

# Sports Participation and Use of Alcohol and Cigarettes among the Undergraduates from the University of Mauritius

**Komalsingh Rambaree \***

*Faculty of Social Studies & Humanities,  
University of Mauritius*

Email: [k.rambaree@uom.ac.mu](mailto:k.rambaree@uom.ac.mu)

**Nashad Auchoybur**

*Faculty of Social Studies & Humanities,  
University of Mauritius*

Email: [n.auchoybur@uom.ac.mu](mailto:n.auchoybur@uom.ac.mu)

*Paper Accepted on 14 January 2009*

---

## **Abstract**

Empirical studies on the relationship between sports participation and the use of alcohol and cigarettes among students can be highly susceptible to data sets and methodologies applied. In this context, this paper reinforces existing literatures by trying to provide additional empirical evidence on such relationship; but this time, from a non-western socio-cultural context. A random stratified sample representing 250 from about 5000 of the University of Mauritius undergraduate population is used. Chi –square analysis is utilized to examine the significance of differences in cigarettes and alcohol consumption between sports participants and non-sports participants. Analysis of the findings reveals that, within the Mauritian context, sports participation is not necessarily link to low level of alcohol and cigarettes consumption. The findings of this study are contradictory to the findings of some similar studies carried out in the west, such as in Iceland and Spain. Thus, this study supports the point that specification bias may yield diametrically opposite result. In the sense that there are important explanatory variables, which tend to influence such relationships; and one of those variables are the socio-cultural context. Hence, research from a variety of different socio-cultural context should be promoted, in order to have a better understanding of relationship between variables.

**Keywords:** Sports participation, alcohol and cigarettes.

*\*For correspondences and reprints*

## **INTRODUCTION**

It is a common view among many people that sports participation promotes healthy lifestyles (Pastor et al, 2003). Health professionals and promoters usually advise young people to practice sports. In fact, sports promotion has generally been advocated as a strategy of keeping young people away from alcohol and cigarettes. For instance, the current Minister of Education and Human Resources in Mauritius stated the following: “Physical Education and sports, as you are aware, play a vital role in the education system ...The practice of Physical Education and Sport activities will keep individuals ... away from the ills of society such as drugs, alcohol, cigarette...” (Government of Mauritius, 2007: 1). This study therefore reinforces existing literatures by trying to provide additional empirical evidence on such relationship; but this time from a non-western socio-cultural context, using the undergraduates from the University of Mauritius as a study group.

## **BACKGROUND/LITERATURE**

Mauritius is a small island with a land surface area of 1865 square kilometres and a population that is nearing to 1.3 million in number. Alcoholism is a serious problem in Mauritius, which can be seen as linked to issues such as poverty, social exclusion and lack of adaptation to the social environment (UNDP, 2000). A survey results among Mauritians indicate that 58% of males and 28% of females consume alcohol with 15.0% of male drinkers taking alcohol everyday (Ministry of Health & Quality of Life, 2006). In Mauritius, overall 35.9% of males and 5.1% of females (aged 20-74 years) were found to be smokers in 2004 and the percentages of smokers among males were higher in the younger age groups (below 30 years old) (Ibid). Despite a decreasing prevalence of cigarette smoking in Mauritius (Cox et al, 2000), in 2002 there were about 41% regular and 13% of heavy smokers among the youth population (12-24 years old) and the majority (63%) of the young heavy smokers were students in higher classes (NATRESA, 2002).

From a broader international context, the annual per capita recorded alcohol consumption of Mauritius is 3.0 litres of pure alcohol among adults ( $\geq 15$  years) (WHO, 2003). Compared to some European countries like Austria (11.1 litres), France (11.4 litres), Finland (9.3 litres) and UK (11.8 litres), Mauritians' alcohol consumption could be said to be relatively low. However, compared to some neighbouring African countries such as Kenya (1.5 litres), Madagascar (1.6 litres), Mozambique (0.5 litres), the Mauritian figure could be considered on the high side. The WHO (2003) international comparison of the prevalence of current tobacco use among adults ( $\geq 15$  years), for Mauritius is 18.5% as compared to Austria - 43.3%, France - 31.7%, Finland - 28.1% and UK - 35.7%. Comparing to some neighbouring African countries, such as Kenya -14.7%, Mozambique - 12.8% and South Africa - 18.4%, the Mauritian figure is again higher.

The University of Mauritius is the biggest university of the country and has a current student population of about 7500. Currently, there are about 5000 undergraduates registered at the University of Mauritius. Almost all of the undergraduates at the University of Mauritius are from Mauritius. Moreover, it is

also a common knowledge that the vast majority of the students enrolled at the University of Mauritius stay with their parents during study period. The living arrangements is as such, not only because the country is relatively small and free public transport is provided to all students; but also because, it is the cultural norm in Mauritius that young people stay with their parents (Aumeerally, 2005).

Formal sport activities and physical education started quite recently at the University of Mauritius. In fact, it was in 1990 that the University of Mauritius was urged by the Ministry of Education to recruit a physical education/sport officer in order to encourage and promote the practise of sports and physical education among its student/staff population (UoM, 2005). As from 2005, the University of Mauritius has its own gymnasium and students are offered a wide range of sport activities (Ibid). Just like elsewhere, at the University of Mauritius, there is a common belief prevailing among many people that the promotion of sports is a strategy to counter unhealthy behaviours such as cigarette smoking and the consumption of alcohol. For instance, one of the sport groups at the University of Mauritius puts the following on their website: "... promote the spirit of sports ...as a means of preventing young people from falling into drugs, alcohol and cigarettes" (UoM, 2000: 1)

Particularly, the relationship between sports participation and cigarettes and alcohol consumption, has been methodically studied for more than a decade (See Lamb et al., 1990; Thorlindsson et al, 1990; Pastor et al., 2003). However, major disagreements and contradictory findings still exist within this particular research topic. Indeed, some studies have found that sports participation is negatively related to smoking and the use of alcohol (Pastor et al., 2003; Pate et al, 2000). For instance, Pate et al. (2000) report that youth who participate in organised sports at school or in their communities are less likely to engage in risky behaviors, such as cigarette smoking and drug use, than non-sports participants. In relation to cigarettes smoking behaviour, some studies found that sports participation is associated with lower use of cigarettes (Escobedo et al, 1993; Rainey et al., 1996; Page et al., 1998; Baumert et al., 1998). In relation to use of alcohol, Lorente et al. (2003) conclude that compared to their peers in the general population, sport students drank less frequently, but reported more episodes of intoxication.

However, some researchers have found that certain groups within the sports participants are more vulnerable to be involved in 'high risk' activities as compared to their non-sports participant counterparts (Smith & Caldwell, 1994; and Aaron et al., 1995; Forman et al., 1995; Sun et al., 2000; Faurie et al., 2004). Particularly, some studies have noted that certain types of sports and athletic involvement do not protect young people from substance misuse (Eccles et al., 2003, Moore & Werch, 2005; Hoffmann, 2006; Martens et al, 2006, Martha et al, 2008). Moreover, in several studies sports participation has generally been associated with greater use of alcohol (Rainey et al., 1996; Garry and Morrissey, 2000; Nelson & Wechsler, 2001). The study of Martha et al. (2008) on risk of alcohol abuse report that practising an individual sport were a protective factor among females, while team and competitive sports represented risk factors.

The strength of the reported relationship between sports participation and alcohol consumption varies considerably both within and across studies (Thorlindsson et al, 1990). These variations and contradictory findings could possibly be explained by (i) the different definitions and measures of sporting activity that have been used (Peretti-Watel et al, 2004; Peretti-Watel et al., 2002; Thorlindsson, 1989; Claeys, 1985) and (ii) the difference in the socio-cultural contexts within which the studies have been carried out. In particular, cultural context is a key element within behavioural studies (Bukowski et al, 2006). Researchers are therefore urged to provide more scientific evidence from a variety of different culturally specific contexts (Poltavski & Ferraro, 2003). Thus, it seems that further exploration on the relationship between sports participation and consumption of cigarettes and alcohol is still required, so as to have a broader and better understanding of the phenomena. The case of Mauritius provides an interesting socio-cultural context for the study. Firstly, Mauritius is a small developing state. Most such studies have been carried out in relatively big and developed countries. Secondly, Mauritius is socio-culturally very different from the Western context. Mauritius has different backgrounds related to relationship between friends and families.

Scientific studies on health and sports from a developing country context are still rare within social science publications. In an increasingly globalised era, most research activities have continued to be conducted in economically developed countries (Parker, 2004). As a result, the complexities of issues related to several phenomena in highly diverse societies and cultures undergoing rapid social and economic change have remained largely unexplored (Ibid). Therefore, one of the intended contributions of this study is to bring scientific evidence from a developing country context, like Mauritius.

The link between sports participation and the consumption of cigarettes and alcohol still need further exploration. In particular, empirical studies on the relationship between sports participation and the use of alcohol and cigarettes among students can be highly susceptible to data sets and methodologies applied. Moreover, there is still need for some further studies on sports participation and substance use/abuse using comparative groups (Lindsey & Chen, 2004; Moore et al, 2005). This study is therefore bringing further evidence by looking at the relationship between sports participation and substance use through a comparative manner between sports participants and non-sports participants. Furthermore, it is also a well-known fact that relationship between variables is dynamic and therefore might vary considerably over a certain period of time. In this sense, regular up-to-dating of empirical evidence on the relationship between variables becomes necessary.

Having provided the background and rationales of the study, this paper considers the methodological issues, next.

## **METHOD**

### **Sample and procedure**

For the purpose of this research, the register of University of Mauritius provided a detailed sampling frame of the 5000 students enrolled in the five faculties. A representative sample of size 250 was selected from the list using stratified random sampling. The stratification criteria were gender, year of study and faculty. All of the 250 questionnaires were returned. A high number of volunteers were recruited by research team for the fieldwork and its follow-up; hence a high level of response were achieved. There was negligible item non-response such as some students failing to indicate whether they reside in urban or rural areas.

### **Ethical Issues**

The main ethical codes and considerations for social research were meticulously followed in this study. For the data collection, students were given a consent form together with a brief on the aims, importance, and use of the data gathered from study. In particular, the students were informed about voluntary participation in the research, and they were carefully explained about their right to refuse participation at any time of the research. In addition, written permission was sought from the University of Mauritius ethical committee before undertaking the study. Moreover, the research participants were also explained about confidentiality and data protection. Steps were also taken to ensure for anonymity while carrying out the research. Collected data are securely kept, at the University of Mauritius.

### **Measures**

The questionnaire was based partly on the study conducted by Thorlindsson et al. (1990) and partly on the HBSC/WHO (2002) cross – national survey of Health Behaviour in School – children. Sports participation was measured by asking subjects whether they participated in sports at the University of Mauritius Gymnasium or at any other place outside the university. The frequency of participation in sports was measured in terms of the average number of hours spent per week over the past few months. The point scale ranging for frequency of sports participation was: 1 for '< 3hrs', 2 for '4hrs – 6hrs' and 3 for '7hrs or more'.

Smoking was measured on a six point scale ranging from 1 'never tried smoking' to 6 'smoke 5 or more cigarettes per day'. Alcohol consumption was measured on a five – point scale ranging from 1 'Never' to 5 'Every week' and 'been drunk two or three times'.

Chi –square analysis was utilized to examine the significance of differences between sports participants and non-participants at UoM. Odds ratio was used to find the likelihood of sports participation between groups, such as male/female and those living urban/rural. SPSS for MS Windows Release 13.0 programme was used for the analyses.

## RESULTS

There were 99 students who participated in sports representing 39.6% of the total sample. The students were aged between 18 and 23 years (average = 20.5, SD = 1.4). Almost 50% came from urban areas. Male student represented 43.6% of the total sample. Only four students (1.6%) were married. Table 1 shows some further demographic details of the respondents. As it can be found from Table 1, only 25.5% of females were participating in sports. In addition, 77% of those who do not participate in sports are from the rural areas. Male undergraduates from the University of Mauritius are four times more likely to participate in sports as compared to their female counterparts (odds ratio = 3.99 at 95% confidence level). Whereas, those undergraduates living in urban areas are almost 1.5 times more likely to participate in sports as compared to those living in the rural areas (odds ratio = 1.56 at 95% confidence level).

**Table 1: Demographics and Sports Participation**

Demographic Characteristics		Sports Participation		
		Yes Count (Row Percentage)	No Count (Row Percentage)	Total Count (Row Percentage)
<b>Sex</b>	Male	63 (57.8%)	46 (42.2%)	109 (100%)
	Female	36 (25.5%)	105 (74.5%)	141 (100%)
	Total	99 (39.6%)	151 (60.4%)	250 (100%)
<i>Odds ratio of a male participating in sports as compared to female among the University of Mauritius undergraduates = <b>3.99</b> (95% confidence level)</i>				
<b>Living *</b>	Urban	56 (45.9%)	66 (54.1%)	122 (100%)
	Rural	42 (35.3)	77 (64.7%)	119 (100%)
	Total	98 (40.7%)	143 (59.3)	241 (100%)
<i>Odds ratio of a respondent from urban participating in sports as compared to one living in the rural region = <b>1.56</b> (95% confidence level)</i>				

\* Some respondents did not indicate whether they reside in urban or rural areas

**Smoking**

The data for cigarette consumption by sports participants and non-sports participants is presented in Table 2. Students were asked about their current cigarette consumption. For the sports participants, only 44.4% never tried smoking compared to 64.2% for the non-participants. Also, among the participants a higher percentage (37.4%) had tried but quit smoking compared to 21.2% for the non-participants. Considering all categories of smokers however, there are more smokers (18.2%) among participants compared to non-participants (14.6%). The Chi-square analysis revealed a significant difference between the two groups ( $\chi^2 = 18.844$ ,  $df = 5$ ,  $p = 0.011$ ).

**Table 2: Smoking by Sports participation and Non- sports participation**

<i>Please indicate whether you smoke as follows:</i>						
Smoking status	UoM Sport Participants (N=99)		Non-UoM Sport Participants(N=151)		$\chi^2$	P
	N	%	No (N=151)	%		
Never tried	44	44.4	97	64.2	18.844	0.011*
Tried, but don't smoke	37	37.4	32	21.2		
Smoke, but not every week	3	3.0	9	6.0		
Smoke every week	3	3.0	3	2.0		
Smoke everyday 4 or less cigarettes	4	4.0	6	4.0		
Smoke everyday 5 or more cigarettes	8	8.1	4	2.6		
*p < 0.05 **p < 0.01						

For the level of sports participation, respondents were asked to indicate the average number of hours per week spent in sports over the past few months. Table 3 shows that there is some positive association between smoking and the number of hours spent doing sport activities, namely that those students that are more active in sports tend to smoke more ( $\chi^2 = 16.556$ ,  $df = 10$ ,  $p = 0.085$ ).

**Table 3: Association between Smoking and Hours Spent per Week in Sports**

Smoking status	Average Hours Participated in Sports per Week					
	< 3		4 - 6		7 or more	
	N	%	N	%	N	%
Never tried	26	41.3	15	60.0	3	27.3
Tried, but don't smoke	25	39.7	8	32.0	4	36.4
Smoke, but not every week	2	3.2	1	4.0		
Smoke every week	1	1.6			2	18.2
Smoke everyday 4 or less cigarettes	3	4.8	1	4.0		
Smoke everyday 5 or more cigarettes	6	9.5			2	18.2
					$\chi^2$	P
					16.556	0.085
*p< 0.05						
**p< 0.01						

**Alcohol Use**

Students were asked about their alcohol use. For the sports participants, 48.5% have never taken any alcohol compared to 74.2% for the non-participants. Also, more than twice of the participants (51.5%) take alcohol once every month or more frequently compared to the non-participants (25.8%). In addition, 13.3% of the sports participants and 9% of the non-sports participants consume alcohol every week. These differences are significant ( $\chi^2 = 20.143$ ,  $df = 4$ ,  $p = 0.000$ ). The details are given in Table 4.



**Table 4: Alcohol Consumption by Sports Participation and Non- sports Participation**

<i>Please indicate whether you drink alcoholic beverages as follows:</i>						
	UoM Sport Participants (N=99)		Non-UoM Sport Participants(N=151)			
Alcohol Use	N	%	N	%	$\chi^2$	P
					20.143	0.000**
Never	48	48.5	112	74.2		
Once a month	34	34.3	24	15.9		
Every two weeks	4	4.0	6	4.0		
Every week but never been drunk	8	8.1	3	2.0		
Every week and have been drunk	5	5.1	6	4.0		

\*p< 0.05  
\*\*p< 0.01

The association between alcohol use and sports participation appears stronger; greater participation in sports is linked to more alcohol consumption. This association is statistically significant ( $\chi^2 = 26.085$ ,  $df = 8$ ,  $p = 0.001$ ) as shown in Table 5.

**Table 5: Association between Smoking and Hours Spent per Week in Sports**

Smoking status	Hours Participated in Sports per Week					
	< 3		4 - 6		7 or more	
	N	%	N	%	N	%
Never tried	26	41.3	15	60.0	3	27.3
Tried, but don't smoke	25	39.7	8	32.0	4	36.4
Smoke, but not every week	2	3.2	1	4.0		
Smoke every week	1	1.6			2	18.2
Smoke everyday 4 or less cigarettes	3	4.8	1	4.0		
Smoke everyday 5 or more cigarettes	6	9.5			2	18.2
					$\chi^2$	P
					16.556	0.085
*p< 0.05						
**p< 0.01						

## DISCUSSION

The study should be considered with the following limitations. Firstly, the sample size is relatively small and therefore poses external validity problems. Secondly, the classification of respondents into sports participants and non-sports participants was based on the self-report of the participants and therefore some errors of misinterpretation might have been occurred. Thirdly, because of self-reporting there might have been over or under reporting of substance use. Fourthly, the study utilises certain subjective measure of alcohol consumption that should be considered with certain level of caution.

As it can be found from the analysis, sports participation is not necessarily linked to low-level cigarette smoking and consumption of alcohol in the case of undergraduates from the University of Mauritius. The findings of this study are contradictory to many other similar studies from different contexts. In the study carried out by Thorlindsson et al. (1990) it was found that sports participation is inversely related to smoking and the use of alcohol among Icelandic students. In the study of Pastor et al. (2003), Spanish students who engaged more frequently in sports participation drank less alcohol and smoke fewer cigarettes. However in the study of Pate et al. (2000) in United States, the use of cigarettes was found to be inversely associated with sports participation; while, sports participant was linked to higher use of alcohol. The study therefore implies that there is a need to further explore why the Mauritian undergraduates who participate in sports consume more alcohol and cigarettes.

One of the possible explanations of not a low- level of alcohol and cigarette consumption among sports participants at the University of Mauritius could be the effect of peers and families. Some previous studies carried out in other contexts have found that families and friends play an important role in the consumption of cigarettes and alcohol during youth days (Wood et al, 2004; Webster et al, 1994). During university period, there is a pronounced shift in influence from parents to peers (Bosari & Carey, 2001). In particular, peer groups have long been considered to be a key social-environmental factor associated with alcohol and substance use during college and university days (Sieving et al., 2000). For instance, Martha et al. (2008: 1) conclude: “ The normative context of peer socialisation among competitive and team sports participants seemed to play a role in alcohol use”.

In addition, several theories, such as social control, differential association and social network, have also explained that when young people are away from parental controls, they are more likely to be involved in alcohol and cigarette consumptions. In fact, sports participation put the youth away from parental controls and provides more opportunities for interactions with the peers. As it has been mentioned in the background section of this paper, almost all of the undergraduates at the University of Mauritius stay with their parents during their tertiary level study period. In Mauritius it is culturally not acceptable that young people smoke and drink alcohol in front of their parents. Therefore, the likelihood of control of non-sports participants in terms of alcohol and cigarettes consumption could perhaps be more than those who participate in sports. Those who are participating in sport activities might be spending more time with peers than with their parents, as compared to non-sports participants. Thus, the probability of the parents curtailing and preventing the behaviour of alcohol and cigarette consumption of those who participate in sports is lessened (Aseltine, 1995). While, those who sports participants get more opportunities for involved in alcohol and cigarettes consumption with their peers before or after the sport activities (Lindsey & Chen, 2004). However, this is only a possible explanation and this aspect need to be scientifically explored as a follow-up of this particular research.

Another possible explanation could be that those students who are already consuming alcohol and cigarettes are involved more in sports as a way of compensating for their unhealthy consumption behaviour. Perhaps, the students participate in sport activities as a way to quit smoking and deal with alcohol consumption. Therefore, another aspect that future research could look at is the pulling and pushing factors associated with sports participation.

## **CONCLUSION**

This study with the undergraduates from University of Mauritius shows that sports participation is link not necessarily link to low level of smoking and alcohol consumption as compared to non-sports participation. The findings are therefore contradictory to the local common belief and also from what have been found in some developing countries, like in Iceland and Spain. Thus, the findings of the

study have some important implications for research. Firstly, this study points out that specification bias may yield diametrically opposite result in the sense that there are important explanatory variables which tend to influence such relationships; and one of those variables are the socio-cultural context of the study. Hence, research from a variety of different socio-cultural context should be promoted in order to have a better understanding of relationship between variables. Secondly, whether sports participants practice more sports because they consume more alcohol and cigarettes, as a way to compensate for their unhealthy consumption behaviour, needs to be scientifically studied.

### ACKNOWLEDGEMENTS

First of all, we are very grateful to the anonymous reviewer for his/her relevant, precise and valuable comments that have substantially enhanced this paper. We are thankful to the University of Mauritius for approving the study. We would also like to present our heart-felt appreciation to Mr. A. Kistamah (Sports Organiser) and Mr. R. Rajcoomar (Sports Officer) from University of Mauritius. Without their help it would have been impossible to achieve the hundred percent response rate. Finally, thanks to all the participants.

### REFERENCES

- AARON, D. J, DEARWATER, S. R, ANDERSON, R, OLSEN, T, KRISKA A. M AND LAPORTE, R, E. (1995) Physical activity and the initiation of high-risk health behaviours in adolescents. *Medicine and Science in Sports and Exercise*, **27** (6): 1639– 1645.
- ASELTINE, J.R., R.H. (1995) A Reconsideration of Parental and Peer Influences on Adolescent Deviance. *Journal of Health and Social Behaviour*, **36** (2): 103-121
- AUMEERALLY, N.L. (2005) The Ambivalence of Postcolonial Mauritius. Policy versus Practice in Education: A Reading of Official and Popular Multiculturalism. *International Journal of Cultural Policy*, **11**(3): 307-323
- BAUMERT P. W, HENDERSON J. M, AND THOMPSON N. J. (1998) Health risk behaviors of adolescent participants in organized sports. *Journal of Adolescent Health*, **22**: 460-465
- BORSARI, B. AND CAREY, K. B. (2001) Peer Influences On College Drinking: A Review of The Research. *Journal of Substance Abuse*, **13** (4): 391–424
- BUKOWSKI, W. M ADAMS, R. E. AND SANTO, J. B. (2006) Recent advances in the study of development, social and personal experience, and psychopathology. *International Journal of Behavioral Development*, **30** (1): 26–30

CLAEYS, U. (1985) Evolution of the Concept of Sport and the participation/ Non-participation Phenomenon. *Sociology of Sport Journal*, **2** (3): 33–9.

COX, H.S., WILLIAMS, J.W., DE COURTEN, M.P., CHITSON, P., TUOMILEHTO, J. AND ZIMMET, P.Z. (2000). Decreasing prevalence of cigarette smoking in the middle income country of Mauritius: questionnaire survey. *British Medical Journal*, **321** (7257): 345-349.

ECCLES, J. S., BARBER, B. L., STONE, M., AND HUNT, J. (2003). Extracurricular Development. *Journal of Social Issues*, **59**:865-889.

ESCOBEDO L. G, MARCUS S. E, HOLTZMAN D, AND GIOYINO G. (1993) Sports participation, age at smoking initiation, and the risk of smoking among US high school students'. *Journal of American Medical Association*, **17**: 1391–1395.

FAURIE, C., PONTIER, D., AND RAYMOND, M. (2004) Student athletes claim to have more sexual partners than other students. *Evolution and Human Behaviour*, **25**: 1-8

FORMAN, E.S., DEKKER, A.H., JAVORS, J.R. AND DAVISON, D.T. (1995) High-Risk Behaviors in Teenage Male Athletes, *Clinical Journal of Sport Medicine*, **5**(1): 36–42.

GARRY J.P, AND MORRISSEY S. L. (2000) Team sports participation and risk-taking behaviors among a biracial middle school population. *Clinical Journal of Sports Medicine*, **10**: 185–90.

GOVERNMENT OF MAURITIUS (2007) Address By Hon D. Gokhool, Minister of Education and Human Resources Final of the Inter Primary School Cross Country Competition – 2007. Retrieved January 17, 2008 from <http://training.gov.mu/portal/goc/educationsite/file/sp22mar07.doc>

HBSC/WHO (Health Behaviour in School-aged Children) (World Health Organisation) (2002) *The Health Behaviour in School-Aged Children*. Retrieved April 12, 2006 from [http://www.euro.who.int/InformationSources/Publications/Catalogue/20040601\\_1](http://www.euro.who.int/InformationSources/Publications/Catalogue/20040601_1)

HOFFMANN, J. P. (2006). Extracurricular Activities, Athletic Participation, and Adolescent Alcohol Use: Gender-Differentiated and School-Contextual Effects. *Journal of Health and Social Behavior*, **47**(1): 275-290.

LAMB, K. L., ROBERTS, K AND BRODIE, D. A. (1990) Self-perceived health among sports participants and non-sports participants. *Sports and Medicine*, **31**(9):951-1073

LINDSEY, R AND CHEN, W.W (2004) Alcohol Use between Intramural and Non-Intramural Sport Participants. *SCAHPERD Journal*, **34**(1): 4-9

LORENTE, F. O., PERETTI-WATEL, P., GRIFFET, J., AND GRELOT, L. (2003). Alcohol use and intoxication in sport university students. *Alcohol and Alcoholism*, **38**(5): 427–430

MARTHA, C, GRÉLOT, L., AND PERETTI-WATEL, P. (2008) Participants sports characteristics related to heavy episodic drinking among French students. *International Journal of Drug Policy*, In press

MARTENS M. P., WATSON, J. C. AND BECK, N. C. (2006). Sport-type differences in alcohol use among intercollegiate athletes, *Journal of Applied Sport Psychology*, **18**(2): 136-150

MINISTRY OF HEALTH & QUALITY OF LIFE (2006) *Mauritius Non-Communicable Diseases Survey 2004*. Retrieved January 17, 2008 from [http://www.who.int/chp/steps/STEPS\\_Report\\_Mauritius.pdf](http://www.who.int/chp/steps/STEPS_Report_Mauritius.pdf)

MOORE M. J. AND WERCH, C. E. (2005). Sport and physical activity participation and substance use among adolescents. *Journal of Adolescent Health*, **36**:486-493.

NATRESA (National Agency for the Treatment and Rehabilitation of Substance Abuse) (2002) *The knowledge, attitudes, beliefs & practice of substance abuse among youth*. Retrieved January 17, 2008. from <http://www.gov.mu/portal/site/natresa/menuitem.83ffe0bfa31820f4e6e6a81048a521ca/>

NELSON, T. F, AND WECHSLER H. (2001) Alcohol and College Athletes. *Medicine & Science in Sports & Exercise*, **33**(1): 43-47

PAGE, R. M, HAMMERMEISTER J, SCANLAN A, AND GILBERT L. (1998) Is school sports participation a protective factor against adolescent health risk behaviors? *Journal of Health Education*, **29**:186–192.

PARKER, R. (2004) Introduction to Sexuality and Social Change: Toward an Integration of Sexuality Research, Advocacy, and Social Policy in the Twenty-First Century. *Sexuality Research & Social Policy: Journal of NSRC*, **1**(1): 7-14

PERETTI-WATEL, P., BECK, F. AND LEGLEYE, S. (2002) Beyond the Ucurve: the relationship between sport and alcohol, cigarette and cannabis use in adolescents. *Addiction*, **97**:707–716.

PERETTI-WATEL, P., PRUVOST, J. MIGNON, P. AND OBADIA, Y. (2004) Risky Behaviours Among Young Elite-Student –Athletes. *International Review for Sociology of Sport*, **39**(2):233-244

PASTOR, Y, BALAGUER, I, PONS, D AND GARCIA-MERITA, M. (2003) Testing direct and indirect effects of sports participation on perceived health in Spanish adolescents between 15 and 18 years of age. *Journal of Adolescence*, **26**(1):717–730

PATE, R.R., TROST, S.G., LEVIN, S. AND DOWDA, M. (2000) Sports Participation and Health-Related Behaviors among US Youth. *Archives of Pediatrics and Adolescent Medicine*, **154**:904–911.

POLTAVSKI, D. AND FERRARO, F. R. (2003) Stress and illness in American and Russian college students. *Personality and Individual Differences*, **34** (6): 971-982

RAINEY C. J, MCKEOWN R.E, SARGENT R.C, AND VALOIS .F. (1996) Patterns of tobacco and alcohol use among sedentary, exercising, non-athletic, and athletic youth. *Journal of School Health*, **66**:27–32.

SEIVING, R. E., PERRY, C. AND WILLIAMS, C.L. (2000). Do Friendships Change Behaviours, or Do Behaviours Change Friendships? Examining Paths of Influence in Young Adolescents' Alcohol Use. *Journal of Adolescent Health*. **26**:27-35

SMITH, E. A, AND CALDWELL LL. (1994) Participation in high school sports and adolescent sexual activity. *Pediatric Exercise Science*, **6**(1):69–74.

SUN, C., DYCK, D. AND GUILLORY, V. (2000) The Impact of School-Organized Sport Activities on the Priority Youth Health-Risk Behaviors. *Annals of Epidemiology*, **10**(7):451–452.

THORLINDSSON, T. (1989) Sport Participation, Smoking, and Drug and Alcohol Use among Icelandic Youth. *Sociology of Sport Journal*, **6**:136–143.

THORLINDSSON, T., VILHJALMSSON, R., AND VALGEIRSSON, G. (1990). Sports activity and perceived health status: A study of adolescents. *Social Science and Medicine*, **31**(5):551–556.

UOM (University of Mauritius) (2000) *The Kickboxing Club: University of Mauritius*. Retrieved February 05, 2008 from <http://www.uom.ac.mu/campuslife/clubs/kickboxing/rules.htm>

UOM (University of Mauritius) (2005) *History of UOM Sports Unit*. Retrieved January 17, 2008 from [http://www.uom.ac.mu/campuslife/sports/History\\_UOM.htm](http://www.uom.ac.mu/campuslife/sports/History_UOM.htm)

UNDP (United Nations Development Programme) (2000) *Common Country Assessment: Mauritius*. Retrieved October, 23 2006 from <http://un.intnet.mu/rc/documents/cca.pdf>

WEBSTER R. A., HUNTER M., KEATS J. A. (1994) Peer and parental influences on adolescents' substance use: a path analysis. *International Journal of the Addiction*, 29:647-657.

WHO (World Health Organisation) (2003) WHO Statistical Information System (WHOSIS). Retrieved December 2, 2008 from <http://www.who.int/whosis/en/index.html>.

WOOD M. D., READ J. P., MITCHELL R. E., BRAND N. H. (2004) Do parents still matter? Parent and peer influences on alcohol involvement among recent high school graduates. *Psychology of Addictive Behaviors*, **18**:19-30.