

*African Journal for Physical, Health Education, Recreation and Dance (AJPHERD)* Volume 21(1:2), March 2015, pp. 333-352.

## **The prevalence of health risk behaviours among learners in selected urbanized secondary schools in Namibia**

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*(Received: 21 October 2014; Revision accepted: 26 January 2015)*

### **Abstract**

Research indicates that destructive lifestyles during adolescence may lead to serious health risks in later years of life. The prevalence of health risk behaviour among school learners should signal significant red flags to authorities as well as communities. The aim of this study was to determine the prevalence of some health risk behaviour among learners in selected urbanized secondary schools in Namibia. For this study, 294 learners (boys = 133 and girls = 161) from four secondary schools in Windhoek, the capital of Namibia, were randomly selected. To determine the prevalence of health risk behaviour in each age group, height, body mass, body mass index (BMI) and percentage body fat (%BF) were determined and the Youth Risk Behaviour Survey Questionnaire (2003) was completed by each participant. The following constructs were studied, viz. physical activity participation, overweight/obesity, smoking, sexual activity, suicidal ideation, alcohol and drug usage. Data were analysed by using the Statistica for Windows (version 6 software) to calculate the descriptive statistics as well as two-way analysis of variance, to determine the relationship between physical activity participation and health risk behaviour. The effect size (ES) was calculated in order to determine the practical significance of the difference. Descriptive analysis indicated some alarming prevalence of health risk behaviour among the learners. The highest prevalence of health risk behaviour in boys and girls combined are; alcohol intake (47%) and overweight/obesity (39%) respectively, followed by smoking (28%) and sexual activity (25%). For the boys, alcohol intake (46%), sexual activity (30%) and smoking (30%) ranked first, second and third respectively, while for the girls, overweight/obesity (61%) showed the highest prevalence with alcohol consumption (47%) and physical inactivity (28%) in the second and third place respectively. The age group (boys and girls) which revealed the highest prevalence of health risk behaviour is the 15-year-old boys (70% alcohol intake) and 14-year-old girls (80% alcohol intake). It also appears that participation in physical activity can be associated with a decreased prevalence of risky behaviour, although different responses occurred between boys and girls – as well as between age groups in the same gender. This study reveals alarming red flags that should not be ignored by the public and authorities.

**Keywords:** Physical inactivity, smoking, overweight/obesity, sexual activity, suicidal ideation, alcohol and drug usage, school learners.

### **How to cite this article:**

Strydom, G.L., De Ridder, J.H. & Greeff, M. (2015). The prevalence of health risk behaviours among learners in selected urbanized secondary schools in Namibia. *African Journal for Physical, Health Education, Recreation and Dance*, 21(1:2), 333-353.

## **Introduction**

Researchers agreed that destructive lifestyles during adolescence, viz. smoking, overeating, physical inactivity, drug and alcohol intake etc. may lead to various diseases in later life (Booth, Gordon, Carlson & Hamilton, 2000; Onyewera, 2010; Strydom, 2012). The challenge to provide some counter strategies to these diseases of lifestyle (DLS) primarily lies in the persuasion and education of individuals to take self-responsibility for their own health and wellness, by changing their attitude and behaviour (Sharkey & Gaskill, 2007). To change risky behaviour is not always an easy task, as some risks, viz. smoking and alcohol, can be addictive, and many patients may need some support to overcome barriers in this effect (Rollnick, Mason & Butler, 2005).

As in many other countries around the world, health professionals are concerned about the health risk behaviour of adolescents in sub-Saharan Africa (Reddy, Resnicow, James, Fanani et al., 2012). Already in 1997 the World Health Organization (WHO) declared obesity a global epidemic with major health implications inter alia, insulin resistance, type-2 diabetes mellitus, hypertension, obstructive sleep apnoea, poor self-esteem, etc. (American Academy of Pediatrics, 2006). Coupled with this risk factor, physical inactivity, smoking, drug usage etc. also became a source of great concern as destructive health risk behaviour among adolescents (Booth et al., 2000; Guthold, Cowan, Autenrieth, Kann & Riley, 2010; Peltzer, 2010).

The youth in most countries are undergoing a developmental transition in a rapidly changing social, economic, political and emotional climate (Reddy, James, Sewpaul, Koopman et al., 2008). This volatile environment in which the youth have to survive can be the breeding ground for the development of very complex health risk behaviour which may be intertwined with one another. In this respect Palitza (2010) indicated that leisure time sedentary behaviour is highly associated with alcohol, tobacco and drug use among adolescents. Palitza (2010) also indicated that alcohol often is the entry drug which may increase the likelihood of other risky behaviour such as drug usage, violence and unsafe sexual behaviour. Increased psycho-social distress in sub-Saharan youth, may also lead to suicidal ideation and other destructive emotional experiences such as sadness and hopelessness (Palitza, 2010; Page & West, 2011).

According to Palitza (2010), 25% of learners in a specific area in South Africa reported feelings of sadness and hopelessness while 21% had considered suicide and another 21% had already attempted to take their lives. Almost 40% of the 13 to 19-year-old school learners reported to have had sex, with 13% reporting to have had sex before the age of 14 years (Palitza, 2010). Among the learners that have had sex, 41% had more than 1 partner while 16% and 14%, respectively reported to have sex after alcohol and drug intake (Palitza, 2010).

It is clear that the transition taking place in many countries in the world may provide a destructive breeding ground for health risk behaviour of the youth, which may require multi-professional intervention due to the complexity of the problem (Reddy et al., 2008).

In Namibia, one of the sub-Saharan countries, very little information existed on the health risk behaviour of high school learners (De Ridder, Strydom & Greeff, 2012), which provides the motivation for this study. The aim of this study therefore, was to determine the prevalence of some health risk behaviour constructs, viz. obesity/overweight, physical inactivity, smoking, sexual activity, suicidal ideation, alcohol consumption and drug usage among learners of selected urbanized schools in Namibia, as well as the impact of self-reported physical activity participation as independent variable on the mentioned health risk behaviour.

## Methodology

### *Research Design*

This study was based on a once-off cross-sectional design, involving randomly selected learners attending secondary schools in Windhoek, Namibia. This population included both gender and ethnic groupings.

### *Participants*

A total of 294 learners from 4 secondary schools, randomly selected, participated in this study. This cohort represents 129 black, 145 Caucasian and 9 learners from other ethnic groupings. The 133 boys and 161 girls representing age groups 14 – 18 years were as follows:

**Table 1:** Distribution of gender in various age groups

Age (year)	Boys (n=133)	Girls (n=161)
14	38	50
15	31	43
16	32	31
17	20	24
18	12	13

### *Measuring Instruments*

The following instruments were used for gathering the data

#### *Body mass*

Body mass was determined by using an electronic scale – measuring the body mass to the nearest 0.1 kg. Participants were only allowed to be in underwear,

and the procedures suggested by Marfell-Jones, Olds, Stewart and Carter (2006) were followed.

#### *Stature*

Stature was determined by using a portable stadiometer following the procedure as described by Marfell-Jones *et al.* (2006). Stature was measured to the nearest 0.1 cm with the head in the Frankfort plane.

#### *Body mass index (BMI)*

The BMI was calculated by means of the following; Body mass/height<sup>2</sup> (ACSM, 2009)

#### *Percentage body fat (%)*

In order to determine the percentage body fat of the participants, the following skinfolds were measured according to Marfell-Jones *et al.* (2006) – triceps, subscapular and calf. To calculate the percentage body fat, the following formulae as suggested by Boileau, Lohman and Slaughter (1985) for the use on children and adolescents, were used:

Boys (12 – 14 years): % Body fat =  $1.35 \times (\text{sum of triceps} + \text{subscapular skinfolds}) - 0.012 \times (\text{sum of triceps} + \text{subscapular skinfolds})^2 - 4.4$

Girls (14 – 15 years): % Body fat =  $1.35 \times (\text{sum of triceps} + \text{subscapular skinfolds}) - 0.012 \times (\text{sum of triceps} + \text{subscapular skinfolds})^2 - 3.4$

Boys (15 – 17 years): % fat =  $1.35 \times (\text{sum of triceps} + \text{subscapular skinfolds}) - 0.012 \times (\text{sum of triceps} + \text{subscapular skinfolds})^2 - 5.4$

Girls (16 – 18 years): % fat =  $1.35 \times (\text{sum of triceps} + \text{subscapular skinfolds}) - 0.012 \times (\text{sum of triceps} + \text{subscapular skinfolds})^2 - 4.0$

Learners presenting with a percentage of body fat (%BF) of 25.1 – 30% were regarded as overweight, while those with a %BF of >30% were regarded as obese (Boileau *et al.*, 1985).

#### *Youth Risk Behaviour Survey Questionnaire (2003)*

In order to determine the health risk behaviour, the YRBS (2003) Questionnaire was used, which was internationally recognized as a valid and reliable instrument for this type of research, and is already being used in many studies around the world.

*Physical Activity Participation*

In order to determine the physical activity (PA) participation, Question 80 was used, stratifying physical participation over the past 7 days, resulting in 20 minutes of PA with the intensity to “make you sweat and breathe hard”.

The following classification was used to categorize the participation, viz. Low active = < 1 session per week, Moderately active = 1 – 3 sessions per week, Highly active = > 3 sessions per week (Greeff, 2007).

*Smoking*

In order to determine the prevalence of smoking among the learners, Question 30 of the questionnaire was used, inquiring about the number of days they have smoked over the past 30 days, ranging from 0 to all 30 days.

*Sexual activity*

To determine the sexual activity, Question 60 of the YRBS was used inquiring about how many people they have had sexual intercourse with, ranging from none to 6 or more people.

*Suicidal ideation*

To determine suicidal ideation among the learners, Question 24 of the YRBS was used, inquiring whether, during the past 12 months, the learner ever seriously considered attempting suicide, responding to yes or no.

*Alcohol consumption*

To investigate the prevalence of alcohol indulgence, Question 41 of the YRBS was used, inquiring on how many days during the past 30 days the participant had at least one drink of alcohol, ranging from 0 to all 30 days.

*Drug usage*

To determine the drug usage of the secondary school learners, Questions 46, 49, 51 and 52 were used, inquiring about the intake of marijuana, cocaine powder, crack, heroine, snuffed glue, breathed aerosol or paint to get a high, resulting from 0 times to 40 or more times.

### *Procedure*

Once permission for this study had been granted by the Namibian Education Department, the principals of the 4 randomly selected secondary schools in Windhoek were approached to obtain their permission to conduct the study there. This was followed by selecting the participants at random and issuing each one with the relevant documentation regarding this study to discuss with their parents/guardians.

This included a general outline of the study, objectives and procedures, as well as the informed consent form which they had to sign upon agreement. All participants were then informed about the details of the research and any questions on their part were answered.

After collecting all anthropometric data by qualified and registered biokineticists, the questionnaires were completed. The questionnaires were all in English and care was taken that all participants clearly understood the questions, by interpreting and explaining where necessary.

### *Statistical analysis*

Data were analysed by using the “Statistics for Windows” version 6 software (Statsoft, 2003). Descriptive statistics were used to present the data of boys and girls followed by two-way analysis of variance to determine the relationship between physical activity and selected risk factors.

Practical significance is determined by calculating the effect size (Steyn, 2002), and the following stratification was accepted for this study, 0.1= small; 0.3= moderate and  $\geq 0.5$  = large practical significance (Steyn, 2002).

**Results**

The descriptive data of this study as well as other results are presented in Table 2 and Figures 1 – 2 respectively.

**Table 2:** Descriptive data of learners in selected Namibian schools

Parameters	Boys									Girls					Total Group
	14	15	16	17	18	Total Group	14	15	16	17	18				
Age (years)	14	15	16	17	18	Total Group	14	15	16	17	18	Total Group			
Number	38	31	32	20	12	133	50	43	31	24	13	161			
Body Mass (kg)	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD			
	53.0 9.4	60.4 11.8	66.0 11.0	65.9 12.8	74.0 14.1	61.8 13.0	52.4 8.6	53.2 10.6	56.8 10.5	58.8 6.7	61.9 15.8	55.2 10.4			
Height (cm)	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD			
	163.7 8.9	173.4 9.9	174. 7.6	176.2 6.1	176.7 5.4	171.1 9.4	160.4 6.3	61.0 6.0	162.2 6.6	164.5 7.4	166.7 8.4	162.1 6.8			
BMI (kg.m <sup>-2</sup> )	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD			
	19.7 2.5	20.0 2.9	21.8 3.2	21.9 3.4	28.7 4.3	21.0 3.3	20.33 2.9	20.5 3.7	21.5 3.4	21.7 2.0	22.2 4.6	20.9 3.3			
%BF (%)	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD	Mean SD			
	17.2 6.6	16.4 6.9	16.1 7.6	13.8 4.6	20.0 12.2	16.5 7.4	25.5 6.3	26.0 6.2	28.0 8.0	27.7 5.5	31.1 11.3	26.9 7.1			

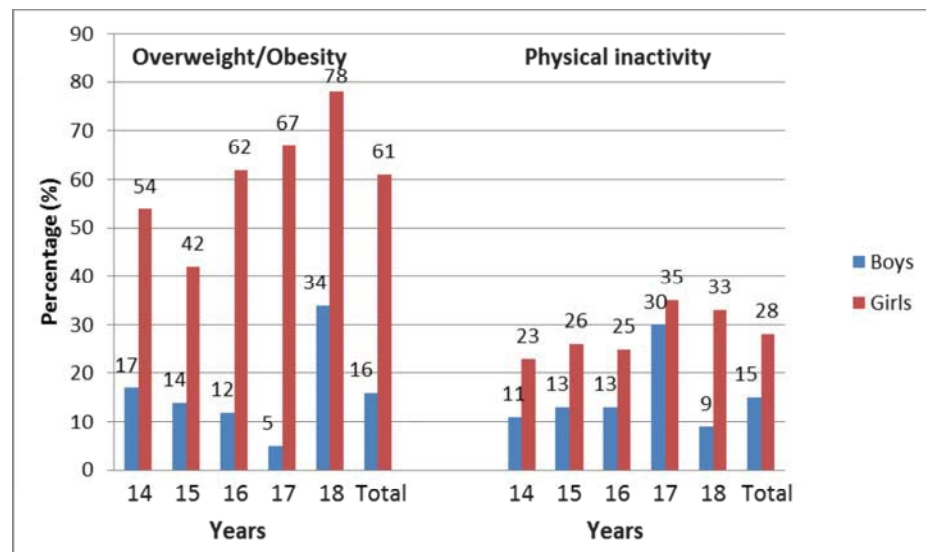
BMI = Body Mass Index; %BF = Percentage body fat

A progressive increase in height, body mass and BMI occurred in the learners from 14 – 18 years, with the boys averaging a higher score than the girls in all age groupings regarding body mass and height (Table 2). In the case of the BMI the 14 and 15-year-old girls showed a higher average score than the boys, while the latter exceeded the girls in the 16, 17 and 18-year grouping. Regarding the % body fat (%BF) the girls displayed (total group) a significantly higher %BF than the boys (Table 2).

#### *Overweight/Obesity*

The prevalence of overweight and obesity (as determined by % BF) is significantly ( $ES > 0.05$ ) higher in girls than in boys, averaging 16% and 61% in the total group for boys and girls respectively (Figures 1a-c). Except for the 15-year-old girls, a progressive increase occurred in this risk factor (overweight/obesity), while in the case of the boys a decrease occurred in the 14 – 17-year-olds, followed by an increase in the 18-year-olds. The highest prevalence of overweight/obesity is found in the 18-year-old group with a prevalence of 34% and 78% for the boys and girls respectively.

#### *Physical Inactivity*



**Figure 1a:** The prevalence of some health risk behaviour constructs among Namibian Secondary School learners, 14 - 18 year.

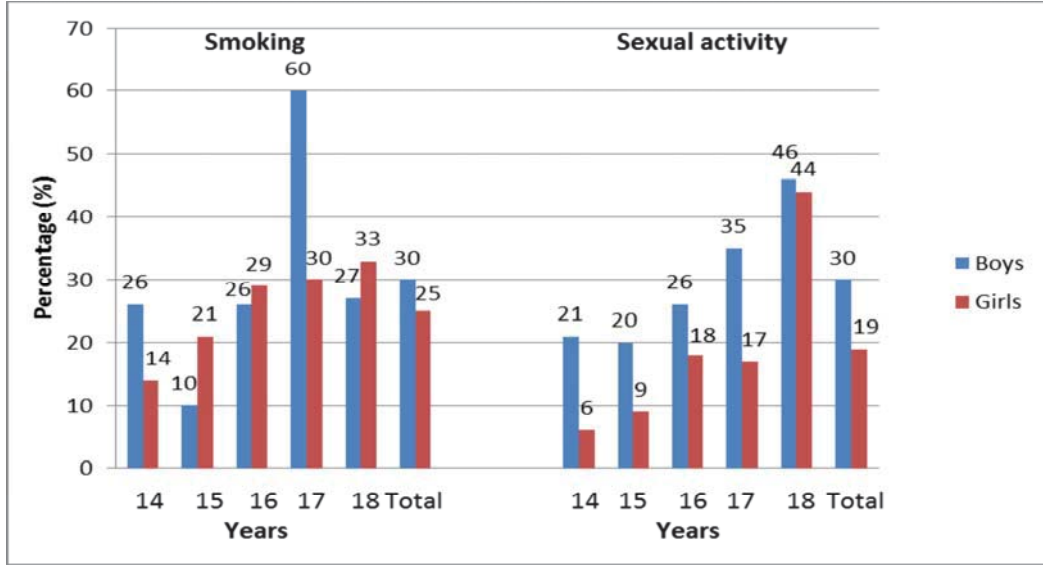


Figure 1b: Smoking and Sexual activity of Secondary School learners, 14 - 18 years.

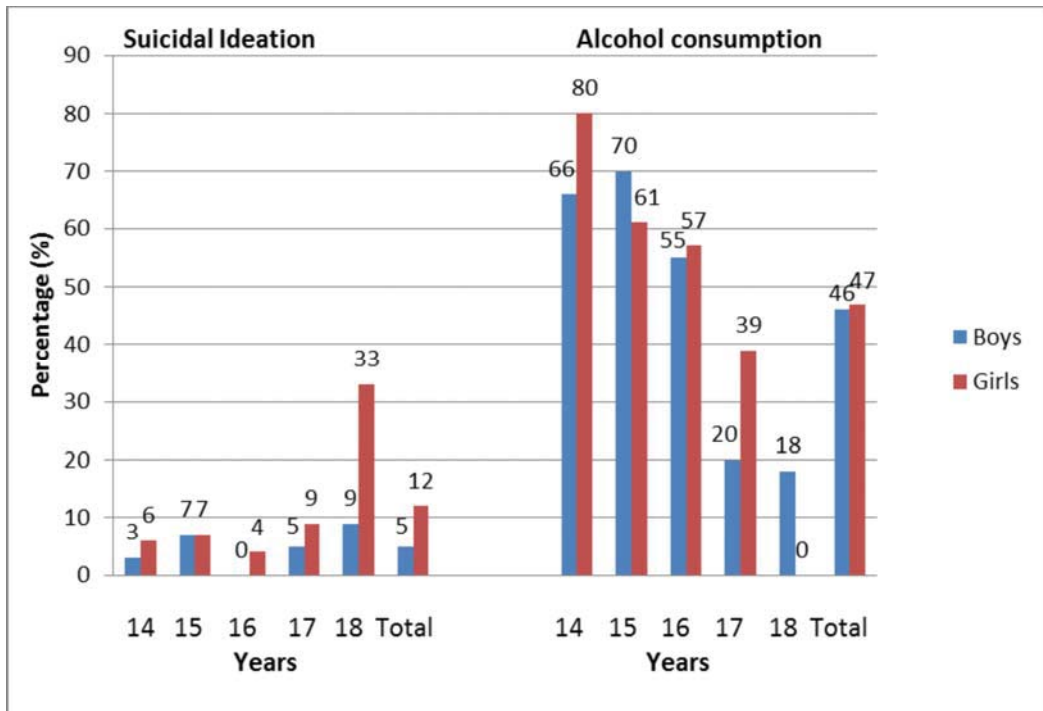
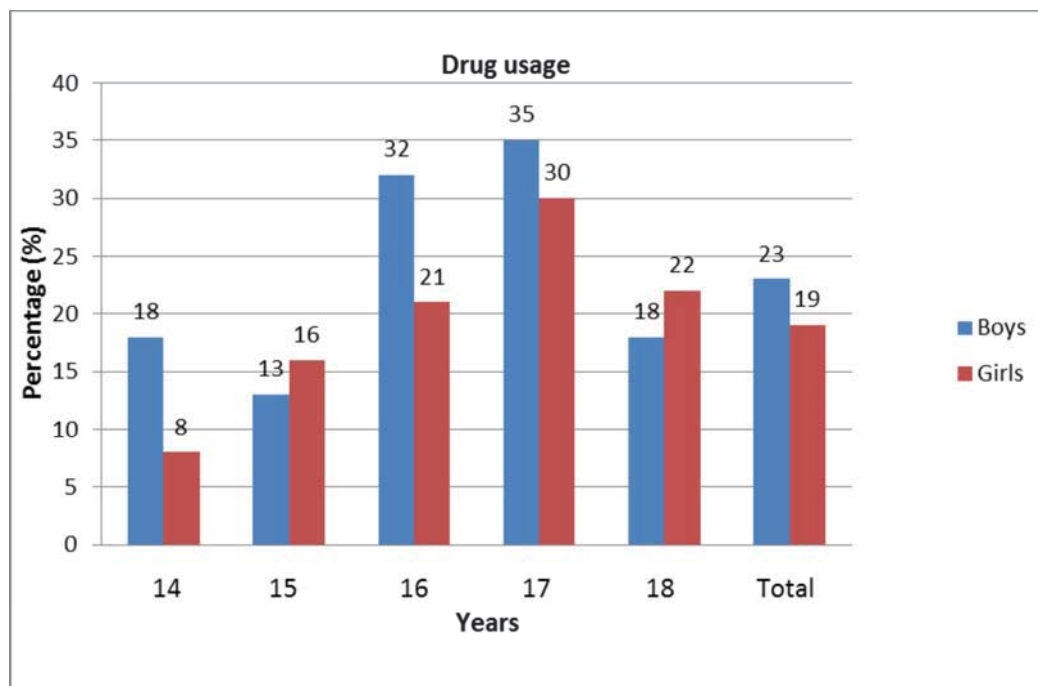


Figure 1c: The prevalence of some health risk behaviour constructs among Namibian secondary school learners, 14 - 18 year.



**Figure 1d:** Drug usage among Namibian Secondary School learners, 14 – 18 years.

The number of boys and girls in the secondary schools in Windhoek, the capital of Namibia, reported to be physically inactive were 15% and 28% respectively. They reported physical activity of at least 20 minutes less than once/week, which makes you “sweat and breathe hard”.

In the case of girls, the most inactive age group was the 17-year-olds who reported to be physically inactive in 35% of the cases. For the boys, the 18-year-old group reported the least physical inactivity (9%), with the 17-year-olds reporting to be the most inactive age group (30%).

### *Smoking*

In three of the age groups, viz. 15, 16 and 18 years, the girls reported a higher prevalence of smoking than the boys, namely 21% vs. 10%, 29% vs. 26% and 33% vs. 27% respectively (Figure 1b).

The highest percentage of smokers happened to be the 17-year-old boys, where 60% reported to smoke. In the total group an average of 30% and 25% of the boys and girls respectively reported smoking. In the case of the girls, the smoking habit progressively increased from 14 years of age to 18 years. In the 14 and 17-year-old group, the boys smoked significantly ( $ES > 0.5$ ) more than girls.

### *Sexual Activity*

In the total group, boys reported a significantly ( $ES > 0.5$ ) higher prevalence of sexual activity than girls, viz. 30% vs. 19% respectively. In both genders sexual activity progressively increased from the 14-year-olds to the 18-year-olds. In the case of the girls the 16 and 17-year-olds reported a sexual activity prevalence of 18% and 17% respectively (Figure 1b).

The highest prevalence is reported by the 18-year-old group, viz. 46% and 44% for boys and girls respectively. In 14, 15 and 17-year-old groupings boys showed significantly higher prevalence than do girls ( $ES > 0.5$ ).

### *Suicidal ideation*

The prevalence of this health risk behaviour seems to be higher among the girls than among the boys. This is true for all age groups except for the 15-year-olds, where both groups reported a prevalence of 7% (Figure 1c).

Among the 18-year-old girls an alarming prevalence of 33% is reported, which is significantly higher than that of the boys ( $ES > 0.5$ ).

### *Alcohol consumption*

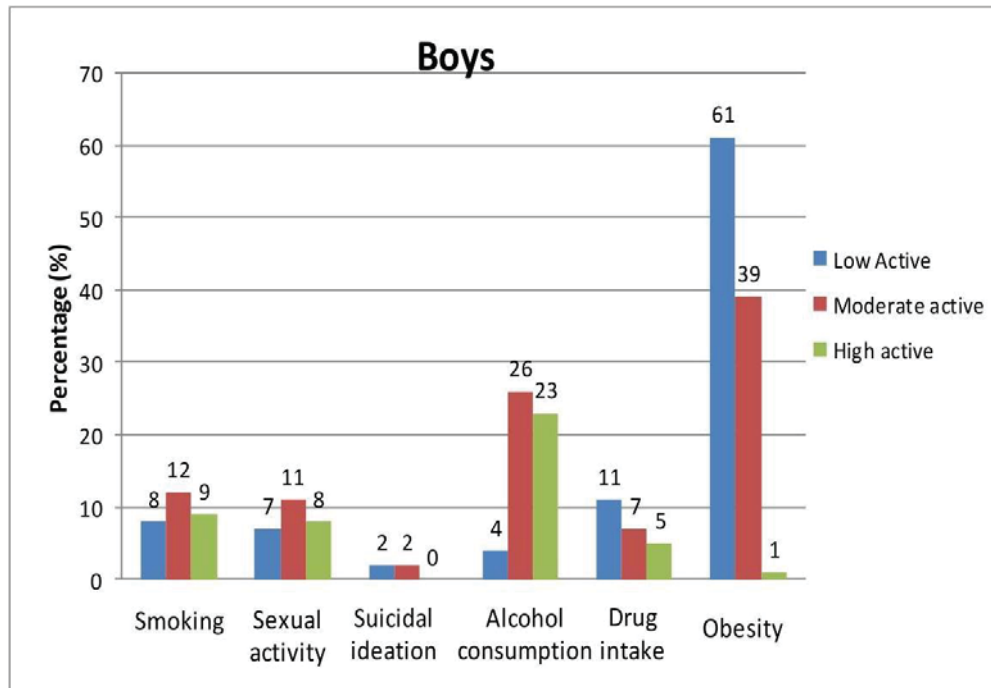
Secondary school learners reported an alarmingly high prevalence of alcohol intake, viz. 46% and 47% for the boys and girls respectively for the total group.

What is more alarming is that the younger learners (14 – 16 years) reported a higher intake of alcohol than the more senior learners. In the case of the girls, the highest intake occurred in the 14-year-old group (80%), while the 15-year-old boys reported the highest intake (70%) (Figure 1c). For the 17-year-olds the girls showed a significantly higher intake of alcohol, compared to the boys (39% vs 20% respectively).

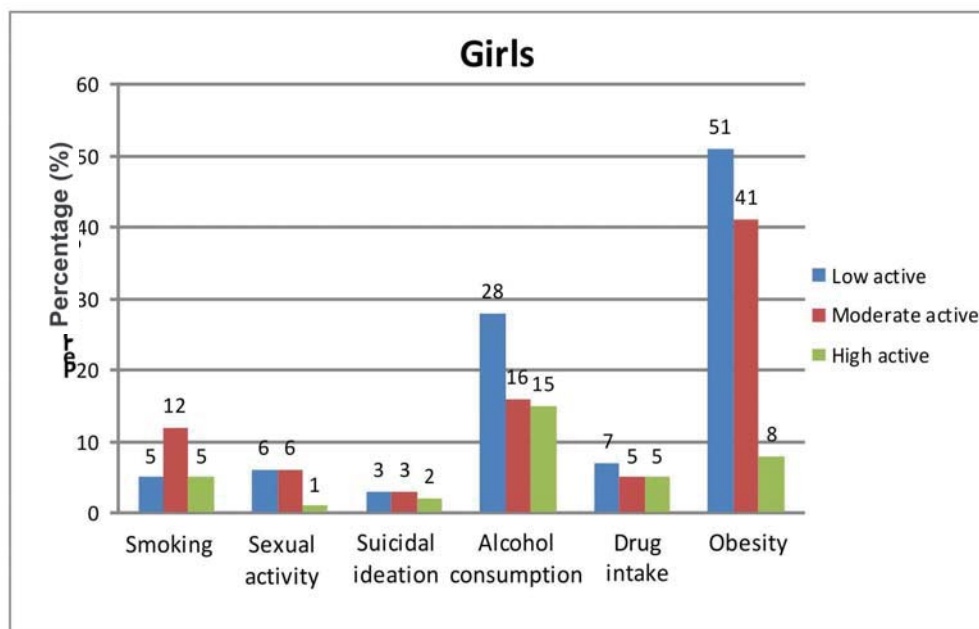
### *Drug intake*

In all age groups, except for the 15 and 18-year-olds, the boys reported a higher prevalence of illegal drug intake, with the highest prevalence reported by the 16 and 17-year-old boys, viz. 32% and 35% respectively. The girls reported a progressively higher intake from the 14-year-old to the 17-year-old groups (8% – 30%), with a decrease (22%) in the 18-year-olds. However, on average more boys than girls report illegal drug intake in the secondary school (23% vs. 17% respectively) (Figure 1d). This difference, however, is not significant.

*Physical Activity Participation and Health Risk Behaviour*



**Figure 2(a):** Physical activity Participation and Health Risk Behaviours (Boys).



**Figure 2(b):** Physical Activity Participation and Health Risk Behaviour (Girls).

**Figure 2:** The relationship of physical activity participation and some health risk behaviours among Namibian Secondary School learners, 14 -18 years of age.

In Fig. 2 physical activity participation was used as the independent variable to determine the impact thereof on the various health risk behaviours. For this analysis the learners reporting indulgence in the health risk behaviours were classified into low, moderate and high physically active groups.

In the case of the boys, an inconsistent pattern occurred. For smoking and sexual activity the moderately active group showed a practically significant difference ( $ES \geq 0.5$ ) between the low and highly active ones (Fig. 2).

In the case of alcohol consumption the moderately and highly active boys reported 26% and 23% prevalence respectively, while only 4% of the low active boys reported alcohol consumption. This represents a high practical significance ( $ES \geq 0.5$ ) compared to the low active group.

As far as the suicidal ideation, drug intake and obesity are concerned, the highest prevalence is reported in the low active boys, with a progressive decline towards the highly active boys. The low active groups in drug intake and obesity showed high practical significance ( $ES \geq 0.5$ ) compare to the high active group.

As far as the girls are concerned, a more uniform pattern unfolded. Except for smoking, all the other health risk behaviours (sexual activity, suicidal ideation, alcohol consumption, drug intake and obesity) showed a progressive decline with increase in physical activity participation.

In most of the cases the low physically active group reported the highest prevalence, with the high physically active group reporting the lowest. In the case of drug and alcohol consumption a significant difference ( $ES \geq 0.5$ ) between the low, vs moderately and highly active participants occurred. This is an important difference from the situation among the boys in this study.

As far as smoking is concerned, the same distribution as in the case of the boys is displayed, where the prevalence of smoking happens to be significantly higher in the moderately active group (12%), compared to the low and highly active groups, showing the same prevalence (5%).

## **Discussion**

Research has indicated that the global burden of non-communicable disease (also called, diseases of lifestyle) is presently the leading cause of death among males and females in the developed countries of the world (WHO, 2005). This may be associated with escalating health care costs (WHO, 2005) and draining of efficient brain power of a country (WEF, 2013).

This health threat calls for comprehensive intervention strategies to prevent/manage non-communicable diseases, which should be focused on children even at a very young age (Koop, 1996; Ndlangamandla, Burnette & Roux, 2012).

Some health risk behaviours significantly associated with NCD, viz. physical inactivity, obesity and smoking, are already present among the school population (Onywera, 2010; Peltzer 2010; SANHANES, 2013), which makes this population a very important target for strategic intervention regimes.

Additional to the above-mentioned health risk behaviours among the school population various other destructive health risk behaviours also have already been identified, viz. sexual activity, suicidal ideation, and alcohol and drug usage (Reddy et al., 2008; Peltzer, 2010; SANHANES, 2013).

In our study, it is clear that these destructive lifestyle behaviours already are present in the Namibian urban school population. The highest prevalence of risk behaviour in the combined groups (boys and girls) happens to be alcohol consumption (47%) followed by overweight and obesity (39%) and smoking (28%) (Data not shown).

Furthermore, the 17 and 18-year-old boys reported the highest prevalence of 3 risk factors each, viz. physical inactivity, smoking and drug usage (17 year-olds) with overweight/obesity, sexual activity and suicidal ideation for the 18-year-old group. In the case of the girls, the 18-year-old group reported 4 risk factors as the highest prevalence, viz. overweight/obesity, smoking, sexual activity and suicidal ideation.

These results are in line with other studies on the African continent which echoed the concerns regarding the destructive lifestyle of secondary school learners (Reddy et al., 2008; Palitza, 2010; Peltzer, 2010; SANHANES, 2013). This should be considered as red flags which may signal detrimental effects in later life (Strydom, 2012).

The underlying reasons for the young people to engage in this destructive health risk behaviours are very complex and may be rooted in a mixture of social and economic factors, lack of parental control and value system (Palitza, 2010). The intertwinement of these various health risk factors further enhances the complexity of this situation.

In this respect studies indicated an association between the feeling of hopelessness and sadness with suicidal ideation (Flemming & Jacobsen, 2009; Palitza, 2010; Page & West, 2011; Shilubane, Ruiters, Van der Borne, Sewpaul et al., 2013).

Flemming and Jacobson (2009) also indicated that bullying appears to be common among adolescents and that 45.6% of bullied students reported feelings of sadness and hopelessness, versus the 27.6% of the non-bullied students. In their study the average prevalence of sadness and hopelessness was 34.6%, with the girls reporting 36.4% vs. the 32.5% of the boys (Flemming & Jacobson, 2009).

They also indicated that bullied students showed a higher prevalence of tobacco, alcohol and drug usage than non-bullied students. The same is also true for sexual activity.

In a study, involving 19 low and middle-income countries, Namibia was overall rated as the 3<sup>rd</sup> highest in the prevalence of bullying (Flemming & Jacobsen, 2009). The boys reported 53.5% vs. the 46.2% of the girls to be bullied.

Additional concern in this respect is that the highest prevalence of bullied learners falls within the < 12-year category (61.4%) with a prevalence of 50.4% (13 year), 46.3% (14 year), 46.3% (15 year) and 53.6% (> 16 year) of bullied students in Namibian schools (Flemming & Jacobsen, 2009). Therefore, bullying may provide some underlying reasons for the prevalence of the destructive health risk behaviour in Namibian schools.

Research provided irrefutable evidence of the effectiveness of regular physical activity in the primary and secondary prevention of several chronic diseases (Warburton, Nicol & Bredin, 2006; Bouchard, Blair & Haskill, 2007). Participation in physical activity during the adolescent years may have salutogenic outcomes, as many of the risk factors for chronic diseases may be rooted in the paediatric years (Rowland, 2007; Strydom, 2012).

Evidence also exists, indicating that physical activity may improve the emotional, social, spiritual and physical well-being of the youth (Rowland, 2007), suggesting that physical activity participation *inter alia* may be implemented as a possible intervention strategy to address the alarming prevalence of destructive health risk behaviour among school learners (Nieman, 1998; SANHANES, 2013).

In order to examine the impact of physical activity participation on the population indulging in the destructive health behaviour (smoking, sexual activity, suicidal ideation, alcohol and drug usage and overweight/obesity), the group was stratified into low active (< 1 session/week), moderately active (1 – 3 sessions/week) and highly active category (> 3sessions/week), respectively.

In the case of the girls, a consistent pattern unfolded where the highly active girls showed less prevalence in the destructive health behaviour risks (Figure 2), while for the boys the overall pattern was inconsistent. Only in suicidal ideation, drug intake and obesity, the highly active individuals reported the lowest prevalence.

This is in line with research that indicated the possibility of gender differences in health behaviour risks associated with different forms of physical activity participation. In this respect, Moore and Werch (2005) found an increase in substance use for grade eight youths in male-dominated sports, whereas out-of-school, mixed-gender sports seem to be associated with an increased risk of substance use among girls.

Moore, Chudley and Werch (2008) also reported a higher prevalence of drug use in physically active first-year college students, and they also tend to consume larger quantities than the infrequent exercisers. On the other hand frequent exercisers reported less cigarette smoking than the infrequent exercisers (Moore et al., 2008).

Nieman (1998) reported on a longitudinal study from the University of Pittsburg, which indicated that highly active teenage girls were less likely to start smoking during the study, than the low active ones. In boys, however, no difference occurred between the highly and low active groups, while the highly active boys were twice as likely to start drinking alcohol (Nieman, 1998).

Little data exist on the impact of physical activity participation and suicide (Centre for Suicide Prevention, 2010). Reasons for this may be rooted in the complexity of this problem during adolescent years, which may be intertwined with social, economic and emotional factors (Palitza, 2010). In our study, although very small, the lowest prevalence of suicidal ideation occurred in the highly active boys and girls.

Brown and Blanton (2002) indicated that physical activity and sports participation in college men decreased the likelihood for suicidal behaviour, while college girls who engaged in moderate or frequent vigorous activity were at greater risk compared to inactive women (Brown & Blanton, 2002).

The reason for this may be related to the perception that they are overweight causing a negative body image and poor self-esteem, that may lead to depressive and suicidal feelings (Unger, 1997).

Relating to obesity as health risk behaviour, it seems that participation in physical activity may have a positive impact in both genders in our study. This is in line with comprehensive research supporting physical activity as an intervention and protection against obesity and the health hazards associated with it (Ross & Janssen, 2007; Lee, Sui & Blair, 2009; Onywera, 2010).

### **Limitations**

This study posed some limitations which should be borne in mind when interpreting the results. The cohort (294) involved in this study was relatively small, and although randomly selected, it only represents one urbanized centre in Namibia, namely Windhoek.

The rural areas and smaller urbanized centres may reflect different profiles. It should also be remembered that the population involved were those attending secondary school which again may differ from their age groups not attending school. As the questionnaires were based on self-assessment, it is possible that participants either over- or underscored themselves.

### **Conclusion**

From the results of this study it is clear that the cohort displayed some alarming statistics regarding the prevalence of health risk behaviour among the secondary school learners in Namibia.

The highest prevalence for boys happens to be alcohol intake (46%), smoking (30%) and sexual activity (30%), while for girls the highest prevalence was overweight/obesity (61%) alcohol intake (47%) and physical inactivity (26%).

The intertwinement which may occur among the risk behaviour (Palitza, 2010; Page & West, 2011) may increase the complexity of this situation, calling for strategic and multidimensional intervention.

Regarding the impact of physical activity as any independent variable, a fairly consistent outcome appears among the girls, while this was not the case for the boys. This study, appeals to the National and local authorities to pay serious attention to this unhealthy and high-risk situation facing the learners at a very volatile stage in their lives.

The need for improving or re-engineering physical education programs in the schools must be seriously considered to support multi-professional strategies directed at learners – not only as a prophylactic but also a preventative endeavour.

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