

Tobacco products and marijuana use among university students: Gender differences and associated risks

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Overall, the prevalence of cigarette smoking was significantly high among the students compared to other tobacco products (pipe, chew tobacco, snuff, home-made tobacco or indigenous tobacco). A significantly higher frequency of marijuana and tobacco products use was observed in males (9.6%;15.7%) than their female (3.4%;4.6%) respectively.



BACKGROUND

Most university students tend to indulge in health behaviour risks such as drug abuse, for releasing psychological, tension and pressure (Couture *et al.*, 2020; Yaseen *et al.*, 2020) . Some students use tobacco products and marijuana to maintain body weight and to cope with stressful situations (Demenech *et al.*, 2019), some of which are related to daunting academic work demands. In 2015, overall prevalence of smoking amongst University of Zenica students in *Bosnia and Herzegovina* was 24.2% (n=145) , with males accounting for 46.9% (n=68) and females, 53.1% (n=77) (Mujezinović *et al.*, 2018). The prevalence of tobacco products and marijuana (also popularly known as weed) use was 28.3% and 5.2%, respectively amongst university students in the City of Jahrom, Southern Iran (Heydari *et al.*, 2015). The study of Tareman *et al.* (2018) reported a relatively high prevalence of cigarette smoking (24%) and low prevalence of marijuana (2.2%) among university students in Tehran.

The dangers of tobacco product use have been made known to young adults, through the print and electronic media, especially social media (Dalisy *et al.*, 2022; Yaseen *et al.*, 2020; Yoo *et al.*, 2016;). Over the past years, there has been reported evidence of differences in knowledge, beliefs, habits and attitudes towards tobacco product use among young adults and this further requires attention and evaluation (GATS, 2021; Yaseen *et al.*, 2020) as the behaviour is rampant among university students, many of whom are impressionable young adults. In spite of the health hazards of tobacco and marijuana, studies among South African university students have been sparsely conducted.

AIM OF THE STUDY

To examine gender differences in the prevalence of tobacco products and marijuana use and its associated health risks among a sample of students at the University of Limpopo, South Africa

METHODS

Study design and setting

This cross-sectional study was conducted at the Turfloop campus of the University of Limpopo in Mankweng, South Africa. The University of Limpopo was established on 1 August 1959 as a University College of the North and later was named the University of the North on the 1 January 1970 (University of Limpopo, 2020). It is situated in a low-income region of the country. The majority of students registered at the university are from the rural areas of the Limpopo Province, which is amongst the poorest provinces in South Africa.

Sampling

Using STATA, the sample size required for the study was calculated based on a power of 80% and a two-tailed significance level of 5%, the prevalence of smoking of 0.24% amongst university students with the alternative proportion of 20% (Mujezinović *et al.*, 2018). The formula below was used to reach the minimum sample size was used: $N = \frac{Z_{\alpha/2}^2 \times P(1-P) \times D}{E^2}$ Where,

N= number of participants to be enrolled.

$Z_{\alpha/2}$ = Z-score for a two-tailed α . When $\alpha = 0.05$ then $Z_{\alpha/2} = 1.96$.

P= prevalence of smoking or proportion of event of interest for the study.

E= precision (or margin of error) with which a researcher wants to measure something. General rule relative to acceptable margins of error in survey research is 10-20%.

D= design effect which reflects the sampling design used in the survey type of study.

$N^1 = \frac{N}{1-q}$, where q is the proportion of attrition and is equal to 20%.

(Arya *et al.*, 2012)

A convenience sample of 916 students (415 males and 501 females), who were registered in 2019 at the University of Limpopo participated in the study. The participants were aged between 17 - 43 years. Visits were made to students' residences, public recreation areas and faculties (Humanities, Health Sciences, Management and Law and Science and Agriculture) for data collection.

Data collection

A current marijuana user was defined as anyone who uses marijuana regularly or every day during the time of the survey. They were asked the following question: Do you now smoke marijuana regularly (yes/no)? Ever Marijuana users were those who answered that they tried to use marijuana before the survey and have stopped or they use them occasionally. The question in this regard was: "Have you ever used weeds/marijuana to smoke and stop or use it occasionally? (Yes/No). "The onset (initiation age) age for tobacco product use (cigarette, pipe, chew tobacco, snuff, home-made tobacco or indigenous tobacco) was examined by the question, "If yes, indicate how old you were when you first tried cigarette, pipe, chew tobacco, snuff, home-made tobacco or indigenous tobacco. ____", How old were you when you first started using tobacco everyday/regularly? ____ The onset (initiation age) age for marijuana use was determined by the question "If yes, indicate how old you were when you first tried to smoke weeds/marijuana ____", How old were you when you first started smoking marijuana everyday/regularly? ____.

Onset ages for tobacco product and marijuana use was then grouped as less than 15 years, between 15 and 19 years and over 20 years. Associated risk with tobacco products and marijuana were evaluated based on the following responses: I use tobacco products (cigarette, pipe, chew tobacco, snuff, home-made tobacco or indigenous tobacco) because [Friends smoke (yes/no), Goes well with meals (yes/no), Helps me relax (yes/no), It is a habit (yes/no), Helps me cheer up when I get restless or tense (yes/no), and Helps me forget my worries (yes/no)]. I smoke weeds/marijuana because (Friends smoke (yes/no), Goes well with meals (yes/no), Helps me relax (yes/no), It is a habit (yes/no), Helps me cheer up when I get restless or tense (yes/no), and Helps me forget my worries (yes/no).

Ethics approval

University of Limpopo, Turfloop Research Ethics Committee (TREC) (TREC/61/2019: IR) granted permission to carried out the study. All participants signed informed consent to participate in the study.

Statistical analysis

Descriptive statistics -prevalence of tobacco products and marijuana use among participants. Chi-squared test was undertaken to compare the frequency counts of large data sets between genders, while the Fisher's exact test was applied when frequency cells were small (less than five or ten) (Lauer & Clarke, 1989; Altman, 1991. All statistical analyses were performed using SPSS software and the probability level of $p \leq 0.05$ taken to indicate significance.

RESULTS

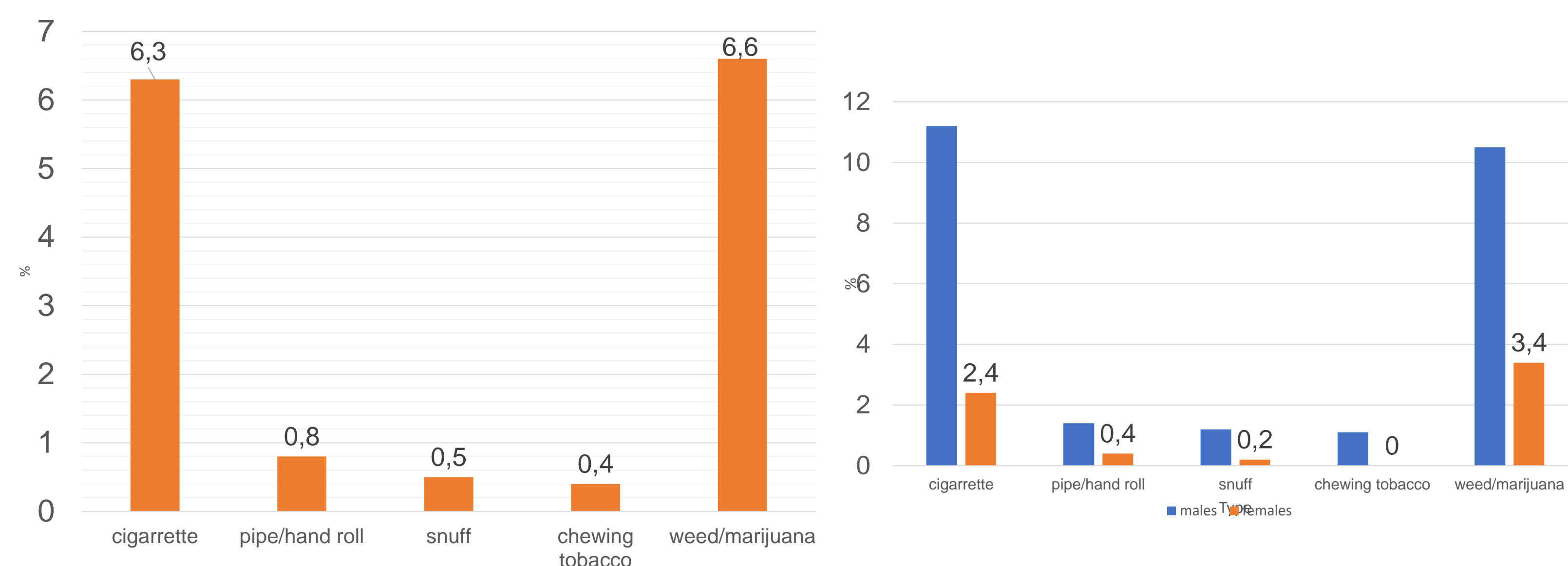


Figure 1 illustrates the prevalence of different current (as at the time of the study) tobacco product and marijuana use amongst University of Limpopo students differentiated by gender. Marijuana (6.6%) was the most prevalent product used by the participants, followed by cigarettes (6.3%), though not significant. Chewing tobacco and snuff were the least products used.

Shown in Figure 2 are data on the prevalence of tobacco products and marijuana use as stratified by gender. The usage of snuff was higher among male (1.2%) than female (0.2%) students, though not significant. The prevalence rate of tobacco chewing between males (1.1%) and females (0%) was insignificant.

Table 1: Frequency and percentage of associated risk factors stratified by gender.

Variable	Males, n= 223	Females, n=151
	% (n)	% (n)
Tobacco Product Use		
Friends smoke	18.8 (42)	12.6 (19)
Goes well with meals	10.3 (23)	5.2 (8)
Helps me relax	14.3 (32)	8.6 (13)
It is a habit	14.8 (33)	11.9 (18)
Helps me cheer up when I get restless or tense	12.1 (27)	10.6 (16)
Helps me forget my worries	11.7 (26)	7.3 (11)
Student Residence- University residence	65.0 (145)	61.6 (93)
Off Campus	35.0 (78)	38.4 (58)
Onset Age: Less than 15 years	20.6* (46)	10.6* (16)
Between 15 to 19 years	62.8* (140)	65.6* (99)
Over 20 years	16.6 (37)	23.8 (36)
Educational achievements Lower academic level	50.2 (112)	51.0 (77)
Moderate academic level (third-year level)	26.9 (63)	29.1 (44)
Postgraduate level	21.5 (48)	19.9 (30)
Marijuana Use		
Friends smoke	21.1 (32)	16.5 (15)
Goes well with meals	7.2 (11)	4.4 (4)
Helps me relax	16.4 (25)	14.3 (13)
It is a habit	11.8 (18)	12.1 (11)
Helps me cheer up when I get restless or tense	9.2 (14)	8.7 (8)
Helps me forget my worries	9.2 (14)	6.6 (6)
Student Residence- University residence	77.0 (117)	80.2 (73)
Off Campus	23.0 (35)	19.8 (18)
Onset Age: Less than 15 years	13.8 (21)	13.2 (12)
Between 15 to 19 years	56.6 (86)	91.5 (56)
Over 20 years	29.6* (45)	25.3* (23)
Educational achievements Lower academic level#	46.1 (70)	48.4 (44)
Moderate academic level (third-year level)	31.6 (48)	30.8 (28)
Postgraduate level	22.4 (34)	20.9 (19)
Bursaries- NSFAS bursary	71.8 (298)	80.2 (402)
Other bursaries than NSFAS	12.0 (50)	9.8 (49)

Table 1 presents the frequency and percentage frequency of positive responses for possible associated risk factors of tobacco products and marijuana use amongst the students. Age at onset of tobacco product use was significantly ($p < 0.05$) higher among the males (20.6%) than females (10.6%) who predominantly started smoking at younger ages (less than 15 years). The majority (8.6 to 21.1%) of both males and females used tobacco products and marijuana to relax and smoked because their friends smoked; however, the difference was not significant ($p > 0.05$). Almost 65 to 80% of the university students who used tobacco products and marijuana reside on campus during the academic year when this study was undertaken. Among oldest students (i.e., over 20 years), the age at onset of marijuana use was significantly higher ($p < 0.05$) for males (29.6%) than females (25.3%).

CONCLUSIONS

The prevalence of tobacco products and weed/marijuana use at the University of Limpopo was significantly higher among male than female students. The findings suggest the existence of specific associations of tobacco products and weed/marijuana usage with other factors like peer influence, personal enjoyment and tension reduction. However, the extent to which the students' use and abuse of tobacco products is associated with metabolic syndrome over time could not be established. Therefore, future research in this regard is warranted.

University marijuana control programmes might be improved by focusing on students, who vulnerable individuals. It is proposed that a variety of educational and consultative courses might change students' habits and attitudes about the negative health hazards and repercussions of marijuana use. It is also claimed that thorough supervision of student behaviour on and off campus, as well as direct participation by students' families, are vital in lowering, if not completely eliminating marijuana usage. Furthermore, displaying posters forbidding smoking across campus, including students' hostels, might potentially motivate students to take good action.

