was only 3.8 percent for females. The gap between alcohol consumption of males and females was related to sociocultural factors. According to Ilhan, et al. (2008), since the image of drunken women and women's alcohol consumption were not socially acceptable when compared to men in Turkish culture, women consumed alcohol less than men. Accordingly, the proportion of males who consumed alcohol at least once in their lifetime was 32.5 percent, while it was only eight percent for females. When age was considered, individuals between the ages of 25 and 34 consumed alcohol more than others, meaning that age had a curvilinear effect on alcohol consumption (TurkStat 2012). According to Asselin (2009), since older people were more likely to have health problems, rates of alcohol consumption began decreasing after an age.

c. General Strain Theory (GST)

The current study examined underlying reasons of excessive alcohol consumption from the perspective of GST. In doing so, it assessed the relationship of various forms of strain with alcohol consumption. GST was developed by Robert Agnew (1992) to overcome theoretical and empirical criticisms of classical strain theories and to complement criminological theories dominating the field at the time. Strain theories focused mainly on two factors. First, these theories focused on the negative relationship with others. This refers to "the relationship in which the individual is not treated as he or she wants to be treated" (Agnew 1992:48). Second, the theories focused on the relationship in which individuals' positively valued goals fail to be achieved (Merton 1938).

Early strain theories were criticized due to their limited scope, given their specific focus on the delinquency among lower class youth in urban environments (Cloward and Ohlin 1959; Cohen 1955; Merton 1938). These theories suggested that strain was a direct cause of crime and delinquency. Not all individuals who are under the condition of strain, however, commit crime or take part in delinquent

activities (Smith 1979). Early strain theories also assumed that there was an inverse relationship between crime and class, which suggested that one reason behind criminal activity is the need for material acquisition. This assumption has been controversial as some kinds of crime such as vandalism could not be explained by the need for material acquisition (Braithwaite 1981; Kleck 1982; Tittle and Meier 1990). With their limitations and controversies, classical strain theories have been criticized, and this paved the way for development of new theories including General Strain Theory, which constitutes the theoretical basis of the current study.

General strain theory was developed by Agnew (1992) to complement classical theories and overcome their limitations. Classical theories such as Merton's (1938) theory of anomie focused explicitly on strain as only a consequence of loss of positive stimuli—such as a failed romantic relationship or death of one's parents, and GST broadened this focus by including presence of negative stimuli—i.e. homelessness, adverse relations with parents, and negative school experiences—as other sources of strain (Agnew 1992). This suggest that individuals commit criminal or deviant actions to remove negative stimuli or to prevent the loss of positive stimuli. Classical theories argued that economic failures—meaning the loss of positive stimuli—were the most important factor increasing people's strain levels and that they stimulated them to achieve their economic goals by committing criminal actions (Merton 1938). Contrary to economic assumptions of classical theories, GST stated that strain might result not only from the loss of positive stimuli, but also from an inability to escape from negative stimuli leading them to criminal behavior (Agnew 1992).

GST suggested that strain has a cumulative effect on delinquency after a certain level of strain is reached. The theory states that there are four relevant dimensions of strain: (1) magnitude; (2) duration; (3) recency; and (4) clustering of stressful events (Agnew 1992).

Strains high in magnitude were more likely to be related to criminal and deviant behavior. Magnitude has different meanings depending on the kind of strain (Agnew 2006). For instance, in terms of the goal blockage, it refers to the size of distance between individual's goals and reality. In terms of the loss of positive stimuli, magnitude signifies the amount of positive stimuli that was lost. With respect to presence of negative stimuli, magnitude denotes the amount of pain or discomfort (Agnew 1992). Harsh physical punishment, verbal abuse, emotional and physical neglect, and sexual abuse can be considered strains high in magnitude (Agnew 2006). Strains high in magnitude also negatively affect one's ability to assess the costs of criminal coping and they increase the likelihood of criminal coping (Rice 2006). This is due to severe strain being more likely to lead to negative emotions such as depression and anger. Severe strain also contributes to low social control and is more likely to foster the social learning of crime (Agnew 2006; Avison and Turner 1988; Rice 2006).

With regard to duration, chronic strains or strains with high frequencies would lead to more destructive results than those with low frequencies. According to Folger (1986), events of long duration have a greater influence on negative outcomes of events. One reason is that frequent strains are more likely to increase the perceived magnitude of the strain (Folger 1986). Secondly, a strain of long duration is more likely to contribute to the traits of negative emotionality and low constraint. For instance, strains of long duration are more likely to make events perturbative (Agnew 2006).

Research also found recent events were more consequential than older events (Agnew 1992; Avison and Turner 1988; Rice 2006). Similar to magnitude, duration, and recency, clustering is also an important dimension of strain. According to Thoits (1983), events clustered in time have a greater influence on negative outcomes since strain begin to accumulate and show a more persistent characteristics.

As was mentioned earlier, GST stated that individuals commit crime or exhibit deviant behaviors when they feel strain from variety of sources (Agnew 1992). In most cases, however, strain do not directly lead to deviance. Agnew (1992) stated that certain kinds of strain increased the likelihood that individuals would have negative emotions such as despair, disappointment, depression, fear, and anger. The experience of negative affective states led individuals to develop coping strategies including legitimate and deviant coping alternatives. In other words, individuals' negative affective states play a mediating role between certain kinds of strain and deviance (Agnew 1992). This suggests that individuals engage in deviant activities to alleviate their negative emotions which is caused by specific kinds of strain.

GST's model suggesting mediator variables (negative affective states) between strain and deviance was empirically supported by prior research. Agnew et al. (2002) highlighted that negative emotionality was a master trait that was highly related to GST. They stated that individuals with negative affective states such as depression, anger, and despair were more likely to respond to certain kinds of strain in deviant ways. In other words, individuals' negative affective states played a mediating role between level of strain and deviant behaviors they engaged in (Agnew et al. 2002). Brezina (1996) also examined the nature of the relationship between strain, negative affective states, and deviant coping mechanisms. By utilizing Youth in Transition cross-sectional survey, he found that strain led individuals to negative affective states such as anger, resentment, fear, and despair. These negative affective states, in turn, led them to engage in deviant behaviors—as representation of adaptation to strain (Brezina 1996). Similarly, Jang and Johnson (2003) examined the relationships between strain, negative emotions, and deviant coping strategies. They separated negative emotions as inner-directed such as depression and anxiety, and outer-directed such as anger. They found that both inner- and outer-directed

negative emotions fully mediated the relationship between strain and deviant behaviors (Jang and Johnson 2003).

Not all research, however, found evidence regarding the mediating role of negative affective states on the relationship between strain and deviant behaviors. Broidy (2001), for instance, found different results for different types of strain and negative affective states. She stated that strain caused by lack of positive stimuli and presence of negative stimuli led to deviant coping strategies through the mediating effect of anger. Strain caused by goal blockage, however, reduced the likelihood that anger might play a mediating role. She found, on the other hand, that negative affective states other than anger increased the likelihood that individuals respond to strain in legitimate way, while anger increased the likelihood of engaging in deviance (Brodiy 2001). In another research that did not support GST's prediction regarding the mediating effect of negative affective states, Moon, Hays, and Blurton (2009) indicated that anger—as a negative affective state—did not mediate the relationship between strain and deviance, although it was significantly associated with deviance. These findings suggest that the nature of relationship between strain and deviance varies by the type of strain that is being exposed and by different forms of negative emotions. Overall, despite the fact that some studies could not find any evidence in regard to mediating effect of negative affective states, most research focusing on deviant behaviors and GST in pertinent literature supported the hypothesis that strain led to deviant behaviors through the mediating effect of negative affective states such as anger, depression, despair, resentment, and fear (Agnew 1992; Agnew et al. 2002; Brezina 1996; Jang and Johnson 2003).

In sum, the GST was developed by Robert Agnew (1992) to deal with the controversial approaches of classical strain theories. It suggested that certain kinds of strain that had been caused by loss of positive stimuli, presence of negative stimuli, and failure in achieving economic goals led individuals to negative affective states and in turn to exhibit criminal or deviant behaviors. There were

four relevant dimensions of strain: (1) magnitude; (2) duration; (3) recency; and (4) clustering of stressful events (Agnew 1992). In other words, individuals' probability of taking part in deviant activities increases when the events creating the strain are; (1) greater in magnitude, (2) of long duration, (3) recent, and (4) clustered in time.

d. Empirical Assessment of GST

Since 1992, the GST has received a great deal of empirical support through numerous examinations from different perspectives in the U.S. Baron (2004) using a sample of homeless street youth, for example, examined how specific forms of strain such as emotional abuse, physical abuse, sexual abuse, homelessness and being a victim of robbery, violence or theft, relative deprivation, monetary dissatisfaction and unemployment led to crime and drug use. He found that all these kinds of strain led adolescents to be involved in criminal activities (Baron 2004). In parallel, Asselin (2009), used GST to understand causes of drug and alcohol use and found that some kinds of strain such as negative life events were positively associated with increases in binge drinking and drug use. Cullen et al. (2008) also tested and supported GST's assertions by revealing the impacts of school bullying on deviant behaviors among adolescents. Similarly, Watts and McNulty (2013) found that physical and sexual abuses during early childhood were significantly associated with offending in adolescence. Supporting the GST, Broidy (2001) suggested that strain, negative emotions, and legitimate coping were related to each other and that criminal outcomes as well as this relation were shaped by specific kinds of strain.

Limited research on GST outside of the United States has been conducted, but the results were supportive of the theory. Sigfusdottir, Kristjansson, and Agnew (2012) examined relationships between five strain measures and violent and property crime in five European cities. They found that most of the strain measures had a significant association with property and violent crime and that GST was

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generalizable to a wide range of European countries (Sigfusdottir et al. 2012). Similarly, Byongook and Morash (2014) examined the relationship between strain caused by educational system and delinquency among South Korean adolescents. They found that there were significant relationships between examination-related strain, physical and emotional abuse by teachers and delinquent behaviors. They also suggested that the GST approach was applicable in South Korean context (Byongook et al. 2014). This research was important as they illustrated that the GST perspective could be applied in different sociocultural contexts to solve problems regarding crime and deviant behaviors.

Not all of the empirical assessments of GST in regards to crime were supportive. Vegh (2011) did not find a significant relationship between strain and binge drinking. He stated that although there was support for direct effect of strain on drug use, his findings did not support a link between strain and binge drinking (Vegh 2011). The author defended this result by pointing out that "binge drinking is an acceptable form of social behavior with more than 40 percent of students reporting the behavior while in the college" (Vegh 2011:119).

Other researchers had trouble explaining why some people were more likely to exhibit deviant behavior in response to strain. Agnew, Brezina, Wright, and Cullen (2002) presented the reasons of variability of reactions against strain and societal pressure by addressing the question above. They implied that delinquency was higher among individuals who experienced family, neighborhood, and school strain. They also presented that "negative emotionality/low constraint had no effect on delinquency when strain was low, but a substantial effect when strain was high" (Agnew et al. 2002:22). This is a significant finding in terms of demonstrating that the level of strain is more important than personality variables in regards to their impacts on individuals' criminal and deviant behaviors. With this revision of GST, Agnew et al. (2002) provided a more comprehensive account on why many

strained individuals act delinquently and they also presented some devising strategies to control and remove delinquency.

e. Types of Strain and Drinking Behavior

Research on GST also highlighted the relationship between strain and alcohol consumption. According to Agnew (1992), some kinds of strain lead adolescents to be involved in criminal activities and that these are the basic causes of deviant behavior. Agnew (1992) stated that strain variables such as negative life events, parental attachment, school attachment, educational goals, life hassles, occupational strain, dissatisfaction with school, neighborhood strain, anger, and aggression could be the main sources of deviant behaviors (Agnew 1992; 2006). In relevant literature, these factors were also considered potential triggers of excessive alcohol consumption—as was the case with other deviant behaviors. Despite the fact that stressful events and conditions may have hundreds of specific strains, strain variables mentioned above are considered more relevant and more likely to increase crime. Agnew (2006) stated that these types of strain were likely to be considered high in magnitude and unjust, associated with low social control, and they are more likely to lead individuals to criminal coping.

For example, Alikasifoglu et al. (2004) found poor academic achievement and school connectedness had a strong influence on students' alcohol consumption in Turkey. They pointed out that unsuccessful students supposed that they would socialize and become prominent individuals if they consumed alcohol (Alikasifoglu et al. 2004). In a similar vein, Vogel and Barton (2011) stated that substance use and alcohol consumption were both significantly related to school SES and connectedness. They argued that students might act delinquently when they could not achieve their goals. They found, consequently, that students' failure led them to achieve their goals by acting delinquently (Vogel and Barton 2011). Along with poor academic achievement, bullying in the school

might lead adolescents to drinking behavior since the effects of strain on delinquency are stronger among students with lower school social bonds and with higher levels of aggressive behaviors (Cullen, Unnever, Hartman, Turner, and Agnew 2008).

Negative experiences that occurred in individuals' pasts were important indicators of deviant behaviors. According to Asselin (2009), who used GST to understand the causes of drug and alcohol use in Canada, strain was positively associated with increases in drinking. He stated that one of the most influential factors increasing the alcohol consumption among adolescents were their negative life experiences. There was also a negative relationship between strain and drinking frequency (Asselin 2009). This demonstrated that strain was better at explaining habitual drinking rather than occasional drinking. Asselin's (2009) findings were mostly supportive of GST aside from negative association between strain and drinking frequency. This study was important since it showed that strain increased the habitual drinking rather than occasional drinking.

Swatt, Gibson, and Piquero (2007) examined the relationship between strain and problematic alcohol consumption among police officers. They found that strain was correlated with negative emotionality. Another significant result of the study was that the level of alcohol consumption in response to the strain depended on the individual's race with results indicating whites were more likely to be drinkers than non-whites and that they were also more likely to have a high number of problematic drinking instances (Swatt et al. 2007). According to Madson and Zeigler-Hill (2013), the gap between drinking behaviors of blacks and whites is caused by several factors. They indicated, for instance, that blacks reported that they have fewer friends who engaged in heavy drinking than whites and Hispanics. Historical reasons are also important, as inequality in the past shaped this gap between drinking frequencies of blacks and whites (Madson and Zeigler-Hill 2013). In regards to the overall GST, this suggests that race was an important factor affecting individuals' attitudes under the condition of strain.

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The current study was unable to explore the importance of racial and ethnic differences in drinking behavior because the vast majority of Turkish citizens identify with the same racial identity and ethnic boundaries are not strict in Turkey.

Another important factor directly affecting drinking behavior was the adolescent's state of anger. According to Agnew (1992), the emotion of anger was an important factor leading adolescents to deviant behavior. Adolescents with anger, hopelessness, despair, and depressive emotions want to react to these threats and perceive deviant behaviors—such as drug and alcohol use—as counteraction mechanisms. Agnew (2006) also stated that the emotion of anger reduced the ability for rational thought and therefore prompted individuals to act illegally. Consistent with these research, Sigfusdottir, Farkas, and Silver (2003) pointed out that depressed mood and anger played a mediating role between strain and delinquency. In other words, strain caused anger and depressed mood, which in turn resulted in delinquency.

Consistent with Agnew's (1992) study, Carson (2007) stated that early victimization increased negative emotions such as depression, and the presence of negative emotions increased alcohol consumption and frequency of binge drinking. The reason why past victimization increases negative emotions is that the person victimized at an early age feels that s/he cannot control the events and experiences more strain as a result. Carson (2007) also specified that depression and suicidal thoughts were also correlated with an increase in frequency of binge drinking. This study was important as it showed that individuals' negative affective states such as depression and anger might play a mediating role between specific kinds of strain and alcohol consumption.

Economic deprivation was also an important factor leading to drinking behavior. According to Pierce, Frone, Russel, and Cooper (1994), chronic economic stress was significantly and positively

related to drinking behavior. Economic strain, however, could lead men and women to different results. According to Asselin (2009), men with economic strain were more likely to react while drinking than their female counterparts. Similarly, Merton (1938) and Agnew (1992) stated that people with high economic strain would be more likely to react with deviant actions. More recent research found that the alcohol consumption of impoverished individuals was related to the prices of products. Individuals with high SES drink more frequently than those with low SES as habitual drinking places a heavier burden on individuals with low SES (Fone, Farawell, White, Lyons, and Dunstan 2013; Marmot 1997).

In sum, alcohol consumption has risen as a serious problem recently with a variety of causes and destructive results. While it might be very harmful for individuals physically, psychologically, and financially, it might also cause serious problems for societies. From this point of view, many studies were conducted to explore underlying reasons of alcohol consumption (Asselin 2009; Swatt, et al. 2007; Carson 2007; Vegh 2011). Some of this research explained alcohol consumption through the lens of GST and finding that strain had a significant effect on alcohol consumption, and that people who were under the condition of pressure and strain were more likely to drink alcoholic beverages (Asselin 2009; Swatt et al. 2007; Carson 2007). A few studies, conversely, testing the effect of strain on alcohol consumption, posited that there was not a significant relationship between strain and alcohol consumption (Vegh 2011). Since studies testing GST through examining the relationship between alcohol use and strain were done in western countries, in general, knowledge on the issue has been limited to the western context. Therefore, further investigation outside the US, especially in countries with different cultural and religious motives, is needed to demonstrate the generalizability of GST cross-culturally. The current study fills this gap by using Youth in Europe dataset including a sample of Turkish adolescents.

3. CURRENT STUDY

Although alcohol consumption existed as a significant social problem in Muslim-majority countries, as was the case with the western countries, it remained as a relatively understudied topic in these countries (Michalak and Trocki 2006). Since the sale and use of alcohol are forbidden in most Muslim-majority countries and they tend to exhibit lower consumption rates due to individuals' tendencies of concealing their actual drinking behaviors, research in these countries have been inadequate. Turkey, with its political regime as a fusion of secular and religious motives has a unique place among Muslim-majority countries. Although a very large proportion of individuals in the country are Muslim, alcohol consumption is socially and legally appropriate behavior in Turkey. Hence, one aim of the current study is to identify factors associated with drinking behaviors among Turkish youth.

Despite the fact that alcohol consumption is not an illegal or dishonorable behavior in Turkey, the proportion of drinkers in the country was substantially lower than in western countries (WHO 2014). Since previous research has mainly focused on western countries, the role of different cultural and religious values on individuals' deviant activities was largely understudied. This study, secondly, aims at finding out the effects of adolescents' level of religiosity on their drinking behavior.

The current study also assesses the generalizability of Agnew's GST to groups outside of the United States. With a few exceptions, most studies related to GST have been conducted in the United States. This has caused an issue for generalizability of the theory, especially to countries that are under the effect of eastern culture and Islamic beliefs. This is an important issue for applicability of the GST's approaches on alternative cultural contexts. For this reason, another goal of the current study is to test generalizability of the GST by exploring its utility in explaining drinking behavior among Turkish youth. To achieve this objective, the relationships between alcohol consumption and strain variables

including school strain, economic strain, family strain, and peer strain were assessed. The mediating effect of students' negative affective states on the relationship between alcohol consumption and strain variables was also tested.

In accordance with these goals, five hypotheses were tested to understand the relationship between strain and alcohol consumption:

- H1: If adolescents feel strain from school, then they will be more likely to consume alcohol.

- H2: If adolescents feel strain from economic deprivation, then they will be less likely to consume alcohol due to the lack of financial resources to buy alcoholic beverages.

- H3: If adolescents feel strain from family, then they will be more likely to consume alcohol.

- H4: If adolescents feel strain from their peer relationships, then they will be more likely to consume alcohol.

- H5: Adolescents' negative affective states such as depression, anger, and sleeping problems mediate the relationship between specific types of strain and drinking behavior.

4. METHODOLOGY

a. Data

The current study draws upon data from the "2008 Youth in Europe Survey," which was coordinated and administered by Reykjavik University and the University of Iceland. This survey was administered to high school students in 11 cities across Europe, of which the Turkish city of Istanbul was included (ECAD 2009). Although the dataset included youth from 11 European cities, the current study only utilized a sample of Turkish high school students since its main goal was to demonstrate underlying reasons of excessive alcohol consumption and the applicability of the GST in a Muslim-majority country. Istanbul was selected in Turkey, due to its large population in which the most of diverse demographic characteristics of Turkey are represented in the city (ECAD 2009). All classes from all schools within the district were randomly sampled for participation, and teachers in the classes guided data collection. The sample was selected from the high school students in Bagcilar, a district of Istanbul, which is one of the most prominent cities in Europe with its rich cultural and historical background, and which is also the largest city in Turkey. While Bagcilar is a district, it has a population of 720,000 people—which is more than 52 out of 81 cities of Turkey. The population of adolescents in this district was 22,075, and a random sample of 2445 students was selected (ECAD 2009).

b. Analytic Strategy

Since the dependent variable was not normally distributed and OLS estimation failed to capture the ordinal nature of the dependent variable, ordinal logistic regression was used to assess the likelihood of drinking. In total, three models of ordinal logistic regression analyses were assessed. In Model 1, only strain variables (school strain, economic strain, family strain, and peer strain) were included to understand the relationship between alcohol consumption and certain kinds of strain. In Model 2,

negative affect, which indicated students' physical and mental discomforts, was added to the model to reveal if it had a mediating effect on the relationship between the dependent and strain variables. In Model 3, control variables were added to the analysis to observe differences in this relationship when students' age, gender, family structures, past victimizations, and religiosities were held constant. The model with higher explanatory power was selected and interpreted.

c. Variables

Dependent Variable

The dependent variable in the current study, alcohol use, was measured by how often respondents reported consuming beer, alcopops, wine, or spirits during last 30 days. Response categories included never, 1 to 2 times, 3 to 5 times, 6 to 9 times, 10 to 19 times, 20 to 39 times, and 40 times or more. Since many respondents reported never consuming alcohol, the normal distribution of the dependent variable was violated, and this caused a positive skewness. The OLS estimation was not used as it might lead to out of range predictions, abnormally distributed errors, and non-constant error variance (Fox 1977). Since the dependent variable is a categorical variable in which the distances between categories were not equal, the ordinal logistic regression method was needed to be used to capture the ordinal nature of data. The dependent variable was therefore treated as a trichotomy that distinguished regular drinkers from occasional drinkers and non-drinkers. Cutoff points were identified by frequency of drinking with values of responses that were given for each of four alcoholic beverages were added together and divided by four in order to obtain mean values for each respondent. Then, using strategy described by Weitzman and Nelson (2004), respondents were categorized as 0=non-drinkers if they never drank, 1=some drinkers if they drank 1 to 9 times a month, and 2=habitual drinkers if they drank 10 times or more during past 30 days.

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Independent Variables

School Strain

School strain is an indicator of lack of resources and social skills to gain status or succeed in school, which was found to be a good representation of a negative stimulus (Agnew 1992; Asselin 2009). School strain was measured in the current study by creating an index based upon how much respondents believe the following statements applied to them: (1) I find the studies pointless; (2) I am bored with the studies; (3) I am poorly prepared for classes; (4) I feel I do not put enough effort into the studies; (5) I find the studies too difficult; (6) I feel bad at school; (7) I want to quit school; (8) I want to change schools; and (9) I get on badly with the teachers. Responses for each statement ranged from "almost always=1" to "almost never=5". The scores of respondents were summed and divided by the number of questions to keep the original scale ranging from 1 to 5. Final scores were reverse coded so that higher scores represented the higher school strain. The Cronbach's alpha for these items was 0.96, which indicated that the items featured strong internal consistency.

Family Strain

Family strain was considered an important stimuli in previous research that might lead adolescents to be involved in deviant activities (Agnew 1992; Agnew et al. 2002; Asselin 2009). Since the family is one of the institutions in which individuals' positively valued goals were passed down and maintained, strain in the family may result in a failure to achieve these goals and this leads adolescents to deviant actions. Family strain was measured by computing an index with the following statements: (1) I experienced a serious argument with my parents; (2) I witnessed a serious argument by my parents; and (3) I witnessed a physical violence in my home. Respondents were asked if they have experienced these statements during last 12 months. Response categories for each statement included "yes=1" and "no=0".

The scores of respondents were summed and divided by the number of questions to keep the original scale between 0 and 1. The Cronbach's alpha for these items was 0.61 which indicated that internal consistency of items in the scale was acceptable.

Peer Strain

Peer strain was considered an important variable for two reasons (Agnew et al. 2002; Agnew 2006; Asselin 2009; Messler et al. 2014). First, Agnew et al. (2002) stated that deviant peer groups presented a role model and contributed to the reinforcement of deviant behaviors. The second reason is that bad relationships with peers lead adolescents to feel negative emotions such as loneliness, anger, and depression, and to exhibit deviant behavior. According to Agnew (2006), when adolescents feel peer strain, they become more likely to use deviant coping strategies such as alcohol consumption. Peer strain was measured through responses to the question of whether the youth had been rejected by their friends during the last 12 months. Response categories included "0=no" and "1=yes".

Economic Strain

Strain resulted from economic deprivation is another important factor which may lead adolescents to be involved in deviant activities (Asselin 2009; Baron 2007). According to Merton (1938) and Agnew (1992), people with high economic strain would be more likely to react with deviant actions. As a result of economic deprivation, youths suffer from physical and emotional neglect that they do not have proper access to food or emotional care, which may lead adolescents to engage in deviant behaviors (Agnew 2006). More recent research showed, however, that people with high SES drink more frequently than those with low SES (Asselin 2009; Fone et al. 2013; Marmot 1997). Therefore, we hypothesize that there is an inverse relationship between economic deprivation and alcohol consumption. Economic strain was measured by computing an index with the following statements: (1)

My parents are poorly-off financially; (2) My parents hardly have enough money to pay for necessities; and (3) My parents do not have enough money to pay for extracurricular activities. Respondents were asked if they have experienced these statements during the last 12 months. Response categories for each statement ranged from "1=almost never" to "5=almost always. The scores of respondents were summed and divided by the number of questions to keep the original scale ranging from 1 to 5. The Cronbach's alpha for these items was 0.90, which indicated that the internal consistency of items in the scale was very good.

Negative Affective States

According to GST, strains lead to negative affective states that lead to crime and deviance (Agnew 1992). Therefore, the current study incorporates a measure of negative affective states to determine if the relationship of different types of strain was mediated by negative affective states. As is the case with the study of Swatt et al. (2007), the variable constituted the responses showing respondents' mood, in order to reveal their physical or psychological discomfort. It was measured by computing an index with the following statements: (1) I was sad or little interest in doing things; (2) I had little appetite; (3) I felt lonely; (4) I cried easily or wanted to cry; (5) I had sleeping problems; (6) I felt sad or blue; (7) The future seemed hopeless; and (8) I thought of committing suicide. Respondents were asked how often they felt the statements above in the past week. Response categories for each statement included "1=never", "2=seldom", "3=sometimes", and "4=often". The scores of the respondents were summed and divided by the number of questions to keep the original scale ranging from 1 to 4. The Cronbach's alpha for these items was 0.98, which indicated that the internal consistency of items in the scale almost excellent.

Control Variables

The current study also controls for the survey respondents' family structure, age, sex, previous victimizations, and religiosity in an attempt to observe the relationships between the dependent and independent variables when these variables were controlled for. Family structure was measured by dividing into two groups as "1= both parents" if respondent lives with father and mother, and "0=other arrangements" that included living only with mother and living only with father if parents were divorced or separated. Respondents' ages were measured based on the year of their births. Age, as an interval variable, ranged from 14 to 18—as the survey was conducted on high school students. Respondents' sex was treated as a dichotomous variable with "0=female" and "1=male". Past victimization was measured with a dichotomous variable that identified whether respondents had been a victim of physical violence in the last 12 months. The variable was coded as "0=not victimized" and "1=victimized". Lastly, since religiosity plays a distinctive role on alcohol use in Turkey, it was used as a control variable. Respondents' religiosity was measured by computing an index with the following applications: (1) My faith is important to me; (2) I pray to God on a regular basis; and (3) I regularly read in the scriptures of my faith (α=0.99). Response categories ranged from "1=applies to me very poorly" to "4=applies to me very well". The scores of respondents were summed and divided by the number of questions to keep the original scale ranging from 1 to 4.

5. RESULTS

a. Descriptive Statistics

Table 2 presents descriptive statistics for the dependent, independent, and control variables analyzed in the study. Starting with the dependent variable, the majority of students (86.7%) reported that they did not consume any kind of alcoholic beverages during the last 30 days. On the other hand, 10.3 percent of students were involved in occasional drinking (some-drinkers). Finally, a small number of respondents (3.0%) engaged in regular drinking (habitual drinkers). As stated earlier, students' school strain was analyzed using an index ranging from 1 to 5 and the average score on the index was 2.40 with a standard deviation of 0.77, meaning that students, on average, feel school strain sometimes. Just as we did for school strain, economic deprivation of students was measured through a Likert scale ranging from 1 to 5 and descriptive analysis revealed that students do not feel a large economic strain in general. Students' family strain was treated as a dichotomous variable and results showed that a small proportion of students (20%) feel family strain. Similarly, a very small number of students (3.0%) felt peer strain. As was mentioned, negative affective states showing students' mental or physical discomfort was measured using an index ranging from 1 to 4 and descriptive analyses showed that the average score on the index was 2.04 with a standard deviation of 0.8, meaning that students, on average, have physical or mental discomforts sometimes.

Descriptive statistics for the control variables show about 49 percent of sample was boys, about 91 percent lived with both parents, the average age was about 16, and about 20 percent of the sample had been victimized in the past 12 months. Descriptive analyses also revealed that the average score on the index computed for religiosity was 3.29 with a standard deviation of 0.62, meaning that most of students, on average, considered themselves as religious individuals.

Table 2. Descriptive Statistics of Variables Used in the Study (n=2169)

Variables	Mean	SD	Min	Max
Drinking	0.23	0.72	0	2
Non-drinkers (0)	86.7 %			
Some Drinkers (1)	10.3 %			
Habitual Drinkers (2)	3.0 %			
Independent Variables				
School Strain	2.40	0.77	1	5
Economic Strain	2.08	0.98	1	5
Family Strain	0.20	0.06	0	1
Peer Strain	0.03	0.17	0	1
Negative Affect	2.04	0.80	1	4
Control Variables				
Past Victimization	0.20	0.75	0	1
Religiosity	3.29	0.62	1	4
Both Parents	0.91	0.28	0	1
Age	16.65	0.69	14	18
Male	0.49	0.50	0	1

b. Ordinal Logistic Regression Results

Table 3 presents results of the ordinal logistic regression analysis, reporting the likelihood of drinking behaviors among Turkish adolescents by regressing it on independent variables and control variables. As was mentioned earlier, three different models were established. Model 1 included only strain variables as main predictors of students' drinking behaviors and it assessed the associations between strain variables and alcohol consumption. Model 2, in addition to strain variables, incorporated negative affective states—which indicated students' physical or mental discomforts—to observe its potential mediating effect and to clarify the nature of the relationship between dependent and strain variables. Model 3 assessed the relationships of strain variables and negative affective states with alcohol consumption and controlled for the potential confounders to increase the explanatory power of the analyses.

Results in Model 1, indicated that school strain was significantly and positively related to students' likelihood of drinking (OR=1.61, p<.001). More specifically, with each unit increase in school strain, the odds of being a habitual drinker versus combined some-drinker and non-drinker were almost 61 percent greater—given the other variables were held constant in the model. Similarly, there was a significant and positive relationship between peer strain and students' drinking behavior (OR=2.38, p<.01). For every one unit increase in peer strain, the odds of being a habitual drinker versus combined some-drinker and non-drinker were 2.38 times greater, all else equal. Contrary to previous research (Agnew 1992; Agnew et al. 2002; Asselin 2009; Baron 2007; Fone et al. 2013), on the other hand, economic strain and family strain had no significant relationship with students' drinking behaviors. These findings suggested that school strain and peer strain were significantly associated with alcohol consumption when potential confounders were not taken into consideration.

Table 3. Ordinal Logistic Regression Results Predicting Drinking Behaviors among Turkish Adolescents (n=2169)

VARIABLES	MODEL 1			MODEL 2			MODEL 3		
	b	OR	SE	b	OR	SE	b	OR	SE
Independent Variables									
School Strain	0.48	1.61	0.05***	0.45	1.56	0.06***	0.32	1.37	0.06***
Economic Strain	-0.1	0.9	0.07	-0.15	0.86	0.07*	-0.26	0.77	0.07***
Family Strain	-0.37	0.69	1.8	-0.12	0.88	1.77	-1.24	0.29	1.76
Peer Strain	0.87	2.38	0.28**	0.75	2.11	0.28**	0.74	2.09	0.3**
Negative Affect				0.33	1.39	0.08***	0.33	1.39	0.08***
Control Variables									
Past Victimization							0.35	1.42	0.06***
Male							0.44	1.55	0.15**
Both Parents							-0.33	0.72	0.22
Age							-0.3	0.74	0.09**
Religiosity							-0.73	0.48	0.1***
Pseudo R^2	0.04			0.05			0.10		
Model χ^2	80.42***			95.12***			198.43***		
-2Log Likelihood	-926.06			-915.85			-836.76		

*p <0.05, * *p < 0.01, ***p < 0.001

OR= Odds Ratio
SE= Standard Errors

In Model 2, negative affective states was added to the analysis as an independent variable to assess whether it had a mediating effect on the relationship between alcohol consumption and strain variables. Results demonstrated that with each unit increase in negative affective states, the odds of being habitual drinker versus combined some-drinker and non-drinker increased by about 39 percent, all else equal. Incorporating the negative affective states to the model, however, did not mediate the relationships between strain variables and alcohol consumption. Rather, the negative affective states exhibited a suppressor effect that inclusion of the variable into the model strengthened and increased the negative effect of economic deprivation on alcohol consumption by about 50 percent. Results of ordinal logistic regression analysis also revealed that school strain was still significantly and positively related to students' drinking behaviors (OR=1.56, p<.001). With each unit increase in school strain, the odds of being a habitual drinker versus combined some-drinker and non-drinker were almost 56% greater, holding other variables constant. Similar to the results of Model 1, peer strain was significantly and positively related to students' drinking behaviors as the odds of being a habitual drinker versus combined some-drinker and non-drinker were 2.11 times greater, given the other variables were held constant in the model. Unlike Model 1, economic strain was found to be significantly and negatively related to students' drinking behaviors in Model 2 (OR=0.86, p<.05). For every one unit increase in economic strain, the odds of being a habitual drinker versus combined some-drinker and non-drinker were 0.86 times lower, holding other variables constant. Negative affect was also significantly and positively associated with students' drinking behaviors (OR=1.39, p<.001). Similar to Model 1 and contrary to predictions, family strain had no significant effect on students' drinking behaviors in Model 2.

Model 3 was the best fit given its higher chi square value (χ^2=198.43, p<.001), lower -2log-likelihood value (-836.76) and higher Pseudo R^2 value (R^2=.10) as compared with Model 1 and Model 2.

Results indicated there was a positive and significant association between school strain and drinking behavior (OR=1.37, p<.001). For every one unit increase in school strain, the odds of being a habitual drinker versus combined some-drinker and non-drinker increased by about 37 percent, holding other variables constant. Similarly, the higher number of negative affective states led to an increase in the likelihood of drinking (OR=1.39, p<.001). With each one unit increase in negative affective states, the odds of being a habitual drinker versus combined some-drinker and non-drinker increased by about 39%, all else equal. Another strain variable, peer strain, was positively and significantly associated with the likelihood of drinking (OR=2.09, p<.01). With each unit increase in peer strain, the odds of being a habitual drinker versus combined some-drinker and non-drinker increased by 2.09 times, given the other variables were held constant in the model. Results also showed that students who felt economic strain were less likely to engage in habitual drinking than those who had no economic strain (OR=0.77, p<.001). For every one unit increase in economic strain, the odds of being a habitual drinker versus combined some-drinker and non-drinker were lower, holding other variables constant. Finally, the model showed that family strain had no effect on students' alcohol consumption, holding other variables constant.

Regarding the control variables, results showed that sex, age, past victimization, and religiosity were significantly associated with students' drinking behavior. Holding with the findings of previous research (Asselin 2009; Christie-Mizell et al. 2009; WHO 2014), male students were more likely to engage in drinking than female students (OR=1.55, p<.01). Being a male increased the odds of being a habitual drinker versus combined some-drinker and non-drinker by about 55 percent. Previous research showed that age had a curvilinear effect on alcohol consumption that the consumption increased by age until the age of 35 and decreased after then (Asselin 2009; TurkStat 2012). One might expect, therefore, that each additional year would increase high school students' likelihood of alcohol consumption. In

contrast to prior research, however, results of the current study indicated that age had a negative relationship with drinking behavior among high school students that are between ages of 14 and 18 (OR=0.74, p<.01). For every one unit increase in age, the odds of being a habitual drinker versus combined some-drinker and non-drinker were lower. Past victimization was another variable which was significantly and positively associated with students' drinking behaviors, which supports the findings of Carson's (2007) study (OR=1.42, p<.001). For each one unit increase in past victimization, the odds of being a habitual drinker versus combined some-drinker and non-drinker increased by about 42 percent. Likewise and supportive of earlier predictions, religiosity was found to be significantly and negatively associated with students' drinking behavior (OR=0.48, p<.001). With each unit increase in adolescents' level of religiosity, the odds of being a habitual drinker versus combined some-drinker and non-drinker were lower. Lastly, students' family structure had no significant effect on their drinking behaviors.

6. DISCUSSION

This study examined alcohol consumption among Turkish adolescents through the lens of Agnew's GST. Its first aim was to reveal the factors associated with alcohol consumption among Turkish adolescents to deal with the inadequacy of research on the topic in Muslim-majority countries, also revealing the effects of individuals' religiosity on their alcohol consumption. Another purpose of the current study was to test generalizability of GST to countries under the influence of eastern culture and Islamic beliefs by exploring its utility in explaining drinking behavior among Turkish youth. To achieve this objective, the relationship between alcohol consumption and strain variables including school strain, economic strain, family strain, and peer strain was assessed. The potential mediating effect of students' physical and psychological disorders on the relationship between alcohol consumption and strain variables was also tested. Five hypotheses were established suggesting that school strain, family strain, and peer strain increase adolescents' alcohol consumption and that the influence of strains on alcohol consumption would be mediated by negative affect. These hypotheses were assessed with ordinal logistic regression method. In general, the results partially supported the theoretical assumptions and of the feasibility of using GST to explain alcohol consumption among Turkish adolescents. Results of ordinal logistic regression analysis showed that, out of all the strain variables, school strain, economic strain, and peer strain were significantly associated with alcohol consumption for the total sample.

Consistent with prior GST literature, the relationship between school strain and alcohol consumption was significant and positive. Agnew (1992) postulated that school strain, as a negative stimulus, was an indicator of lack of resources and social skills to gain status or succeed in school—which led individuals to exhibit deviant behaviors. Supportive of Agnew's (1992) statements and of prior GST literature, the current study revealed that school strain played an important role stimulating Turkish adolescents to drink alcohol (Agnew et al. 2002; Alikasifoglu et al. 2004; Cullen et al. 2008).

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Thus, results of statistical analysis supported the first hypothesis suggesting that if adolescents feel strain from school, then they will be more likely to consume alcohol. Overall, this suggested that GST's approach regarding the outcomes of school strain could be applicable in countries with different sociocultural values.

Another variable, which had a significant and positive association with alcohol consumption was peer strain. As was mentioned earlier, disrupted relationship with peers was an example of loss of positive stimuli, which was one of potential sources of strain (Agnew 2006). Results of statistical analysis revealed that when adolescents feel peer strain, they become more likely to use deviant coping strategies such as alcohol consumption. Thus, the fourth hypothesis suggesting a positive association between peer strain and alcohol consumption was supported. Lending robust support to prior GST literature (Agnew et al. 2002; Agnew 2006; Asselin 2009; Messler et al. 2014), the current study demonstrated that GST's perspective with regards to outcomes of peer strain could be applicable among adolescents in Turkey, which includes different sociocultural values in comparison to western countries.

Although GST literature suggested a positive association between economic strain and deviant engagement (Agnew 1992; Baron 2007), as was mentioned earlier, it was not applicable for alcohol consumption as a particular sample of deviant behavior. This is because alcohol consumption is related to prices of products that people with higher SES drink more frequently than those with lower SES (Fone et al. 2013; Marmot 1997). The current study, therefore, hypothesized that students' economic strain was negatively associated with their alcohol consumption. Results of statistical analysis revealed a negative association between economic strain and alcohol consumption and lent robust support for this hypothesis. Thus, the current study revealed that GST's perspective on the relationship between economic strain and deviant engagement was not applicable.

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Prior research on GST suggested that family strain was an important stimuli leading adolescents to engage in alcohol consumption and deviant behaviors (Agnew 1992; Agnew et al. 2002; Asselin 2009). Results of the current study, however, surprisingly revealed that family strain had no effect on students' alcohol consumption. Thus, it failed to support the third hypothesis supposing a positive association between family strain and alcohol consumption. This suggests that GST's perspective on the relationship between family strain and alcohol consumption is not applicable among Turkish youth.

In addition, consistent with prior research on GST, results revealed that students' negative affective states were significantly and positively associated with their alcohol consumption. Contrary to Agnew's (1992) study, however, it did not mediate the relationships between strain variables and alcohol consumption. Thus it failed to support the final hypothesis suggesting that students' negative affective states play a mediating role between strain and alcohol consumption. This suggests that certain kinds of strain directly linked to adolescents' alcohol consumption in Turkish context without mediation of negative affective states such as anger, depression, and despair. In addition, although they do not mediate the relationship between strain and alcohol consumption, students' negative emotions are positively associated with their drinking behaviors.

With regard to the control variables, students' past victimizations, levels of religiosity, ages, and sexes were significantly associated with their alcohol consumption while family structures had no effect. Results showed that there was a positive association between past victimization and alcohol consumption. This finding was consistent with GST, as Carson (2007) posited that the person who is victimized at an early age feels that s/he cannot control the events, experiences more strain, and in turn exhibits deviant behaviors such as alcohol consumption.

Another consistent predictor which was positively and significantly associated with alcohol consumption was adolescents' sexes. Results showed that being male increased the odds of being a habitual drinker versus combined some-drinker and non-drinker by about 55%. This result lent robust support to the findings of the WHO's (2014) and study of Asselin (2009), which suggested that women were less likely to engage in alcohol consumption as they have lower deviant peers and values and higher social control and constraint than men.

Results identified a negative association of religiosity and alcohol consumption, and this was consistent with initial expectations of the current study. Although alcohol consumption rates are higher in Turkey than other Muslim-majority countries, they are much lower than those in western countries. The current study hypothesized initially that this could be caused by individuals' levels of religiosity because a very high proportion of individuals in Turkey identify their religion as Islam in which alcohol consumption is forbidden (Ilhan, Yildirim, Demirbas, and Dogan 2008). By showing the negative association between religiosity and alcohol consumption, findings of the current study supported this hypothesis.

Results also revealed, on the other hand that there was a negative association between age and alcohol consumption, such that the likelihood of drinking decreased as long as students got older, contradicting the extant literature on GST. Since the current study focused on adolescents' drinking behaviors, age range was shorter when compared to prior research focusing on adults' drinking. This might be the reason for the contradicting result of the current study in regard to relationship between age and alcohol consumption.

The current research has provided a valuable insight to the literature on GST by providing a comprehensive picture of how strain factors and negative affective states are related to drinking behavior

among adolescents, which may provide important implications for policy makers and researchers. First, a considerable amount of students reported they had engaged in alcohol consumption during the last 30 days. This was important because previous literature indicated adolescence was the most important time period in gaining the habit of drinking (WHO 2014). Considering the destructive consequences of habitual drinking, which vary from failure in life to death, the results of this study can be crucial for policy makers in order to understand causes of this issue and to develop programs and support systems that will prevent alcohol consumption among adolescents. The current study revealed that the most influential factors on students' drinking behaviors were school strain and peer strain and that the source of both strain types is generally schools. Therefore, policy makers might begin with focusing on school-based programs that will instruct adolescents to cope with strain legitimately. Along with school-based programs, students could also be supported socially and psychologically through trainings that teach them on gaining new skills such as coping skills and problem solving abilities.

Secondly, consistent with the GST framework, statistical analyses revealed that certain kinds of strain affected students' alcohol consumption in Turkey to a large extent. Except for the association of family strain and the mediating effect of negative affective states, results supported GST's assumptions by showing significant associations of school strain, peer strain, economic strain, and negative affective states with students' alcohol consumption. Thus, the current study tested and showed evidence for generalizability of GST to countries with different social structures, and cultural and religious values from the United States and western countries.

Finally, the current study has added some unique and valuable findings to the literature on GST by investigating the impact of religiosity on alcohol consumption. Although there are several studies examining the relationship between strain and different kinds of deviant behaviors from a religiosity perspective, they generally cannot establish a direct link between alcohol consumption and religiosity

(Jang and Johnson 2005). This is because the research on alcohol consumption has remained limited to the western context in which alcohol consumption is not an illegal or unwelcome behavior. Part of the reason alcohol use was understudied in Islamic or Muslim-majority countries was due to alcohol being forbidden in most of these countries, which meant lower consumption rates. Even though there are no official restrictions for alcohol use in some countries such as Egypt and Lebanon, it is mostly used apparently among elites of these countries. Individuals with lower social status, on the other hand, generally tend to conceal their drinking behaviors because drinking is considered objectionable in their social environments (Matthee 2014). In these countries, it is difficult to collect data that capture all segments of societies in terms of their alcohol use. The current study, however, substantially illuminated drinking patterns in Turkey in which 99 percent of the people identify themselves as Muslim (Ilhan, Yildirim, Demirbas, and Dogan 2008). Results showed that there was a significant and negative association between level of religiosity and alcohol consumption. Thus, the current study revealed that religiosity played a very significant role in reducing the likelihood of consuming alcohol among Turkish adolescents.

Aside from the crucial contributions of the current study to the literature on GST, it is important to note some limitations that mostly stem from deficiencies in the dataset. The first concerns the generalizability of the results. Since this study was limited to the context of Turkey, which has different religious and cultural values from western countries, a caution is advised in generalizing the results to these countries. In addition, this study lacks certain demographic variables when compared to similar studies conducted in other countries. Race and ethnicity, for instance, were not included in the analysis. This is because there is no other races and there are not strict lines distinguishing one ethnic group from others, meaning that identifying different ethnicities is very difficult. Race and ethnicity were not included as a variable in the dataset, therefore, and it could not be operationalized in the current study.

Another variable not included in the analysis was social class. Since class boundaries are not as strong in Turkey as in the United States—similar to race—self-identification of social class might cause potential biases. Therefore, it was not regarded as an issue and was thus not included in the current study.

Secondly, Youth in Europe Survey was a self-reported dataset, which was important because self-reported data might contain several potential sources of biases. For example, adolescents may tend to respond to questions in a manner that will be viewed favorably by others, a validity problem known as social desirability (Asselin 2009). This bias may interfere with the interpretation of average tendencies as well as individual differences. Respondents may also have a selective memory, meaning they might not remember their past experiences or might even remember them incorrectly. They might also try to portray events they witnessed as more significant than those in reality. Despite these limitations noted above, this study can be very valuable for both policy makers and researchers who are interested in the sociology of crime and deviance.

Given the results of this study, further research is needed to develop its findings. First, its findings on the potential variation in alcohol consumption were deduced from an examination of high school students in the city of Istanbul. Conducting studies in larger and more diverse populations would provide an opportunity to show the influence of certain kinds of strain on students' alcohol consumption. Secondly, since some cultural values in Turkey tolerate boys drinking alcohol while condemning girls who exhibit same behavior, examining the issue in other cities, especially in eastern cities of the country, might also be beneficial to determine the effects of strain stemming from cultural beliefs on alcohol consumption. Finally, although the current study found significant associations of alcohol consumption with school strain, peer strain, economic deprivation, and negative affective states, it did not find any effect for family strain, contrary to the literature. There might be several reasons of why family strain had no effect on students' alcohol consumption. Some family-related factors, for example,

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such as the lack of warmth, low supervision, harsh punishment, and conflictual family climate might increase adolescents' likelihood of engaging in deviant behaviors (Kask, Markina, and Podana 2013). In the current study, however, only factors related to conflictual family climate was assessed as the sources of family strain due to limitations of the dataset. Therefore, further studies should also examine the effects of other potential sources of family strain on students' alcohol consumption more deeply.

In conclusion, results were generally supportive of hypotheses and of using GST framework to explain alcohol consumption patterns among Turkish youth. The current study has added valuable insights to the literature and played a distinctive role by revealing effects of strain on adolescents' alcohol consumption in a different cultural context. It has called attention to insufficiency of research on the issue of excessive alcohol consumption in Muslim-majority countries and filled this gap by assessing the effects of strain on Turkish adolescents' drinking behaviors. It has also demonstrated the generalizability and the feasibility of the GST framework in non-western countries.

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8. VITA

      Ugur Orak, who is originally from Ankara, Turkey, received his bachelor's degree at Turkish Military Academy in 2013. Thereafter, he began working as a military officer in Turkish Military Academy. As his interest in sociology grew, he made the decision to enter graduate school in the Department of Sociology at Louisiana State University. He began his studies at Louisiana State University in September of 2013. His research interests include military sociology, sociology of crime and deviant behaviors, and international migration. He will receive his master's degree in December 2015 and plans to begin working on his doctorate upon graduation.