

PREDICTORS OF PAP SCREENING RATES AMONG FEMALE UNIVERSITY STUDENTS IN MARITIME CANADA

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BACKGROUND

- The human papillomavirus (HPV) is highly prevalent in Canada
 - ~75-80% of young adults will contract HPV
- HPV puts those infected at increased risk for genital warts and various cancers
- PAP screening is effective in detecting cervical pre-cancerous cells (dysplasia) among women with HPV but many young women do not access it
- Little is known about predictors of HPV screening among Canadian female university students especially among those in Maritime Canada

OBJECTIVE

- To identify predictors (barriers and facilitators) of PAP testing among sexually active female university students (ages 19-29) at 8 Maritime universities, to create targets for promotion of HPV screening

METHODS

- Data Source: The Maritime University Student Sexual Health Services Survey (2012)
 - A cross-sectional, anonymous, online survey of university students at eight Maritime Canadian universities (n = 10,361) - 30.8% response rate among females
- Sample Population: 4007 vaginally sexually active female university students (age 19-29)
 - Data were weighted based on the age demographics at each school and underwent multiple imputation (x5) for missing values
- Statistical Analysis: Descriptive analysis of the sample population and simple/multiple logistic regression analyses on factors associated with screening
 - All variables achieving marginal significance ($p < 0.2$) during simple regressions were included in the multiple logistic regression



PARTICIPATING UNIVERSITIES

Dalhousie University , Nova Scotia



St Mary's University, Nova Scotia



PARTICIPATING UNIVERSITY

Mount Saint Vincent's University, Nova Scotia



Acadia University, Nova Scotia



PARTICIPATING UNIVERSITIES

Saint Francis Xavier University – Nova Scotia



University of Cape Breton –Nova Scotia



PARTICIPATING UNIVERSITIES

University of New Brunswick, NB



University of Prince Edward Island



RESULTS

Table 1a.
Demographic
characteristics of the
weighted sample
population (N=4007)

Demographic Variables of Interest	Weighted Population Mean or Proportion (95% CI)
Age (range: 19-29)	21.6 (21.5-21.7)
Year of Study	
• First	10.2% (9.2 – 11.2)
• Second	24.7% (23.3 – 26.2)
• Third	26.5% (25.0 – 28.0)
• Fourth	27.8% (26.3 – 29.3)
• Other (>Fourth)	10.7% (9.7 – 11.8)
Not Caucasian	7.4% (6.5 – 8.3)
Not 100% Heterosexual	36.7% (35.1– 38.4)
Consider Religion Very/Fairly Important	27.4% (25.9 – 29.0)
Living Arrangement	
• Student Residence	13.5% (12.4 – 14.7)
• Alone	7.5% (6.6 – 8.4)
• Parent(s)	20.9% (19.5 – 22.3)
• Romantic Partner	20.0% (18.6 – 21.4)
• Roommate(s)	38.0% (36.4 – 39.6)

RESULTS

Table 1b. Behavioural & psychosocial characteristics of the weighted sample population (N=4007)

Behavioural & Psychosocial Variables of Interest	Weighted Population Mean or Proportion (95% CI)	
Forced to Have Sex	8.6%	(7.6 – 9.7)
Frequent Binge Drinker	53.1%	(51.5 – 54.8)
Heavy Marijuana User	4.7%	(4.0 – 5.4)
Level of HPV Risk		
• Lower	33.6%	(32.0 – 35.2)
• Moderate	49.8%	(48.1 – 51.5)
• Higher	16.6%	(15.3 – 17.8)
Higher Self-Perceived Risk	6.9%	(6.1 – 7.8)
Perception of Peer Sexual Risk Taking Score (range: 9-45)	19.7	(19.5-19.9)
Sexual Health Knowledge Score (range: 0-12)	8.9	(8.8 – 8.9)
Barriers to Help Seeking Score (range: 8-40)	22.6	(22.4-22.8)
At-Risk of Depression	34.9%	(33.3 – 36.5)
Never PAP Tested	22.2%	(20.8 – 23.5)

RESULTS

Table 2. Weighted proportion of the study population (N=4007) ever PAP tested stratified by level of HPV risk behaviour and the unadjusted association between ever PAP and level of HPV risk behaviour

Level of HPV Risk Behaviour	Weighted Proportion (95% CI)	Unadjusted OR (95% CI) *	p-values
Higher (n=676)	82.5 (79.6, 85.5)	2.07 (1.64, 2.62)	<.0001
Moderate (n=1992)	81.9 (80.1, 83.6)	1.98 (1.74, 2.26)	<.0001
Lower (n=1339)	69.5 (66.9, 72.1)	1.00	-
* Intraclass correlation at the university-level accounted for statistically without including university in the model			

RESULTS

Table 3a. Odds ratios (95% confidence intervals) for the associations between the demographic correlates of ever having had a PAP test (adjusted for behavioural and psychosocial correlates) [‡]

Covariates of Interest	OR (95% CI)	p-value
Age	1.30 (1.22-1.38)	<.0001
Caucasian	2.08 (1.62-2.67)	<.0001
Not 100% Heterosexual	1.19 (1.01-1.40)	0.0384
Year of Study		
• First	1.0	
• Second	1.02 (0.64-1.63)	0.9392
• Third	1.19 (0.73-1.96)	0.4813
• Fourth	1.46 (0.85-2.51)	0.1654
• Other	1.89 (0.92-3.85)	0.0810
Religion Less/Not Important	1.19 (1.02-1.38)	0.0313
Living Arrangements		
• Parent(s)	1.0	
• Alone	1.33 (0.71-2.52)	0.3741
• Romantic Partner	1.87 (1.36-2.57)	0.0001
• Student Residence	0.61 (0.44-0.83)	0.0019
• Roommate(s)	0.92 (0.73-1.15)	0.4487
* University intraclass correlation statistically adjusted for using a clustering correction		

RESULTS

Table 3b. Odds ratios (95% confidence intervals) for the associations between the behavioral, and psychosocial correlates of ever having had a PAP test (adjusted for demographic correlates)[‡]

Covariates of Interest	OR (95% CI)	p-value
Forced to Have Sex	1.10 (0.86-1.41)	0.4567
Heavy Marijuana User	1.84 (0.73-4.64)	0.1951
Level of HPV Risk		
· Lower	1.0	
· Moderate	1.82 (1.49-2.23)	<.0001
· Higher	2.08 (1.73-2.49)	<.0001
Peer Sexual Risk Taking Score	1.02 (1.02-1.03)	<.0001
Sexual Health Knowledge Score	1.19 (1.15-1.24)	<.0001
Barriers to Help Seeking Score	0.95 (0.94-0.97)	<.0001
At- Risk of Depression	0.97 (0.80-1.17)	0.7436
[‡] University intraclass correlation statistically adjusted for using a clustering correction		

DISCUSSION

Facilitators of HPV Screening

- Increased age
- Caucasian descent
- Being bisexual or lesbian
- Lower religiosity
- Living with a romantic partner vs. with parent(s)
- More sexual health knowledge
- Perceiving peers as having more liberal attitudes towards sex
- Engaging in moderate or high vs. lower HPV risk behaviour

Barriers to HPV Screening

- Living in student residence vs. with parent(s)
- Barriers to help seeking
 - Fear of seeming weak
 - Excessive independence/self-reliance
 - Fear of giving up control to others

DISCUSSION

- Over 22% of the women in the target population have yet to be screened
 - Implies that the Canadian screening recommendations have yet to be met
- The women in the study that had never been tested were more likely to be younger, non-Caucasian, religious, heterosexuals, living in student residence that had conservative peer groups, more barriers to help seeking and less sexual health knowledge
 - Health promotion initiatives should target first-year residence populations with programming designed to reduce potential barriers to help seeking attitudes and improve sexual health knowledge

LIMITATIONS

- Cross-sectional data
 - Potential endogeneity for some variables (e.g. that testing improves sexual health knowledge)
- Self-reported PAP testing
 - Potential over/under-reporting of the outcome of interest
- University-based sample
 - Not necessarily generalizable to other populations of young women
- Lower response rate (30.8%)
 - Potential non-response bias if those that did not respond had characteristics in common

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