

Spring 2013

My Team Drinks: An Analysis of Alcohol Consumption Norms Among Adolescent Athletes

Laura Beth Jones
San Jose State University

Follow this and additional works at: https://scholarworks.sjsu.edu/etd_theses

Recommended Citation

Jones, Laura Beth, "My Team Drinks: An Analysis of Alcohol Consumption Norms Among Adolescent Athletes" (2013). *Master's Theses*. 4282.

DOI: <https://doi.org/10.31979/etd.s82n-xxah>

https://scholarworks.sjsu.edu/etd_theses/4282

This Thesis is brought to you for free and open access by the Master's Theses and Graduate Research at SJSU ScholarWorks. It has been accepted for inclusion in Master's Theses by an authorized administrator of SJSU ScholarWorks. For more information, please contact scholarworks@sjsu.edu.

MY TEAM DRINKS: AN ANALYSIS OF
ALCOHOL CONSUMPTION NORMS AMONG ADOLESCENT ATHLETES

A Thesis

Presented to

The Faculty of the Department of Psychology

San José State University

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

Laura Beth Jones

May 2013

© 2013

Laura Beth Jones

ALL RIGHTS RESERVED

The Designated Thesis Committee Approves the Thesis Titled
MY TEAM DRINKS: AN ANALYSIS OF
ALCOHOL CONSUMPTION NORMS AMONG ADOLESCENT ATHLETES

By

Laura Beth Jones

APPROVED FOR THE DEPARTMENT OF PSYCHOLOGY

SAN JOSÉ STATE UNIVERSITY

May 2013

Dr. Clifton Oyamoto Department of Psychology

Dr. Robert Cooper Department of Psychology

Dr. Greg Feist Department of Psychology

ABSTRACT

MY TEAM DRINKS: AN ANALYSIS OF ALCOHOL CONSUMPTION NORMS AMONG ADOLESCENT ATHLETES

by Laura Beth Jones

Alcohol use among adolescents results in a greater risk of lifetime alcohol abuse and dependence. Some research suggests that perceived peer norms about drinking are the strongest predicting factor of alcohol-related behaviors (ARBs) among adolescents. Previous research on whether sports participation is related to adolescent alcohol consumption has resulted in mixed findings. For this study, perceived norms were further delineated between descriptive and injunctive norms. The goal of this research was to determine whether there were differences between sport types (team vs. individual) in alcohol consumption patterns and whether sport type moderated the predictive strength of perceived norms on alcohol consumption patterns. Participants included 364 male and female athletes 14-18 years old, from schools and sports clubs in California, separated by participation in either individual or team sports. Participants completed the following measures: Athletic Identification Measurement Scale-Plus (AIMS-Plus), Sport Participation, Modified Student Alcohol Questionnaire (MSAQ), and Modified Form of Cahalan's Drinking Questionnaire and Perceived Norms (MCDQ-PN). The results of the study confirmed that perceived norms were correlated with alcohol consumption patterns. Although team athletes had stronger injunctive norms about drinking than did individual athletes, there was not a significant difference between sport type and alcohol consumption patterns, nor did sport type moderate the relationship between perceived norms and ARBs. Implications of these findings are discussed.

ACKNOWLEDGMENTS

I would first like to thank my thesis committee, beginning with my advisor, Dr. Clifton Oyamoto. Thank you, Dr. Oyamoto, for all of your patience throughout this process, and for your ability to wrangle my imagination and need to proliferate hypotheses. Thank you, Dr. Robert Cooper, for stirring my imagination and providing me with wonderful insight into all things interesting. Finally, thank you, Dr. Greg Feist, for making time to see me when I popped in, unannounced.

Second, I must thank my family. Thank you, mom, for supporting my crazy mouth and determination when I was young, and for teaching me to breathe, that “this, too, shall pass.” Thank you, Seth and Adam, for your random and outside-the-box thoughts; our conversations provided me with a reprieve from my own mind, along with some giggles. To Genki Hagata, my husband, thank you for not strangling me, for supporting me like a good pair of compression crops, and for all of your understanding and love.

Lastly, I would like to thank those who assisted with this study’s data collection. Thank you, Steve Amaro, for not only allowing me access to wonderful athletes, but for “getting on your soap box” and encouraging other facilities to participate. Thank you, Briana Eastus (my research assistant); I have never had so much fun collecting and entering data as I have had with you. Thank you for running around with me (literally), staying out in freezing weather, lugging around hundreds of pounds of surveys, and for all the coffee. Classic Briana.

TABLE OF CONTENTS

SECTION	PAGE
INTRODUCTION.....	1
Perceived Norms.....	2
Team vs. Individual Sports.....	5
Physical and Social Factors.....	5
Importance of Defining “Athlete”.....	8
Hypotheses.....	9
METHOD.....	10
Participants.....	10
Measures and Instruments.....	11
Athletic Identification.....	11
Sport Participation.....	12
Alcohol-Related Behaviors.....	13
Modified Form of Cahalan’s Drinking Questionnaire and Perceived Norms.....	14
Alcohol Consumption Patterns.....	14
Perceived Norms.....	15
Descriptive Norms.....	15
Injunctive Norms.....	16
Procedure.....	16
RESULTS.....	18

Preliminary Analyses.....	18
Hypothesis 1.....	19
Hypothesis 2.....	20
Hypothesis 3.....	21
Hypothesis 4.....	22
Hypothesis 5.....	24
DISCUSSION.....	27
REFERENCES.....	33
FOOTNOTES.....	36
APPENDICES.....	37
Appendix A. Athletic Identification Measurement	
Scale-Plus.....	37
Appendix B. Sport Participation.....	41
Appendix C. Modified Student Alcohol Questionnaire.....	42
Appendix D. Modified Form of Cahalan’s Drinking	
Questionnaire and Perceived Norms.....	46

LIST OF TABLES

TABLE	PAGE
1. Sports Classified by Type: Individual and Team Sports.....	6
2. Demographic Characteristics of Adolescent Athletes by Sport Type.....	12
3. Alcohol Consumption Patterns by Sport Type.....	24
4. Main Effects of Perceived Descriptive Norms on ACPs: Frequency of Alcohol Consumption.....	26
5. Main Effects of Perceived Descriptive Norms on ACPs: Quantity of Alcohol Consumption.....	27

Introduction

Alcohol is one of the leading drug threats to adolescents today (Strasburger, 2010). The National Household Survey on Drug Abuse found that (1) individuals who begin drinking before age 14 are four times more likely to become alcohol dependent than individuals who start drinking at age 21 or older, and (2) lifetime alcohol abuse and dependence are greatest among those who begin drinking between the ages of 11 and 14 (S. Foster, Vaughan, W. Foster, & Califano, 2003). Swahn, Bossarte, and Sullivent (2008) found that moderate to heavy drinking among U.S. youths under age 21 resulted in, or contributed to, 1200 homicides, 2067 motor vehicle crash deaths, and 479 suicides in 2001. Evidence indicates that underage drinking leads to 5,000 annual deaths, 2.5 million other harmful events, and \$2.6 billion in societal costs (Evaluating Programs to Reduce Underage Drinking, 2007; Strasburger, 2010).

With each advance in knowledge concerning factors influencing alcohol consumption patterns (ACPs) and alcohol-related behaviors (ARBs) in adolescence, we improve our ability to (1) enhance the effectiveness of existing interventions aimed at reducing underage drinking and/or ameliorating its effects, and (2) identify or innovate effective new interventions or intervention practices.

Alcohol consumption patterns include the frequency with which adolescents consume alcohol and the quantity of alcohol they consume (as self-reported by the participants). Alcohol-related behaviors are actions that lead to, or arise from, that alcohol consumption. “Beer Pong” is a popular ARB (game) that results in increased consumption of alcohol. Other ARBs include driving after consuming alcohol, riding in a

car with a driver who has consumed alcohol, breaking laws or getting in fights after alcohol consumption, and many others. One of the best predictors of adolescent ACPs and ARBs is the influence of peers (Mays et al., 2010b). In fact, perceived peer drinking, may explain as much as 50% of the variance in adolescent drinking found in prior research (Mays et al., 2010b). This is greater than any other variable studied such as parenting styles (Mays et al., 2010b).

A peer group likely to influence adolescents' alcohol consumption and alcohol-related behavior is the sports team on which they practice and compete. However, past research has resulted in mixed findings concerning the effects of sport participation on adolescent alcohol consumption. The goal of this study was to determine (1) whether alcohol consumption patterns differed between adolescents participating in individual sports and those participating in team sports, and (2) whether sport type (i.e., "individual" vs. "team") moderated the predictive strength of perceived norms on those alcohol consumption patterns.

Perceived Norms

The term *perceived norms* has been used in a variety of ways. For this investigation, "norms" are defined as perceived codes of conduct that either prescribe or proscribe behaviors of group members (Rimal & Real, 2003). Related or interchangeable terms include, but are not limited to social norms, subjective norms, normative influences, social influences, and majority fallacy (Mäkelä, 1997; Rimal & Real, 2003). Norms are determined, communicated, understood, and enforced through social interactions (Bendor & Swistak, 2001; Borsari & Carey, 2003). Further, violating a norm

yields undesirable consequences, with Homans (1950, pg. 123) stating, “any departure of real behavior from the norm is followed by some punishment.” Furthermore, norms differ from laws, which are explicitly codified, in that all norms are socially communicated and/or inferred.

Perceived norms can be categorized as either *descriptive* or *injunctive*.

Descriptive norms are behaviors perceived to be *common* among members of a group (Prince & Carey, 2010). The actual prevalence of each perceived behavior may vary from its perceived prevalence. For example, an individual may perceive drug use as a common behavior among his peers, when, in fact, only a minority of group members partake in drug use. Injunctive norms are behaviors perceived to be *acceptable* among group members (Cialdini, Reno, & Kallgren, 1990). Injunctive norms include a reward and punishment aspect (Rimal & Real, 2003), with individuals anticipating that they will, or may be, rewarded for adhering to a norm and/or punished for violating it. For example, an individual might anticipate a possible increase in popularity in the group if he or she participates in a normative behavior, while he or she might fear exclusion from (or loss of status within) the group if he or she does not participate in the normative behavior. Perceptions of the prevalence of a behavior in the group (descriptive norm) and of the behavior’s acceptability (injunctive norm) may interact with each other and other factors to influence behavior. The term “perceived norms” is used throughout this paper as an umbrella term for both descriptive and injunctive norms, with each type of norm identified individually to enhance accuracy and clarity, as appropriate.

Individuals who consume alcohol have higher perceived alcohol-related norms, as compared to individuals who do not consume alcohol (Festinger 1964; Festinger & Carlsmith, 1959; Grossbard et al., 2009; Lewis et al., 2011; Mäkelä, 1997; Segrist, Corcoran, Jordan-Flemming & Rose, 2007). This trend has also been observed in several other studies involving athletes. Davies and Foxall (2011) described adolescent athletes as having more negative attitudes toward alcohol but greater intentions to get drunk (relative to their peers). Adolescent athletes who perceive their teammates as consuming more alcohol may feel the need to consume more alcohol than they would otherwise to increase their acceptance within the team (Davies & Foxall, 2011; Karimi & Besharat, 2010; Lisha & Sussman, 2010; Mays, DePadilla, Thompson, Kushner, & Windle, 2010a). Although adolescent athletes know consuming alcohol will impact their performance (Bu et al., 2002; Zamboanga et al., 2012), these perceived norms may reduce cognitive dissonance and justify increased consumption (Mäkelä, 1997).

Perceived peer drinking norms have been shown to be stronger predictors of future alcohol use than any other variable studied (e.g., parenting style; Mays et al., 2010b). Further, sports participation influences the peer-group identification of adolescents (Mays et al., 2010b). However, the type of sport in which an adolescent engages may moderate the influence of perceived norms on his or her behavior. A meta-analysis conducted by Lisha and Sussman (2010) reviewed 34 studies of high school and collegiate athletes and alcohol use. Of the 34 studies, 22 found positive correlations between sport participation and alcohol use, while the remaining 12 studies found negative or no correlations between sport participation and increased alcohol use,

compared to non-athletes. Denham (2011) reported that adolescents form tight knit bonds beyond the title of athlete and may form subgroups that are sport-specific. In this study, I hypothesize that sport-specific characteristics will moderate the effects of perceived norms on participants' alcohol consumption patterns and alcohol-related behaviors.

Team vs. Individual Sports

Although some researchers have speculated that the type of sport played may influence drinking behaviors, few studies on sport participation, alcohol consumption patterns, and alcohol-related behaviors have differentiated between team and individual sports. However, there may be important differences between these sports types that, in turn, influence alcohol consumption patterns and the likelihood of engaging in alcohol-related behaviors.

Individual sports consist of single opponents playing against each other or several others (e.g., wrestling, swimming, and gymnastics). Team sports involve more than one player on a team playing against other teams (e.g., football, soccer, and dance). For the purpose of this paper, team and individual sports will be differentiated by whether winning is accomplished individually (individual sport) or by two or more members of the same team participating together (team sport; see Table 1 for a list of the participating sports in this study). There are many factors that differ between team and individual sports, including physical and social factors.

Physical and social factors. Physical and social factors differ between team and individual sports because winning is *achieved* differently for each type of sport.

Table 1

Sports Classified by Type: Individual and Team Sports

Sport Type	
Individual	Team
Gymnastics	Basketball
Swimming	Cheerleading
Tennis	Dance
Track and Field	Football
Wrestling	Soccer
	Softball

Individual sports require athletes to be ordered and disciplined, as they bear direct responsibility for their competition outcomes. Because athletes in individual sports practice and compete independently, they have relatively few required task interactions and communications (Colman & Carron, 2001). Further, task independence among “teammates” in individual sports (for example: gymnasts on an Olympic team) can lessen the impact and importance of perceived norms within this sport type. Colman and Carron (2001) looked at the strength of perceived group norms (related to competitions, practices, the off-season, and social situations) among individual sport teams. They hypothesized that the lack of required task interdependence would affect the degree to which group norms were (1) existent and (2) influential in individual sports. The data revealed weak perceived norms for attendance and productivity during competition, concentration during practice, and interaction in social situations. Colman and Carron’s findings that normative expectations in individual sport teams may be weaker than those

in team sports, indicating that individual athletes may not maintain or be as affected by perceived norms related to alcohol consumption by their team members.

Whereas the outcomes for athletes engaged in individual sports directly rely on the athlete's performance, outcomes for athletes engaged in team sports rely on the performance of several or many team members (of whom the athlete in question is one). Team members must work together during practice and competition; thus, they experience many more task interactions than their peers engaged in individual sports (even if those peers are ostensible members of a "team"). Researchers report that task interdependence among teammates in team sports can increase the impact and importance of perceived norms, as reported by team members. Prapavessi and Carron (1997) found that task integration (i.e., the degree of similarity, closeness, and bonding within the group around a task) mediated conformity to team norms among athletes from 12 cricket teams (a team sport). This finding indicates that athletes participating in team sports may bond and conform to perceived group norms outside of practice and competition, leading to increased effects of perceived norms on alcohol consumption patterns and alcohol-related behaviors.

Further studies, including that of Mays et al. (2010b), have found that high-school students who participate in sports offering both team- and individual- level competition may have higher perceived norms of peer drinking than students who participate in sports offering only individual-level competition. In addition, team athletes studied by T. Wichstrøm and L. Wichstrøm (2009) reported greater increases in consumption frequency and quantity over time than individual-sport athletes.

In short, team-sport athletes may tend to take cues from other team members and engage in alcohol consumption patterns and alcohol-related behaviors they perceive as similar, in order to foster both social cohesion and competitive effectiveness. Conversely, individual-sport athletes may remain freer of such influences because they practice, compete and win (relatively) “independently.”

Importance of Defining "Athlete"

Defining and operationalizing the term *athlete* is important in this investigation, as it may have implications for the power of group norms. In addition, there are conflicting data about how adolescents' participation in sports relates to alcohol-related behaviors, which may be due to the inconsistent definitions for the construct “athlete.” Many studies classify participants as “athletes” based on answers to self-report survey items such as, “During the past 12 months, on how many sports teams did you play? Count any teams run by your school or community groups” (Centers for Disease Control and Prevention, 2004). In other studies, more rigid criteria were set for identifying “athletes.” For example, Davies and Foxall (2011) define an *athlete* as

a student who participated in sport on at least 3 days per week (i.e., more than the two compulsory sport lessons per week that took place in some of the schools), and placed high importance (either 6 or 7 on the 7-point scale) on both participation and performance (p. 2294).

The importance of operationalizing *athlete* or *sport participation* in this investigation is evident when comparing the research of Bu et al. (2002) and Mays et al. (2010a). Bu and colleagues found that participation in sports postpones alcohol initiation; whereas Mays and colleagues found an association between sport participation and faster-than-average acceleration in problem alcohol use. Bu et al. do not mention

how *sport participation* was measured or defined. Mays et al. measured sport participation by having participants indicate any sport in which they were currently participating or planning to participate later in the school year. Thus, it is difficult to compare the results of the study, as both may have measured two disparate populations. In addition, neither study controlled for in-season (during practice and competition) and off-season (no formal practice run by a coach) variables, possibly confounding results, and certainly leaving issues of time-sensitivity open to question and speculation.

The target population for this investigation is athletes, as they are a unique group; therefore, it is important to clearly define the term “athletes,” as it is used in this study. Less stringent definitions of the term *athlete* may include people who participate in sports in response to parents’ or friends’ wishes, who play unstructured sports, or who may not strongly identify as an athlete. Perceived team norms may mean less to these individuals than to more committed athletes. This study defined *athletes* as (1) participating in sport at least 3 days per week, for a total of at least six hours (Davies & Foxall, 2011); and (2) scoring within the top 33% of the AIMS-PLUS, classified as high athletic identifiers (Cieslak, 2005). This study only recruited participants during their in-season, thus providing more time-sensitive results.

Based on the preceding analysis, the following hypotheses were derived:

- Hypothesis 1: Perceived descriptive and injunctive norms will predict alcohol consumption and alcohol-related behaviors, as found in previous studies.
- Hypothesis 2: Team sport athletes will report higher perceived descriptive and injunctive norms related to alcohol consumption than individual sport athletes.

- Hypothesis 3: Team sport athletes will report higher rates of alcohol consumption than individual sport athletes.
- Hypothesis 4: Of the athletes who consume alcohol, team sport athletes will have higher rates of alcohol-related behaviors than individual sport athletes.
- Hypothesis 5: The predictive strength of perceived descriptive and injunctive norms on alcohol consumption will be stronger for team athletes than individual athletes.

Method

Participants

Participants were adolescent athletes from four high schools and one sports club within a 100-mile radius of Walnut Creek, California. The schools and clubs were recruited using convenience sampling. Data were collected from 364 adolescents. The participants were classified as *athletes* if they participated in sport at least 3 days per week, for a (weekly) total of at least six hours, and rated high on the Athletic Identification Measurement Scale (103.19-154, after reverse scoring the scale). Participants who did not meet the inclusion criteria ($n=167$) were removed from the analysis. A total of 20 surveys were never entered in for data analysis because: (1) more than half the survey was incomplete, (2) sport type was not identified, or (3) all the answers were marked with the same response. The final sample included 197 in-season adolescent athletes who completed all or most of the survey packet.

Table 2 summarizes the major relevant characteristics of this sample. The sample included a relatively even distribution of males ($n=91$; 46.2%) and females ($n=105$;

53.3%). One participant ($n=1$; 0.5%) did not to respond to the sex-identification item on the demographics portion of the questionnaire. The ethnic make-up of the sample was predominantly White ($n = 103$; 52.8%), followed by: Other ($n = 27$; 13.8%); Mexican American ($n = 26$; 13.3%); African American ($n = 24$; 12.3%); Asian American ($n = 13$; 6.7%), and Native American ($n = 2$; 1%). The participants ranged in age from 14-18 years ($M = 15.45$; $SD = 1.05$). The sample included all four grade levels in high school, with more sophomores participating ($n=68$; 34.5%) than freshman ($n=61$; 31%), followed by juniors ($n=44$; 22.3%), and then seniors ($n=24$; 12.2%). More team athletes ($n=114$; 57.9%) than individual athletes ($n=83$; 42.1%) participated.

Measures and Instruments

The data were collected via paper survey (with participants allowed to use either pen or pencil), and raw data were collected in a manila envelope.

Athletic identification. The “athlete” construct was measured using the Athletic Identification Measurement Scale Plus (AIMS-Plus; Appendix A). The AIMS-Plus is a 25-item quantitative inventory measuring the level of athletic identity (e.g., "I consider myself an athlete," and "I feel bad about myself when I do poorly in sport"). Each item was rated on a seven-point Likert scale ($0 = Strongly agree$ to $7 = Strongly Disagree$). AIMS-Plus is summative instrument: after reverse scoring, a high score indicates a stronger identification with the “athlete” role, while a low score indicates a weaker identification with the “athlete” role. Prior to analyses, items 13, 16, and 18 were removed, as suggested by Cieslak (2005), as they do not clearly measure an individual’s identification as an athlete. In this study, the AIMS-Plus instrument had a high level of

Table 2

Demographic Characteristics of Adolescent Athletes by Sport Type

Variable	Percentage		
	Individual (<i>n</i> = 83)	Team (<i>n</i> = 114)	Total (<i>n</i> = 197)
Sex			
Male	43.4	48.2	46.4
Female	55.4	51.8	53.6
Age			
14	7.2	23.7	16.7
15	39.8	43.9	42.1
16	31.3	17.5	23.4
17	18.1	11.4	14.2
18	3.2	3.5	3.6
Sport Level			
Freshman	6	22.8	15.8
Junior Varsity	25.3	34.2	30.6
Varsity	61.4	42.1	50.5
Club	7.2	0	3.1
Ethnicity			
White	56.6	49.1	52.8
African American	8.4	14.9	12.3
Mexican American	14.5	12.3	13.3
Asian American	4.8	7.9	6.7
Native American	1.2	0.9	1
Other	14.5	13.2	13.8

Note. The demographics reported are of the participants (*n* = 197) whom have met the inclusion criteria.

internal consistency, as determined by a Cronbach's alpha of .90.

Sport participation. Sport participation was assessed with an open-ended self-report chart (Appendix B). This chart provided the athletes with boxes to complete for: type of sport; level of competition; events within sport; average days of practice per

week; average hours of practice per day; and whether they were currently participating or had participated in the past (e.g., “Track and Field: 100 m sprint, 400 m sprint: 4 days/wk, 2 hr/wk, currently training”). Practice days per week and hours per day were multiplied to determine one aspect of the inclusion criteria; participating at least 6 hours per week.

Alcohol-related behaviors. Alcohol-related behaviors were measured with the Modified Student Alcohol Questionnaire (MSAQ; Appendix C). The MSAQ is a self-report survey, with 47 questions and three subscales: Quantity/Frequency of Alcohol Consumption; Problems Resulting from Drinking; and Knowledge of Alcohol. For this project, only the Problems Resulting from Drinking subscale was used to determine the ARBs score. The Problems Resulting from Drinking subscale is formatted with fill-in-the blank items (e.g., “**IF** you currently drink or have ever drunk in the past, put the number corresponding to the frequency of the occurrences on the line beside it: Come to practice after having several drinks _____; “Cut a class” after having several drinks _____”). The problem behavior subscale of the MSAQ has shown adequate levels of reliability, with .79 on both test-retest reliability and Kuder-Richardson reliability (Engs & Hanson, 1994). In this study, the problem behavior subscale of the MSAQ showed adequate internal consistency, as determined by a Cronbach’s alpha of .84.

Prior to analysis, the Problems Resulting from Drinking sub-scale was converted. Alcohol-related behaviors were measured with the 22 items from the Problems Resulting from Drinking subscale. The 22 items were reverse-scored, and the mean was calculated. The ARB scores ranged from 1-5, with a score of 5 indicating the participant had

experienced every (itemized) problem associated with drinking at least once in the past two months and at least one additional time during the past year. The scores of the scale were calculated according to the developer of the scale, Engs (1997).

Modified form of Cahalan’s drinking questionnaire and perceived norms. The Modified Form of Cahalan’s Drinking Questionnaire and Perceived Norms (MFCDQ-PN) was used to measure alcohol consumption patterns and perceived norms (both descriptive and injunctive).

Alcohol consumption patterns. Alcohol consumption patterns were measured, with three self-report questions formatted as fill-in-the-blank and check-the-answer items on the MFCDQ-PN (Appendix D). Questions included: “At what age did you have your first drink of alcohol?”; “What is the number of drinks that most other people on your team have had at any one sitting in the past month? One drink means one beer, one mixed drink, one shot of liquor, or one glass of wine.” ____ 0 ____ 1 ____ 2 ____ 3 ____ 4 ____ 5 ____ 6 ____ 7 ____ 8 ____ 9 ____ 10 ____ 11 ____ more than 11 (write down how many ____); and “How often have you consumed alcohol in the past year (check one)” ____ never ____ a couple of times per month ____ once or twice ____ once per week ____ three or four times ____ more often than once per week ____ every month or so” (Segrist, Corcoran, Jordan-Fleming, & Rose, 2007).

A composite variable for lifetime consumption was calculated by combining age of first drink and past-year consumption. If the participant had never had a drink (i.e., age of first drink was marked “not applicable”), and past-year consumption was marked “1” (“never”), the participant was categorized as an *abstainer*. If the age of first alcohol

consumption was greater than “0,” and past-year consumption was marked “1,” the participant was categorized as a *past consumer*. If the age of first alcohol consumption was greater than “0,” and past year consumption was marked greater than “1,” the participant was categorized as a *current consumer*.

Quantity of alcohol consumption, as reported by maximum drinks in one sitting, was recoded from a continuous variable to a three-level categorical variable: 1 = *no drinks*; 2 = 1 to 6 drinks; and 3 = *7 or more drinks*. The grouping was based on a frequency analysis, and after the “no drinks” category was removed; the latter two categories were created by a split at the midpoint. The reported Frequency of Consumption Over the Past Year variable was regrouped from a continuous to a categorical variable: 1 = *have never consumed alcohol*, 2 = *once a month or less often*, and 3 = *more often than once a month*.

Perceived norms.

Descriptive norms. Descriptive norms were measured on the MFCDQ-PN with two questions: "What is the number of drinks that most other people on your team have had at any one sitting in the past month? One drink means one beer, one mixed drink, one shot of liquor, or one glass of wine: ____ 0 ____ 1 ____ 2 ____ 3 ____ 4 ____ 5 ____ 6 ____ 7 ____ 8 ____ 9 ____ 10 ____ 11 ____ more than 11 (write down how many ____)"; and "How often have most other people on you team consumed alcohol in the past year (check one): ____ never ____ a couple of times per month ____ once or twice ____ once per week ____ three or four times ____ more often than once per week ____ every month or so."

Perceived quantity, as reported by maximum drinks in one sitting, was recoded from a continuous variable to a three-level categorical variable: 1 = *no drinks*; 2 = 1 to 6 drinks; and 3 = *7 or more drinks*. The grouping was based on a frequency analysis and after “no drinks” was removed; the latter two groups were created by a split at the midpoint. The Perceived Frequency of Consumption Over the Past Year variable was regrouped from continuous to categorical: 1 = *have never consumed alcohol*; 2 = once a month or less often; and 3 = *more often than once a month*.

Injunctive norms. Injunctive norms were measured on the MFCDQ-PN with one item: "What do your teammates think of your drinking/if you were to drink alcohol? ___ They Approve completely; ___ They are not quite happy with it; ___ They approve with reservations; ___ They are against it." Prior to analysis, team acceptance scores were rescored so that “4” represented complete approval and “1” represented complete disapproval.

Procedure

An email was sent out asking for permission to administer a survey to athletes/students ages 14-18 for a thesis project from San José State University. Access to the participants was first obtained through approval by school administrators or club owners, athletic directors, and coaches. The participants at the schools/clubs were recruited during the first five minutes of practice.

The participants were presented with this explanation from the researcher: “I am collecting data for a research project about adolescents and sports. To be a part of this research, parental consent and participant assent is required. The consent form must be

signed and returned by the designated date.” The participants were then informed of the scheduled time and location for their team opportunity to participate in the research.

Time slots for data collection were offered either 30 minutes before practice, at the beginning of practice, or directly after practice; the coaches selected time slots that best worked with their practice and game schedules.

On the scheduled date, the participants were reassured that, as the consent form clearly stated, the data being collected were anonymous. The participants were instructed to fill out the self-report questionnaire packet accurately and honestly. They were provided with a pen or pencil (as needed), along with the questionnaire packet.

As a part of a larger study, the questionnaire packet included (1) Athletic Identification Measurement Scale Plus, (2) Sociotropy-Autonomy Scale, (3) Sport Participation, (4) Modified Form of Cahalan’s Drinking Questionnaire and Perceived Norms, (5) Modified Student Alcohol Questionnaire, and (6) the Big Five Inventory. Each packet included specific instructions at the beginning of each survey.

Research personnel were present in the designated room as the participants completed their questionnaires. As participants finished filling out their self-report questionnaires, they placed their completed packets in a manila envelope provided by the research personnel to ensure anonymity. The data collection began in December, 2012, and ended February, 2013, ensuring that several seasonal sports were included and active during the data collection process.

Results

Preliminary Analyses

Preliminary analyses were conducted to determine whether sex or age were possible confounds. Independent-samples *t*-tests were run to determine whether there were differences in alcohol consumption patterns (quantity, frequency, and lifetime consumption) between males and females. There was no statistically significant difference between sex and alcohol consumption patterns: $t(192) = 1.08$, *ns*, $t(193) = 1.1$, *ns*, and $t(183) = 1.52$, *ns*, respectively. An independent-samples *t*-test was conducted to determine whether there was a difference between sex and alcohol-related behaviors. As there was not a statistically significant difference, $t(91) = 0.28$, *ns*, sex was not controlled for regarding the alcohol-related behavior analyses. The third set of independent-samples *t*-tests were conducted to determine whether there were differences between sex and perceived norms (quantity, frequency, and acceptance). There was no statistically significant difference between sex and perceived quantity norms: $t(180) = 0.8$, *ns*, $t(182) = 1.35$, *ns*, and $t(181) = 0.37$, *ns*, respectively. Therefore, the data from both males and females were analyzed together.

Pearson product-moment correlations were run to assess the relationship between age and alcohol consumption patterns (quantity, frequency, and lifetime consumption). Although age was statistically significantly correlated with alcohol consumption patterns ($p < .05$), the analyses for each hypothesis were conducted both with and without controlling for age. At the individual analysis level, age was not found to be a significant covariate, and therefore the results reported do not control for age as a variable. Further

Pearson product-moment correlations were conducted between age and perceived norms (quantity, frequency, and acceptance). Age was statistically significantly correlated with perceived descriptive norms (quantity and frequency, $p < .05$); the analyses for each hypotheses were run both with and without controlling for age. At the individual analysis level, age was not found to be a significant covariate, therefore the results reported do not control for age as a variable. There was no statistically significant correlation between age and perceived acceptance, $r(178) = .12$, *ns*. As such, the results from all ages were analyzed together. A final Pearson product-moment correlation was conducted between age and alcohol-related behaviors. As there was not a statistically significant correlation, $r(82) = .01$, *ns*, age was not controlled for regarding the alcohol-related behavior analyses.

Hypothesis 1

The purpose of Hypothesis 1 was to test the claim that perceived norms predicted alcohol consumption patterns and alcohol-related behaviors among all the athletes that met the inclusion criteria. The hypothesis was tested with one-way ANOVAs. The first set of ANOVAs tested for the difference in perceived descriptive norms on alcohol consumption patterns, as reported by the participants. Outliers (anyone who reported consuming more than 13 drinks in one sitting) were removed prior to analyzing reported quantity of alcohol consumption (dependent variable) between perceived quantities of alcohol consumption by team members (independent variable). Athletes consumed significantly more alcohol as a function of increased perceived team consumption, $F(2, 178) = 16.69$, $p < .005$. Post hoc Sidak comparisons showed significant differences across

all pairs of conditions, $p < .05$: "no drinks" ($M = 0.7$, $SD = 1.7$), "1-6 drinks" ($M = 1.51$, $SD = 2.39$), "7 or more" ($M = 3.5$, $SD = 3.22$). Athletes also consumed alcohol more frequently as a function of increased perceived team frequency, $F(2,182) = 16.45$, $p < .005$. Post hoc Sidak comparisons showed significant differences between perceptions of teammates as "never" consuming alcohol and the other two levels, $p < .05$: "never" ($M = 1.24$, $SD = 0.43$), "once a month or less" ($M = 1.64$, $SD = 0.59$), "more often than once a month" ($M = 1.83$, $SD = 0.68$). These results align with results from previous research indicating perceived norms are correlated with alcohol consumption patterns.

The second set of ANOVAs tested whether perceived descriptive and injunctive norms were correlated with alcohol-related behavior scores. Three one-way ANOVAs were conducted, with these independent variables: (1) perceived acceptance, (2) perceived quantity consumed, and (3) perceived frequency of consumption. The dependent variable for all three ANOVAs was alcohol-related problem behavior scores. There were no statistical differences between perceived acceptance levels, $F(3, 77) = 0.80$, *ns*, perceived quantity, $F(2, 85) = 0.06$, *ns*, or perceived frequency, $F(2, 86) = 1.04$, *ns*. In contrast to previous research findings, perceived norms were not correlated with alcohol-related behavior scores.

Hypothesis 2

In order to test the second hypothesis and determine whether athletes on team sports reported higher perceived norms related to alcohol consumption than those reported by individual athletes, three independent-samples *t*-test were conducted. The independent variable for all three *t*-tests was *sport type* (Team/Individual). The

dependent variables in the first set of analyses measured descriptive norms: perceived frequency (“How often have most other people on your team consumed alcohol in the past year?”) and perceived quantity (“The greatest number of drinks that most other people on your team have had at any one sitting in the past month”). Outliers for perceived quantity were determined to be anyone who reported teammates consuming more than 14 drinks; these responses were removed prior to the analysis. The results for the analysis were non-significant: $t(184) = 1.18, ns$ and $t(179) = 0.94, ns$, respectively.

The dependent variable in the final analysis measured injunctive norms with the perceived acceptance item (“What do your teammates think of your drinking/if you were to drink alcohol?”). Team athletes perceived their teammates as more approving of alcohol consumption ($M = 2.54, SD = 1.04$) than did individual athletes ($M = 2.13, SD = 1.09$), $t(182) = 2.61, p < .05, d = .38$. The results of the analyses support a portion of the second hypothesis. Although there was no difference in perceived descriptive norms between team and individual athletes, team athletes did report higher levels of perceived alcohol consumption acceptance among their teammates than did individual athletes.

Hypothesis 3

The third hypothesis was tested in a fashion similar to the second hypothesis. To determine whether team athletes consumed more alcohol than individual athletes, three independent-samples *t*-tests were conducted. The independent variable for all three *t*-tests was *sport type* (team/ individual). Alcohol consumption was measured by frequency, quantity, and lifetime use. The dependent variable used to measure the frequency of alcohol consumption was “how often have you consumed alcohol in the past

year.” There was no statistical difference between the frequency of alcohol consumption over the past year between team and individual athletes, $t(194) = .09$, *ns*.

The dependent variable for quantity of alcohol consumption was “the highest number of drinks consumed at any one sitting in the past month.” Thus, the sample size was reduced to 85 participants currently consuming alcohol (team $n = 51$; individual $n = 34$). There was not a statistically-significant association between sport type and lifetime consumption (abstainers, past consumers, and current consumers; $\chi^2(2) = 0.97$, *ns*. Prior to analyzing the dependent variable, outliers were defined as anyone who reported consuming more than 13 drinks in one sitting; they were removed from the analysis. There was not a statistically-significant difference for quantity of alcohol consumed between team and individual athletes, $t(83) = .36$, *ns*.

The final independent-samples *t*-test was conducted to determine whether there was a difference in *lifetime consumption* between team and individual athletes. There was not a statistical difference between team and individual sport athletes in regard to lifetime consumption, $t(185) = .22$, *ns*; see Table 3 for frequencies of alcohol consumption patterns by sport type. The results of the aforementioned analyses did not support the hypothesis. Thus, the results of this study cannot be used to support conclusions that team athletes consume more alcohol than individual athletes.

Hypothesis 4

For hypothesis four, I predicted that among the participating athletes who reported consuming alcohol, team athletes would report higher rates of alcohol-related behaviors than athletes on individual sports teams. Abstainers (team $n = 49$, 43.8%; individual $n =$

30, 40%) did not complete the alcohol-related behavior portion of the survey. An independent-samples *t*-test was conducted, with the independent variable sport type and the dependent variable alcohol-related behavior scores¹. There was not a statistically significant difference between team and individual sports in regard to alcohol-related behaviors, $t(82) = 0.41, ns$. The results of the analysis do not support the hypothesis. Therefore, a conclusion cannot be drawn from this research that, of the athletes who currently consume alcohol, team athletes participate in more alcohol-related behaviors than their individual athlete peers.

The results from the prior analysis led to further analyses to determine whether alcohol use predicted alcohol-related behaviors. A one-way ANOVA was conducted to identify whether there was a difference, if any, between quantity of alcohol consumed and alcohol-related behaviors. A statistically-significant difference between quantity of alcohol consumed and alcohol-related behavior scores, $F(2, 91) = 5.92, p < .005$, was found. Post hoc Sidak comparisons showed significant differences between consumption of 7 or more drinks and the other two levels, $p < .05$: "no drinks" ($M = 1.14, SD = 0.24$); "1-6 drinks" ($M = 1.26, SD = 0.4$); "7 or more" ($M = 1.8, SD = 1.24$). The second one-way ANOVA was conducted to identify a difference, if any, between frequency of consumption and alcohol-related behaviors. There was a statistically-significant difference between alcohol consumption frequency and increased alcohol-related

¹ The alcohol-related behavior scores were not normally distributed for individual sports with a skewness of 4.48 ($SE = 0.41$) and kurtosis of 17.83 ($SE = 0.81$) and for team sports with a skewness of 4.48 ($SE = 0.33$) and kurtosis of 23.83 ($SE = 0.65$). Therefore an inverse transformation was applied and the *t*-test was conducted. The results of the analysis using the transformed data did not have a significant difference for the analysis run with the untransformed data. The results reported are those of the untransformed data to remain consistent with the of the analyses throughout the study.

Table 3

Alcohol Consumption Patterns by Sport Type

ACP	Sport Type	
	Individual	Team
Reported Quantity		
No drinks	54.2%	55.3%
1-6 drinks	37.3%	36%
7 or more	8.4%	8.8%
Reported Frequency		
Never	50%	51.8%
Once a month or less	43.9%	41.2%
More often than once a month	6.1%	7%
Lifetime Consumption		
Abstainer	40%	43.8%
Past Consumer	13.3%	8.9%
Current Consumer	46.7%	47.3%

Note. ACP = Alcohol Consumption Pattern. Individual sports ($n = 83$) and team sports ($n = 114$). Reported quantity and frequency measured over the "past month".

behavior scores, $F(2, 90) = 4.37, p < .05$. Post hoc Sidak comparisons showed significant differences between athletes who consumed alcohol more often than once a month and the other two levels, p 's $< .05$: "never" ($M = 1.05, SD = 0.09$); "once a month or less" ($M = 1.30, SD = 0.7$); "more often than once a month" ($M = 1.80, SD = 0.51$). These post hoc analyses indicated that personal alcohol consumption is a better predictor of alcohol-related behaviors than sport type.

Hypothesis 5

Hypothesis 5 was designed to determine whether the predictive strength of

perceived norms on alcohol consumption would be stronger for team athletes than individual athletes. Three two-way ANOVAs were conducted to test this hypothesis and identify an interaction, if any, between sport type and perceived norms in predicting alcohol consumption patterns.

The first analysis was conducted to identify if an interaction existed between sport type (Team/Individual) and perceived descriptive frequency norm (“never,” “once a month or less,” “more often than once a month”) of team consumption for the dependent variable, reported frequency of alcohol consumption by the athletes. The ANOVA was a 2x3 design (Sport Type x Perceived Frequency). A simple main effects test was conducted for both independent variables. There was not a statistically-significant difference between sport type for frequency of alcohol consumption, $F(1, 179) = .01, ns$. There was a statistically-significant simple main effect for perceived frequency, $F(2, 182) = 16.45, p < .005$; replicating the results from the first hypothesis (see Table 4). There was not a statistically significant interaction, $F(2, 179) = .73, ns$.

The second analysis was conducted to determine if there was an interaction between sport type (Team/Individual) and perceived descriptive consumption quantity (“no drinks,” 1-6 drinks, 7 or more drinks) in one sitting, on the reported quantity of alcohol consumed by the athletes. A simple main effects test was conducted for both independent variables. There was not a statistically-significant difference between sport type for quantity of alcohol consumed, $F(1, 95) = .28, ns$. There was a statistically significant simple main effect for perceived quantity, $F(2, 178) = 16.69, p < .005$ (see Table 5), replicating the results from the first hypothesis. There was not a statistically

Table 4

*Main Effects of Perceived Descriptive Norms on ACPs :
Frequency of Alcohol Consumption*

Perceived Frequency	<i>M</i>	<i>SD</i>
Never	1.24	0.43
Once a month or less	1.64	0.59
More often than once a month	1.83	0.68

Note. ACP = Alcohol Consumption Pattern. All means are significantly different at the $p < .05$ level.

significant interaction, $F(2, 95) = .17, ns$. The simple main effects from the previous two ANOVAs reflect the results found for Hypothesis 1: perceived descriptive norms are correlated with reported alcohol consumption patterns.

The third analysis was conducted to determine if there was an interaction between sport type and perceived acceptance (injunctive norm) for lifetime alcohol consumption. The ANOVA was a 2x4 design (Sport Type x Perceived Acceptance). A simple main effects test was conducted for both the independent variables. There was not a statistically-significant difference between sport type and lifetime consumption, $F(1, 166) = 3.49, ns$. There was a statistically-significant simple main effect for perceived acceptance, $F(3, 170) = 23.26, p < .001$. Post hoc Sidak comparisons showed significant differences between disapproval and the three other levels, $p < .05$: “my teammates think of my drinking, if I were to drink, they: “are against it” ($M = 1.35, SD = 0.65$); “are not quite happy with it” ($M = 2.45, SD = 0.87$); “approve with reservations” ($M = 2.36, SD = 0.89$); “completely approve” ($M = 2.54, SD = 0.79$). The athletes were more likely to

Table 5

*Main Effects of Perceived Descriptive Norms on ACPs :
Quantity of Alcohol Consumption*

Perceived Quantity	<i>M</i>	<i>SD</i>
No drinks	0.7	1.7
1-6 drinks	1.51	2.39
7 or more	3.5	3.22

Note. ACP = Alcohol Consumption Pattern. All means are significantly different at the $p < .05$ level.

abstain from alcohol consumption if they perceived their teammates as not condoning alcohol consumption. There was not a statistically significant interaction between the two independent variables, $F(3, 166) = .42, ns$. The simple main effects finding from the ANOVA supported the literature, in that injunctive norms were correlated with reported alcohol consumption.

Discussion

One of the purposes of this investigation was to identify whether differences existed between participants' sport types (Team vs. Individual) in perceived norms related to alcohol consumption patterns and alcohol-related behaviors. Another purpose was to determine whether sport type would moderate the predictive strength of perceived norms on alcohol consumption patterns among participants. The results from Hypothesis 1 support prior research, demonstrating that perceived norms are associated with alcohol consumption patterns. As athletes reported perceiving their teammates as consuming more alcohol more frequently, their own reported consumption and frequency rates also

increased. A portion of Hypothesis 2 was supported, as well. Team athletes perceived greater acceptance among their peers (injunctive norm) of alcohol consumption than individual athletes perceived. The results from this portion of the study add more levels of information to the existing literature, such as Mays et al. (2010b), in which adolescents who participated in sports with both team- and individual-level competition had higher perceived descriptive norms relative to athletes who participated in sports offering only individual-level competition.

Hypotheses 3 and 4 were not supported, as no difference was found between sport type and alcohol consumption patterns or alcohol-related behaviors, in contrast to the findings of T. Wichstrøm and L. Wichstrøm (2009), in which team athletes reported greater tendencies toward consuming alcohol to intoxication than other athletes. In addition, Hypothesis 5 could not be supported, as no moderating effect of sport type on perceived norms for alcohol consumption was identified, although a difference was observed between sport type and perceived injunctive norms. Nevertheless, our findings support those of Davies and Foxall (2011), Lisha and Sussman (2010), and Mays et al., (2010), that increased norms are associated with increased alcohol consumption patterns. The results from additional analyses stemming from Hypothesis 4 show a correlation between alcohol consumption patterns and alcohol-related behaviors, indicating that drinking more, more often, *may* result in engaging in more behaviors leading to, and stemming from, drinking (and/or vice-versa). This finding also contributes to the existing literature.

This study possesses many strengths. By measuring both descriptive and injunctive norms, this study was able to confirm the distinct effects between the nuances in perceived norms. Additionally, this study clearly defined the construct “athlete.” Thus, the results from other studies with similar inclusion criteria can now be aggregated, with the assurance that the same population is being measured and compared. Further, the majority of research on athletes and alcohol consumption is conducted with college athletes. While such a sample may be convenient, generalizing from studies conducted with college athletes in order to develop or enhance alcohol prevention programs for adolescents is not ideal. This study’s participants were adolescents, making the results more generalizable to that target population than most studies we rely on today.

One limitation of this study is the sample size. The strict inclusion criteria whittled down the original sample size from 364 to 197 athletes. As the inclusion criteria for certain hypotheses removed even more participants (such as those involving current alcohol consumers), their individual sample sizes may not have been large enough to detect significant differences. With a larger sample size, it might be possible to identify a difference between sport type and consumption patterns, as observed by T. Wichstrøm and L. Wichstrøm (2009). This project is a part of a larger ongoing study. Over time, the sample size will increase, and analyses may be conducted which aim identify those differences.

While collecting data, issues regarding the survey packet emerged. The length of the survey experience was tiring, as noted by the participants via spontaneous write-in

notes on the packet. In order to reduce the length of the survey, the Quantity/Frequency subscale from the Modified Student Alcohol Questionnaire might be removed, as the Weekly Frequency scale is not as appropriate for high school athletes as the Yearly Frequency scale on the Modified Cahalan's Drinking Questionnaire-Perceived Norms survey. When used in conjunction, the quantity and frequency scales of the two surveys become redundant.

In addition, although utilizing adolescents as participants should lead to more representative findings, some factors associated with adolescent development lead to less reliable data. About one in 30 adolescents did not fill out the survey honestly and/or completely. This was apparent when all responses to a given survey instrument were the same (example: when all items were responded to by circling the number "3"), and when entire pages were left without responses. Furthermore, the survey was conducted in a group setting, raising the possibility that adolescent participants may have been influenced by the environment (i.e., being surrounded by their teammates, as opposed to being secluded while completing their instruments). Future researchers may be able to address these problems by providing the surveys online. Under such conditions, participants might be able to respond to items in seclusion, free of external pressures which might be associated with completing the survey while surrounded by their teammates. In addition, an online survey would allow students to simply refrain from submitting the survey, if they did not wish to complete it.

The results of this study indicate that alcohol prevention programs targeted toward adolescents should continue to address issues related to perceived norms. The

study confirmed that perceived norms are clearly correlated with alcohol consumption, for athletes of both (studied) types (Team/Individual). Thus, it can be deduced that if perceived norms are reduced, alcohol consumption patterns will be reduced. Likewise, if alcohol consumption patterns are reduced, alcohol-related behaviors will be reduced. Ultimately, lowering both alcohol consumption and alcohol-related behaviors will reduce the costs and consequences associated with underage drinking.

In this study I did find some differences between athletes primarily engaged in team sports and those primarily engaged in individual sports, related to perceived norms and alcohol consumption patterns. Further research into these differences will likely yield helpful information. The larger, ongoing study of which this project is a part will analyze personality traits, employing the Big Five Inventory and the Sociotropy-Autonomy Scale. This may lead to further disparities between sport types.

As mentioned above, due to the ongoing study the sample size will continue to increase. This will enhance researchers' opportunities to identify sport-specific characteristics, if any, associated with alcohol consumption patterns and alcohol-related behaviors, and explore how they may moderate the effects of perceived norms. With an increase in knowledge concerning the factors associated with adolescent alcohol consumption and alcohol-related behaviors, more efficient prevention programs may be developed.

In future, researchers may profitably decide to explore self-monitoring as a moderating variable for the effect of perceived norms on alcohol consumption patterns and alcohol-related behaviors. High self-monitors are described by Snyder (1987) as

asking, “Who does this situation want me to be, and how can I be that person?” while low self-monitors ask, “Who am I, and how can I be me in this situation?” As high self-monitors strive to behave in a socially acceptable or appropriate manner, they tend to be more aware and observe their social surroundings more thoroughly than low self-monitors. Therefore, it may be interesting to identify (1) differences, if any, in accuracy of perceived norms and reported consumption among high and low self-monitors, and (2) whether perceived norms exert more influence on high self-monitors than they exert on low self-monitors.

Future research should continue to investigate alcohol consumption patterns and alcohol-related behaviors within an adolescent athlete population. Contrary to popular belief in much of academia, access to a minor population is relatively easy. More to the point: the potential benefits of such research are deeply meaningful, as curbing rates of adolescent alcohol consumption will reduce the profound human and societal costs associated with underage drinking.

References

- Bendor, J., Swistak, P. (2001). The evolution of norms. *American Journal of Sociology*, 106, 1493-1545.
- Borsari, B., & Carey, K. B. (2003). Descriptive and injunctive norms in college drinking: A meta-analytic integration. *Journal of Studies on Alcohol*, 64, 331-341.
- Bu, E., Watten, R. G., Foxcroft, D. R., Ingebrigtsen, J. E., & Relling, G. (2002). Teenage alcohol and intoxication debut: The impact of family socialization factors, living area and participation in organized sports. *Alcohol and Alcoholism*, 37(1), 74-80. doi:10.1093/alcalc/37.1.74
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal Of Personality and Social Psychology*, 58, 1015-1026. doi:10.1037/0022-3514.58.6.1015
- Centers for Disease Control and Prevention. (2004). Methodology of the youth risk behavior surveillance system. *Morbidity and Mortality Weekly Report*, 53(12).
- Cieslak, T. J. (2005). Describing and measuring the athletic identity construct: Scale development and validation. *Dissertation Abstracts International*, 65, 10b.
- Colman, M., & Carron, A. (2001). The nature of norms in individual sport teams. *Small Group Research*, 32, 206-222. doi: 10.1177/104649640103200204
- Davies, F. M., & Foxall, G. R. (2011). Involvement in sport and intention to consume alcohol: An exploratory study of UK adolescents. *Journal of Applied Social Psychology*, 41, 2284-2311. doi:10.1111/j.1559-1816.2011.00806.x
- Denham, B. E. (2011). Alcohol and marijuana use among American high school seniors: Empirical associations with competitive sports participation. *Sociology of Sport Journal*, 28, 362-379.
- Engs, R. C. (1977). Drinking patterns and drinking problems of college students. *Journal of Studies On Alcohol*, 38, 2144-2156.
- Engs, R. C., & Hanson, D. J. (1994). The Student Alcohol Questionnaire: An updated reliability of the Drinking Patterns, Problems, Knowledge, and Attitude subscales. *Psychological Reports*, 74, 12-14. doi:10.2466/pr0.1994.74.1.12

- Evaluating Programs to Reduce Underage Drinking. (2007). *Center for the Study of Young Drivers*. Retrieved from http://www.csyd.unc.edu/projects/underage_drinking.html
- Festinger, L. (1964). *Conflict, decision, and dissonance*. Oxford England: Stanford University Press.
- Festinger, L., & Carlsmith, J.M., (1959). Cognitive consequences of forced compliance. *The Journal of Abnormal and Social Psychology*, 58, 203-210.
- Foster, S., Vaughan, R., Foster, W., & Califano, J. (2003). Alcohol consumption and expenditures for underage drinking and adult excessive drinking. *Journal of the American Medical Association*, 289, 989-995. doi:10.1001/jama.289.8.989
- Grossbard, J. R., Geisner, I. M., Mastroleo, N. R., Kilmer, J. R., Turrisi, R., & Larimer, M. E. (2009). Athletic identity, descriptive norms, and drinking among athletes transitioning to college. *Addictive Behaviors*, 34, 352-359. doi:10.1016/j.addbeh.2008.11.011
- Homans, G. C. (1951). *The human group*. Piscataway, NJ US: Transaction Publishers.
- Karimi, M., & Besharat, M. (2010). Comparison of hardiness, sociotropy and autonomy in team and individual sports and investigating the impact of these personality characteristics on sport achievement. *Procedia Social and Behavioral Sciences* 5, 855–858. doi:10.1016/j.sbspro.2010.07.198
- Lewis, M. A., Litt, D. M., Blayney, J. A., Lostutter, T. W., Granato, H., Kilmer, J. R., & Lee, C. M. (2011). They drink how much and where? Normative perceptions by drinking contexts and their association to college students' alcohol consumption. *Journal of Studies on Alcohol and Drugs*, 72, 844-853.
- Lisha, N. E., & Sussman, S. (2010). Relationship of high school and college sports participation with alcohol, tobacco, and illicit drug use: A review. *Addictive Behaviors*, 35, 399-407. doi:10.1016/j.addbeh.2009.12.032
- Mäkelä, K., (1997). Drinking, the majority fallacy, cognitive dissonance and social pressure. *Addiction*, 92, 729-736.
- Mays, D., DePadilla, L., Thompson, N., Kushner, H., & Windle, M. (2010a). Sports participation and problem alcohol use: A multi-wave national sample of adolescents. *American Journal of Preventive Medicine*, 38(5), 491–498. doi: 10.1016/j.amepre.2010.01.023

- Mays, D., Thompson, N., Kushner, H., Mays, D.F., Farmer, D., & Windle, M. (2010b). Sports-specific factors, perceived peer drinking, and alcohol related behaviors among adolescents participating in school-based sports in Southwest Georgia. *Addictive Behaviors*, *35*, 235–241. doi:10.1016/j.addbeh.2009.10.018
- Prapavessis, H., & Carron, A. (1997). Sacrifice, cohesion, and conformity to norms in sport teams. *Group Dynamics: Theory, Research, and Practice*, *1*, 231-240. doi:10.1037/1089-2699.1.3.231
- Prince, M. A., & Carey, K. B. (2010). The malleability of injunctive norms among college students. *Addictive Behaviors*, *35*, 940-947. doi:10.1016/j.addbeh.2010.06.006
- Rimal, R. N., & Real, K. (2003). Understanding the influence of perceived norms on behaviors. *Communication Theory*, *13*, 184-203. doi:10.1093/ct/13.2.184
- Segrist, D., Corcoran, K., Jordan-Fleming, M., & Rose, P. (2007). Yeah, I drink ...but not as much as other guys: The majority fallacy among male adolescents. *North American Journal of Psychology*, *9*, 307-320.
- Snyder, M. (1987). Two characteristic interpersonal orientations. *Public appearances, private realities: The psychology of self-monitoring* (33-46). New York, NY: W. H. Freeman Company.
- Strasburger, V. (2010). Children, adolescents, substance abuse, and the media. American Academy of Pediatrics Policy Statement. *Pediatrics*, *126*, 791-799. doi:10.1542/peds.2010-1635
- Swahn, M., Bossarte, R., & Sullivent, E. (2008). Age of alcohol use initiation, suicidal behavior, and peer and dating violence victimization and perpetration among high-risk, seventh-grade adolescents. *Pediatrics*, *121*, 297 -305. doi: 10.1542/peds.2006-2348
- Wichstrøm, T., & Wichstrøm, L. (2009). Does sports participation during adolescence prevent later alcohol, tobacco and cannabis use? *Addiction*, *104*, 138-149. doi:10.1111/j.1360-0443.2008.02422.x
- Zamboanga, B. L., Ham, L. S., Olthuis, J. V., Martens, M. P., Grossbard, J. R., & Van Tyne, K. (2012). Alcohol expectancies and risky drinking behaviors among high school athletes: 'I'd rather keep my head in the game'. *Prevention Science*, *13*, 140-149. doi:10.1007/s11121-011-0252-3

Footnotes

¹ The alcohol-related behavior scores were not normally distributed for individual sports with a skewness of 4.48 ($SE = 0.41$) and kurtosis of 17.83 ($SE = 0.81$) and for team sports with a skewness of 4.48 ($SE = 0.33$) and kurtosis of 23.83 ($SE = 0.65$). Therefore an inverse transformation was applied and the t-test was conducted. The results of the analysis using the transformed data did not have a significant difference for the analysis run with the untransformed data. The results reported are those of the untransformed data to remain consistent with the of the analyses throughout the study.

Appendix A

Athletic Identification Measurement Scale-Plus

Role Identity Ranking

Place a “1” next to the most important identity to you, followed by “2”, “3”, “4”, “5” and a “6” next to the least important identity to you.

_____ Family

_____ Friend

_____ Athletic

_____ Academic

_____ Religious

_____ Romantic

Role Identity Rating

Think about how important each identity is to you on a day-to-day basis, then use the scale to rate the importance of each identity to you.

Least Important		Moderately Important						Most Important		
I	I	I	I	I	I	I	I	I	I	
0	10	20	30	40	50	60	70	80	90	100

The importance of family to me (from 0 to 100) is: _____

The importance of friendships to me (from 0 to 100) is: _____

The importance of athletics to me (from 0 to 100) is: _____

The importance of academics to me (from 0 to 100) is: _____

The importance of religion to me (from 0 to 100) is: _____

The importance of romance to me (from 0 to 100) is: _____

Athletic Identity

Please mark an “x” in the space that best reflects the extent to which you agree or disagree with each statement in relation to your own sports participation.

1. I consider myself an athlete.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

2. I have many goals related to sport.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

3. Most of my friends are athletes.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

4. Sport is the most important part of my life.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

5. I spend more time thinking about sport than anything else.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

6. I need to participate in sport to feel good about myself.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

7. Other people see me mainly as an athlete.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

8. I feel bad about myself when I do poorly in sport.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

9. Sport is the only important thing in my life.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

10. I would be very depressed if I were injured and could not compete in sport.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

11. When I am participating in sport, I am happy.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

12. My family expects me to participate in sport.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

13. I make many sacrifices to participate in sport.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

14. I only enjoy sport when I'm winning.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

15. I participate in sport because I want to make a career of it.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

16. It is important that other people know about my sport involvement.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

17. I get a sense of satisfaction when participating in sport.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

18. I continuously think about how I can become a better athlete.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

19. My participation in sport is a very positive part of my life.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

20. I typically organize my day so I can participate in sports.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

21. Without sport, I would not be a complete person.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

22. I participate in sport for the recognition/fame.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

23. My sports involvement has influenced my day-to-day decision-making.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

24. Being an athlete is an important part of who I am.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

25. I feel good about myself when I play well in practice or competition.

Strongly Agree : _____ : _____ : _____ : _____ : _____ : _____ : _____ : Strongly Disagree

Appendix B

Sports Participation

Please list all the sports you currently participate in or have participated in within the last 3 months. Next list the level at which you compete. The events in which you compete(d) for each sport if applicable go in the middle column. Then list the number of days per week you train in that sport. Lastly please list the average practice length in hours. *The first line provides an example.*

Sport	Competition Level	Specific Events	Number of Days/Week	Duration of Practice (hrs)
<i>Swimming</i>	<i>Varsity or Level 8</i>	<i>200 fly, 400 free style</i>	<i>4</i>	<i>2</i>

If you need more room continue your answers on the back.

Appendix C

The Modified Student Alcohol Questionnaire (MSAQ)

We are conducting a study of high school students' behavior and knowledge concerning alcohol and hope that you will volunteer to complete the questionnaire. DO NOT write your name on this questionnaire as we wish to retain your anonymity.

CLEARLY CIRCLE THE NUMBER WHICH APPLIES TO YOU

1. **Your sex:** 1. MALE 2. FEMALE
2. **Your age:** (write in)
3. **Year in school:** 1. FRESHMAN 2. SOPHOMORE 3. JUNIOR 4. SENIOR
5. OTHER (write in)
4. **Grade Point Average** (4.0= "A", 3.0= "B", etc.):
 1. 4.0
 2. 3.5
 3. 3.0
 4. 2.5
 5. 2.0
 6. Below 2.0
5. **Race:** 1. WHITE or CAUCASION 2. BLACK or AFRICAN-AMERICAN 3. SPANISH AMERICAN 4. ASAIN AMERICAN 5. NATIVE AMERICAN 6. OTHER (write in)
6. In what **Religion** were you raised?: 1. ROMAN CATHOLIC 2. JEWISH 3. PROTESTANT (religion allows drinking of alcoholic beverages) 4. PROTESTANT (religion does not allow drinking of alcoholic beverages) 5. NONE 6. OTHER (write in)
7. How **important is religion** to you? 1. VERY IMPORTANT 2. MODERATELY IMPORTANT 3. MILDLY IMPORTANT 4. NOT IMPORTANT

WE WOULD LIKE TO ASK ABOUT YOUR DRINKING PATTERNS
CLEARLY CIRCLE THE NUMBER WHICH APPLIES TO YOU

8. Let's take **beer** first. How often, on average, do you usually have beer?
 1. Every day
 2. At least once a week
 3. At least once a month (but less than once a week)

4. More than once a year (but less than once a month)
 5. Once a year or less
 6. Never
9. When you drink **beer**, how much, on the average, do you usually drink at any one time?
1. More than one six pack (6 or more cans or tavern glasses)
 2. 5 or 6 cans of beer or tavern glasses
 3. 3 or 4 cans of beer or tavern glasses
 4. 1 or 2 cans of beer or tavern glasses
 5. Less than 1 can of beer or tavern glass
 6. N/A
10. Now let's take a look at table **wine**. How often do you usually have beer?
1. Every day
 2. At least once a week
 3. At least once a month (but less than once a week)
 4. More than once a year (but less than once a month)
 5. Once a year or less
 6. Never
11. When you drink **wine**, how much, on the average, do you usually drink at any one time?
1. Over 6 wine glasses
 2. 5 or 6 wine glasses
 3. 3 or 4 wine glasses
 4. 1 or 2 wine glasses
 5. Less than 1 glass of wine
 6. N/A
12. Next we would like to ask you about **liquors and spirits** (whiskey, gin, vodka, mixed drinks, and act.). How often do you usually have a drink of liquor?
1. Every day
 2. At least once a week
 3. At least once a month (but less than once a week)
 4. More than once a year (but less than once a month)
 5. Once a year or less
 6. Never
13. When you drink **liquor**, how much, on the average, do you usually drink at any one time?
1. Over 6 drinks
 2. 5 or 6 drinks

3. 3 or 4 drinks
4. 1 or 2 drinks
5. Less than 1 drinks
6. N/A

The following are common results that other students have reported. **IF** you have never had a drink at all, go to question 36. **IF** you currently drink or have ever drunk in the past, put the number corresponding to the frequency of the occurrences on the line beside it.

1. at least once in the past 2 months and at least one additional time during the past year.
 2. at least once in the past 2 months but not during the rest of this past year.
 3. not during the past 2 months but at least once during the past year.
 4. has happened at least once in my life but not during the past year.
 5. has not happened to me.
14. Had a hang over _____
 15. Gotten nauseated and vomited from drinking _____
 16. Driven a car after having several drinks _____
 17. Driven a car when you knew you had too much to drink _____
 18. Driven a car while drinking _____
 19. Ridden in a car with a drunk driver _____
 20. Come to class after having several drinks _____
 21. Come to practice after having several drinks _____
 22. "Cut a class" after having several drinks _____
 23. Missed a practice after having several drinks _____
 24. Missed a class because of a hangover _____
 25. Missed a practice because of a hangover _____
 26. Arrested for DWI (Driving While Intoxicated) _____
 27. Been criticized by someone you were dating because of your drinking _____
 28. Had trouble with the law because of your drinking _____
 29. Kicked off a team because of drinking _____
 30. Got a lower grade because of drinking _____
 31. Got in trouble with a coach because of behavior resulting from drinking too much

 32. Gotten into a fight after drinking _____
 33. Thought you might have a problem _____
 34. Damaged property, pulled a fire alarm, or other such behavior after drinking _____
 35. Participated in a drinking game _____

WE WOULD NOW LIKE TO ASK YOU FOR SOME INFORMATION ABOUT
ALCOHOL

These questions will either be TRUE or FALSE. **IF** you do not know the answer to the question, **DO NOT GUESS**.

If you think the answer is TRUE, write "1" for true

If you think the answer is FALSE, write "2" for false

If you do not know the answer, write "0" on the line

36. In America, drinking is usually considered an important socializing custom in business, for relaxation and for improving interpersonal relationships _____
37. Gulping alcoholic beverages is a commonly accepted drinking pattern in this country _____
38. Alcohol is usually classified as a stimulant _____
39. Alcohol is not a drug _____
40. Alcohol-impaired driving crashes account for nearly one-third (1/3) of traffic related deaths in America _____
41. Many people drink to escape problems, loneliness, and depression _____
42. A person can become an alcoholic just by drinking beer _____
43. Proof on a bottle of liquor represents half the percent of alcohol contained in the bottle _____
44. Many people drink for social acceptance, because of peer group pressures, and to gain adult status _____
45. The United States lacks a national consensus on what constitutes the responsible use of alcoholic beverages _____
46. There is usually more alcoholism in a society that accepts drunken behavior than in a society that frowns on drunkenness _____
47. Wines throughout history have been commonly drunk at religious ceremonies _____

Appendix D

Modified Form of Cahalan's Drinking Questionnaire and Perceived Norms

How often have you consumed alcohol in the past year (check one)?

- never a couple of times per month
 once or twice once per week
 three or four times more often than once per week
 every month or so

What is the HIGHEST number of drinks you have had at any one sitting in the past month (check one)? One drink means one beer, one mixed drink, one shot of liquor, or one glass of wine.

- 0 1 2 3 4 5 6 7 8 9 10
 11 more than 11 (write down how many)

What kind of alcohol did you drink? (check only one)

- Beer
 Mixed Drink
 Shots/Liquor
 Other (indicate the type of alcohol: _____)

Which of the following best describes the situation in which you drink alcohol? (check only one):

- Never drink
 With family on special occasions
 With teammates
 With friends
 Alone

How often have most other people your age and sex consumed alcohol in the past year (check one)?

- never a couple of times per month
 once or twice once per week
 three or four times more often than once per week
 every month or so

How often have most other people on your team consumed alcohol in the past year (check one)?

- never a couple of times per month
 once or twice once per week
 three or four times more often than once per week
 every month or so

What is the greatest number of drinks that most other people your age and sex have had at any one sitting in the past month (check one)? One drink means one beer, one mixed drink, one shot of liquor, or one glass of wine.

- 0 1 2 3 4 5 6 7 8 9 10
 11 more than 11 (write down how many)

What is the greatest number of drinks that most other people on your team have had at any one sitting in the past month (check one)? One drink means one beer, one mixed drink, one shot of liquor, or one glass of wine.

- 0 1 2 3 4 5 6 7 8 9 10
 11 more than 11 (write down how many)

Which of the following best describes the situation in which your peers drink alcohol? (check only one):

- Never drink

- With family on special occasions
- With teammates
- With friends
- Alone

Most people my age who drink, do so because... (check all that apply)

- They want to have a good time at a party
- They are sad or depressed and want to feel better about themselves
- They wish to rebel and defy their parents, coaches, and other authority figures
- They wish to fit in or be accepted by their friends and peers
- They are bored

Moderate use of alcohol is part of everyday life (check only one):

- Strongly agree
- Partly agree
- Undecided
- Partly disagree
- Strongly disagree

Do your parents permit you to drink alcohol in your home?

- Never
- Under parental supervision
- On special occasions only
- Any time I want to

What do your parents think of your drinking/if you were to drink alcohol? (check only one)

- They approve completely
- They approve with reservations

_____ They are not quite happy with it _____ They are against it

What do your teammates think of your drinking/if you were to drink alcohol? (check only one)

_____ They approve completely _____ They approve with reservations

_____ They are not quite happy with it _____ They are against it