

How does HIV Knowledge, attitudes and behavior of young adults in Arizona compare to those of China and Taiwan?

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Introduction

Arizona is one of the largest and fastest growing states in the United States, with a population of 7.172 million people as of 2018. Within that population 18,190 have HIV/AIDS based on the 2018 Arizona HIV surveillance annual report³. Those most susceptible groups contracting HIV in Arizona are African Americans, men, men having sex with men (MSM), and ages 20 to 34³. Traditional college aged students fall within this age range and are therefore at higher risk. In order to assess what is causing college students in America to be more susceptible to infection, one can examine knowledge, attitudes and behaviors (KAB) compared to other places, like China and Taiwan that followed similar methods. There have been a variety of HIV/AIDS KAB studies that have looked at different populations, interventions, and methods in hopes to understand transmission rates and risks.

Hypothetically, with twenty added years of research, interventions and understanding, one might expect to observe increased knowledge but negative attitudes and behavior regarding the disease due to widely known misconception and cultural stigma. Knowledge is the key to influencing attitudes and behaviors in order to reduce the transmission of HIV.

Methods

The survey was sent to Arizona college students from four different colleges via email and flyers using an encrypted online internet survey program, Qualtrics. Survey participants were excluded if the individuals were not between the ages of 18-29, this was the only exclusion criteria. An anonymous International AIDS Questionnaire - English (IAQ-E) survey was sent along with demographic questions. The IAQ is a questionnaire that is a reliable tool used to measure KAB using all four dimensions (myths, facts, personal risk and attitudes)⁹.

The percentages of questions correct, incorrect or unaware from this population will be compared to the results from China and Taiwan. These calculations will come from the Likert scale (1= strongly disagree, to 5 = strongly agree) used in the IAQ-E.

Results: Arizona

We had 591 participants with an average age range was between 21-22, 77.2% biologically female, almost 3% identifying as non-binary/other or transgender, 2.2 % African American, and 22.84% identified with the LGBTQ community. Most participants were college seniors (30.3%), followed closely by juniors (29.8%) and most had never been married (90.4%). *See Table 1*

Results. The participants were knowledgeable about HIV/AIDS prevention, transmission and were mostly not swayed by myths. Participants' attitude toward HIV/AIDS persons was consistent with a positive attitude. Students also tended to understand risk and behaviors that lead to transmission, with the exception that 16.75% believed that they can protect themselves with an AIDS vaccine (*See Table 2*). It is important to note that 76.8% of students reported being sexually active and 37.4% reported having more than one partner at a given time. In all sexually active participants, the average times a condom was used during intercourse was 56.4% and 8.49% reported not using condoms ever.

Table 2. HIV Knowledge and Attitudes (N = 591)

	Mean (SD)
MYTHS	
1. HIV can be spread through coughing and sneezing.	1.67 (1.05)
2. AIDS can be contracted through sharing cigarettes.	1.94 (1.21)
3. HIV/AIDS can be spread through hugging an infected person.	1.13 (0.46)
4. HIV can be transmitted through the air.	1.15 (0.45)
5. HIV can be spread through swimming pools.	1.79 (1.05)
6. HIV can be contracted through toilet seats.	1.79 (1.09)
7. Mosquitoes can transmit HIV. ^a	3.07 (1.41)
ATTITUDES	
8. People with HIV should be kept out of schools.	1.26 (0.63)
9. I would end my friendship if my friend had AIDS.	1.12 (0.42)
10. I am willing to do volunteer work with AIDS patients.	3.87 (1.15)
11. If a family member contracts HIV, he/she should move out.	1.19 (0.52)
12. People with HIV should stay home or in a hospital.	1.37 (0.75)
PERSONAL RISK & BEHAVIOR	
13. Persons of my ethnic group are less susceptible of contracting AIDS than others ethnic groups.	1.87 (1.15)
14. AIDS only affects intravenous (IV) drug users, prostitutes, and homosexuals.	1.24 (0.76)
15. You can protect yourself against AIDS by being vaccinated for it. ^a	2.05 (1.26)
FACTS	
16. Condoms will decrease the risk of HIV transmission. ^a	4.42 (0.88)
17. HIV is transmitted from mother to baby. ^a	4.05 (0.99)
18. HIV is spread through infected sperm. ^a	3.79 (1.38)
Overall Score	38.7 (6.34)

Note. Items scored on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree
^aItems reversed only when computing for subscale mean and standard deviation.
 All other data presented in its original form.

Table 2 Results of the IAQ-E completed by Arizona College students

Table 1. Demographics of Participants	Values (n=591)
Age, years (n, %)	
≤ 21	180 (30.5)
>21 - ≤ 22	153 (25.9)
>22 - ≤ 24	125 (21.2)
>24	133 (22.5)
Biological Sex (male, %)	118 (19.9)
Gender Identification (n, %)	
Female	156 (77.2)
Male	118 (19.9)
Other	17 (2.88)
Sexual Orientation (n, %)	
Heterosexual	437 (73.9)
Homosexual	37 (6.26)
Bisexual	78 (13.2)
Pansexual	20 (3.38)
Other/Prefer not to say	19 (3.21)
Race (n, %) (Missing 10)	
Caucasian	390 (65.9)
Hispanic/Latino/Spanish	133 (22.5)
African American	13 (2.20)
Asian	18 (3.05)
American Indian/Native Hawaiian.	27 (4.57)
Marital Status (n, %)	
Never Married	534 (90.4)
Married	49 (8.29)
Separated/Divorced	8 (1.35)
Income (n, %) (Missing 73)	
< 10000	102 (17.3)
10,000 - 29,999	112 (18.9)
30,000 - 49,999	73 (12.4)
50,000 - 69,999	66 (11.2)
70,000 - 99,999	67 (11.3)
>100,000	98 (16.6)
Highschool State (n, %) (Missing 11)	
Other	126 (21.3)
AZ	381 (64.5)
CA	73 (12.4)
Year in College (n, %) (missing 7)	
Freshmen	45 (7.61)
Sophomore	94 (15.9)
Junior	176 (29.8)
Senior	179 (30.3)
Graduate/Professional	90 (15.2)
What is your major and minor if applicable? (STEM % (Missing 33))	322 (54.5)
GPA (n, %) (Missing 12)	
<3.0	58 (9.81)
3.0 - <3.5	130 (22.0)
≥3.5 - <3.8	171 (28.9)
≥3.8	220 (37.2)

Note. All answers were not completed by some participants and are noted as missing n

Table 1 Demographics

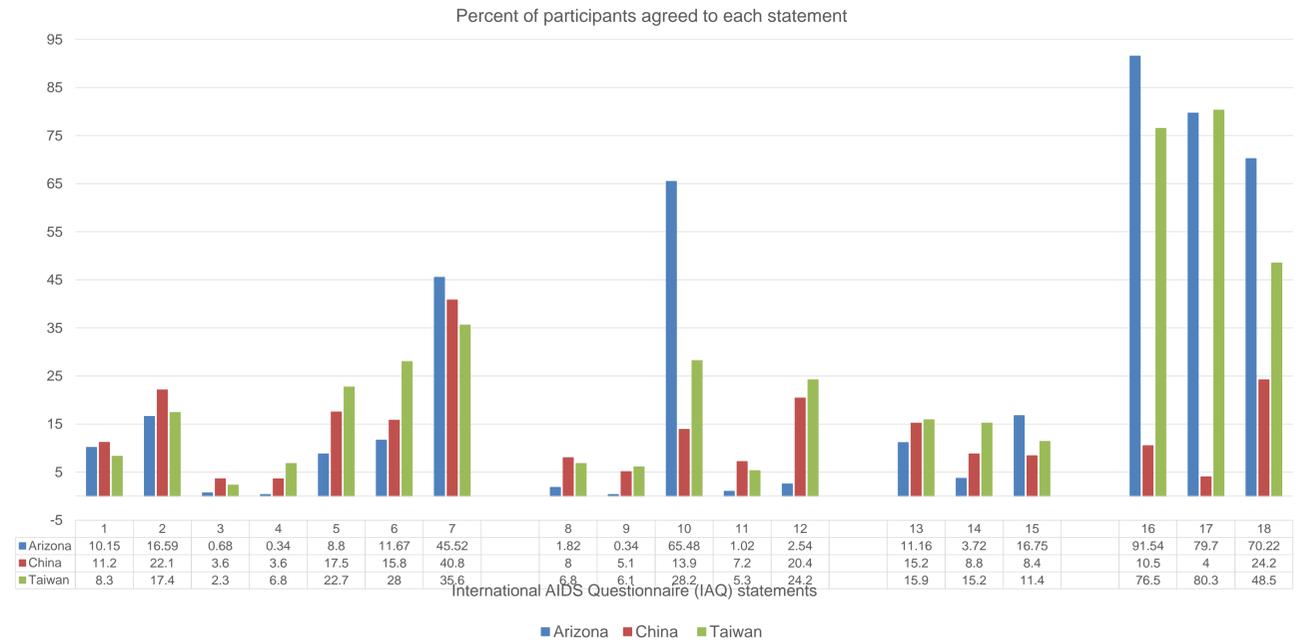


Chart 2. Comparing the % agreed to each statement in Arizona, China and Taiwan

Comparison: China and Taiwan

In China in 2011, a study was conducted about the KAB Chinese college students in the west and central region of China. They used an internet survey called the "International AIDS Questionnaire – Chinese version (IAQ-C)," and the scores were rated by the Likert scale (1= strongly agree to 5 = strongly disagree). There was a 90.3 % response rate (475 valid surveys) with an age range of 18 to 35, with most participants being males (58.1%), freshmen (31.8%) and never married (97.9%).

Results. Many students were unknowledgeable about HIV/AIDS prevention; however, they scored well in the subject of transmission. Regarding behavior, 17.9% of the students reported being sexually active, which was higher than previous studies, 37% reported having more than one partner, and 21% reported almost never using condoms⁷.

In Taiwan in 2008, a study was conducted about the KAB Taiwanese college students from two private universities. The same IAQ-C was used in this study. The age range for the study was 20 to 26 and most participants were females (60.6%), sophomores (61.4%), and never married (100%).

Results. This study indicated that general knowledge about HIV/AIDS was poor but showed positive attitude towards those infected by HIV/AIDS. Regarding behavior 29.5% reported being sexually active, more than 60% reported having more than one partner and 50% reported sometimes using condoms⁸.

Discussion and Conclusions

Comparison.

- Overall, students in Arizona have higher knowledge of HIV/AIDS compared to both China and Taiwan.
- Taiwan had the more positive attitude toward the HIV/AIDS community followed by Arizona then China.
- In all three groups they all understood risky behaviors that can lead to transmission of HIV.
- Demographics of the populations and the differing cultural norms may have played a role in reported sexual behaviors.

Conclusion. The significance of these results can be used to evaluate how different countries and groups score on the KAB, assessing where they do better and implementing how we can improve based on their models is a positive step forward. **Limitations.** Limitations we encountered included those related to diversity, self reporting and timing of survey distributions. It would be helpful to know participants' sexual health history, religions, and zip codes for further details and understanding.

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