

# Sexuality-related attitudes significantly modulate demographic variation in sexual health literacy in Tasmanian university students

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## Introduction

- Sexual health literacy (SHL) is the knowledge and familiarity with healthy practices as regards sexual health, and risk reduction strategies to engage in sexual activity safely and minimise negative consequences (STI, unplanned pregnancy)<sup>1</sup>.
- We previously showed significant differences in SHL between students of different birthplace, ethnicity, and religious affiliation, robust to adjustment for age, sex, sexual education, and sexual experience<sup>2</sup>.

## Aim

To utilise panel of sexuality-related attitudes to assess relationship with SHL, and of demographic variation in SHL accounting for attitude type.

## Methods

### Study design

- Researching University Students' Sexual Literacy Study (RUSSL) utilised an online and anonymous questionnaire.
- Recruitment August/September 2013, by email invitation to all current Tasmanian-based UTAS students, social media and flyers around campuses.

### Sexual literacy assessment

- ARCSHS Secondary Students and Sexual Health Survey (ARC): includes knowledge and HIV/Hepatitis domains, total 31 points<sup>3</sup>.
- University of Missouri Sexual Health Survey (SHS): includes knowledge, STI and pregnancy domains, total 20 points<sup>4</sup>.

### Attitudinal queries

- Questions extracted from Eastman-Mueller Sexual Health Survey<sup>5</sup>, the HIV/AIDS Knowledge and Attitudes Scale for Teachers<sup>6</sup>, the Revised Attitudes Towards Sexuality Inventory<sup>6</sup>, and the AIDS Attitude Scale<sup>7</sup>.
- Reduced to set of 21 sexual attitude questions regarding sexual behaviour, including sex outside marriage, contraception, homosexuality, sexual coercion, and HIV/AIDS.

### Statistical analysis

- Iterated principal factor analysis with oblique promax rotation was utilised to evaluate the latent variable organisation of the attitudinal questions<sup>8</sup>, Bartlett scores predicted for all participants.
- Analysis of attitudinal questions (excluding one question, "I worry about possible casual contact with a person with AIDS" which did not load materially on factors) realised a 3-factor model with no orphans.
- Attitudinal and SHL score predictors assessed by linear regression.

## Results

### Cohort characteristics

- Of 1,786 participants, 1,234 answered all attitudinal questions, allowing factor analysis. Subsample characteristics not materially different from full sample.
- Three attitudinal types defined from data: Conservative, anti-persons living with HIV (Anti-PLWHIV), and Sexually Responsible (**Table**).

	Factor 1	Factor 2	Factor 3
	Conservative	Anti-PLWHIV	Sexually Responsible
Eigenvalue	3.310	1.700	0.738
Proportion variance (rotated)	0.531	0.380	0.229
<b>Loading values for each factor</b>			
People should wait until they are married to have sex	<b>0.840</b>	-0.020	-0.029
Sex should be reserved for a long-term relationship	<b>0.798</b>	-0.019	0.169
The primary goal of sexual intercourse should be to have children	<b>0.573</b>	0.117	-0.003
People who carry protection (condoms, dams, diaphragms) are perceived as being sexually promiscuous	<b>0.353</b>	-0.034	<b>-0.243</b>
If I have been in a relationship for a while, it is expected that I have sex with that partner	<b>-0.173</b>	0.107	-0.095
No one deserves to have a disease like HIV/AIDS	<b>-0.177</b>	<b>-0.186</b>	0.096
It is ok to have sex if a partner gives consent to have sex while under the influence of alcohol or drugs	<b>-0.334</b>	0.105	<b>-0.292</b>
Sexual intercourse is acceptable no matter how long two people have known each other	<b>-0.598</b>	0.079	-0.199
HIV infection is a punishment for immoral behaviour	-0.105	<b>0.667</b>	0.140
People get HIV by performing unnatural sex acts	0.043	<b>0.588</b>	0.025
I feel uncomfortable when coming in contact with gay men because of the risk that they might have HIV	0.024	<b>0.535</b>	-0.002
I have no sympathy for people who get HIV	-0.156	<b>0.507</b>	0.141
Persons with HIV/AIDS are responsible for getting their illness	0.023	<b>0.498</b>	-0.070
I could tell by looking at someone if they had HIV	0.150	<b>0.341</b>	-0.093
Activities that spread HIV, such as some forms of sexual behaviour, should be illegal	<b>0.311</b>	<b>0.339</b>	0.009
It is important for me to know a partner's sexual history	0.183	0.139	<b>0.611</b>
A partner's sexual history would influence my decision to engage in sexual activity with him/her	0.135	0.107	<b>0.414</b>
People who carry protection (condoms, dams, diaphragms) are perceived as being Sexually Responsible	<b>-0.299</b>	0.061	<b>0.200</b>
Oral sex is not 'as big a deal' as penetrative (vaginal/anal) intercourse	-0.017	0.035	<b>-0.206</b>
I would consider not telling my partner about a past history of an STD in order to engage in sex	-0.119	0.117	<b>-0.398</b>

## Distribution of attitudinal scores by covariates

- Females had significantly **higher** scores on the Conservative and Sexually Responsible patterns, and **lower** scores on the Anti-PLWHIV pattern ( $p < 0.001$  for all).
- Older age was associated with **lower** Conservative and Sexually Responsible scores ( $p < 0.001$  for both), but was not associated with Anti-PLWHIV score ( $p = 0.74$ ).
- Students from Asia had **higher** Conservative and Anti-PLWHIV scores ( $p < 0.001$  for both), but showed no difference in Sexually Responsible score ( $p = 0.61$ ). No other differences by birthplace were found.
- East Asian and South Asian ethnicity students had significantly **higher** Conservative and Anti-PLWHIV scores ( $p < 0.001$  for all).
- All religions were associated with **higher** Conservative scores ( $p < 0.001$  for all), while Catholics ( $p < 0.001$ ), Protestants ( $p < 0.001$ ), other Christians ( $p = 0.023$ ), and Hindu ( $p = 0.039$ ) had significantly **higher** Anti-PLWHIV scores. Protestant ( $p = 0.008$ ) and Catholic ( $p < 0.001$ ) also had significantly **higher** Sexually Responsible scores.
- Greater and more comprehensive sexual education was associated with **lower** Anti-PLWHIV scores ( $p_{\text{trend}} = 0.041$ ), but no significant difference in Conservative or Sexually Responsible scores were found.
- Less communication about sex in the childhood household was associated with **higher** Anti-PLWHIV ( $p_{\text{trend}} = 0.03$ ) and lower Sexually Responsible ( $p_{\text{trend}} = 0.045$ ) scores.

## Attitudinal groups & SHL scores

- Conservative score was associated with significantly **lower** ARC and SHS scores ( $p < 0.001$  for both), with the highest tier 5.6 points lower for both ARC and SHS
- Anti-PLWHIV score was associated with significantly **lower** ARC and SHS scores ( $p < 0.001$  for both), with the highest tier 5.6 points lower for ARC and 9.2 points lower for SHS
- Sexually Responsible score was associated with significantly **higher** ARC and SHS scores, with the highest tier 2.4 points higher for ARC ( $p = 0.016$ ) and 4.5 points higher for SHS ( $p < 0.001$ ).

## Demographic variation in SHL score, adjusted for attitudinal scores

- Adjustment for attitudinal scores did not materially impact on associations of age, sex, study area, or sexual education with SHL.

### Birthplace & SHL

- Previously showed significantly **lower** SHL among overseas-born students, particularly from South and Southeast Asia, robust to adjustment for age, sex, and sexual education.
- Adjustment for attitudinal group scores renders ARC deficit non-significant, while attenuating SHS deficit by 36%.

### Ethnicity & SHL

- Whereas birthplace strongly predicted significantly **lower** SHL for Asian-born students only, students identifying as East Asian and South Asian ethnicities had significantly **lower** SHS but not ARC.
- Adjustment for attitudinal group attenuated SHS deficits by 25% and 33%, respectively, but both remained significant.

### Religious affiliation & SHL

- Previously showed significantly **lower** SHL among students identifying as Protestant, Muslim, Buddhist, and Hindu.
- Adjustment for attitudinal group scores greatly reduced deficits in SHL scores for Protestant (126% ARC, 53% SHS), Muslim (87% ARC, 41% SHS), and Hindu (134% ARC, 47% SHS) affiliations, though Buddhist association not greatly impacted by adjustment (16% ARC, 22% SHS).

## Conclusions

- Three attitudinal groups can be identified in sexuality-related attitudes in University of Tasmania students: Conservative, Anti-PLWHIV, and Sexually Responsible.
- Higher scores for Conservative and Anti-PLWHIV attitudes associated with significantly lower SHL, while higher Sexually Responsible scores associated with significantly higher SHL.
- Previously identified differences in SHL by birthplace, ethnicity, and religion can be partly or wholly explained by higher attitudinal affiliations.
- It may be that deficits in SHL among persons with stronger attitudinal affiliation to some groups may be a consequence of framing via that attitude-associated worldview.
- May also be that differences in SHL and attitudinal affiliation are common products of different backgrounds, including where sexual behaviour is more normalised and not treated in negative moralistic fashion, or the reverse.
- Application of this work would suggest that sexual education efforts should be designed with cultural and social background in mind, to present information in a manner more likely to be accepted and utilised by students<sup>9</sup>, rather than a blanket approach.

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