

Interactive Computer Simulation for Adolescent Screening, Brief Intervention, and Referral to Treatment (SBIRT) for Substance Use in an Undergraduate Nursing Program

Katie A. Burmester, Jai P. Ahluwalia, Robert J. Ploutz-Snyder, Kate McCaulley, & Stephen Strobbe
University of Michigan School of Nursing

BACKGROUND & SIGNIFICANCE

Adolescent substance use is a significant concern worldwide and is the most preventable and costly public health problem in the United States. Screening, brief intervention, and referral to treatment (SBIRT) is an evidence-based approach for identifying and addressing substance use behaviors before more serious problems develop. Despite recommendations for universal implementation, adolescent SBIRT training has remained absent from most undergraduate nursing curricula. Interactive computer simulation for adolescent SBIRT may be a practical, efficient, and cost-effective way to educate undergraduate nursing students.

OBJECTIVE/AIMS

To describe and evaluate the feasibility and effectiveness of an interactive adolescent SBIRT computer simulation in the clinical training of undergraduate nursing students.

METHODS

One hundred forty-four undergraduate nursing students completed a highly interactive computer simulation (*SBI with Adolescents*, Kognito) for adolescent SBIRT, using a virtual coach, and patients. Self-perceived competence, confidence, and readiness to deliver adolescent SBIRT were measured via ordinal Likert-style pre- and post-survey items, immediately before and after the simulation. At the end of the simulation, students received an automatic assessment challenge score based on simulation performance. Students were also able to provide qualitative feedback via free response.

We compared pre- versus post-SBIRT scores using the Wilcoxon signed rank test and the sign test for repeated-measures using 2-tailed $\alpha = 0.05$. Similar comparisons were then conducted on individual questions. However, given the higher risk of Type I errors, p-values for these comparisons were adjusted using the Bonferroni multiple comparison adjustments.

QUANTITATIVE RESULTS

Of 144 students who completed the computer simulation, 134 (93%) students achieved the recommended passing assessment challenge score (≥ 75) on a first attempt, with a mean score of 86.44/100. For educational purposes, the ten remaining students who did not pass on the first attempt were given an opportunity to enhance scores on subsequent attempts. Among post-survey respondents, 89.3% were satisfied with the overall quality of this education, with 93.4% of students satisfied with the quality of the simulation between the practitioner and adolescent. Pre- and post-survey analysis revealed significant ($p < 0.001$) increases in self-perceived competence, confidence, and readiness to deliver adolescent SBIRT. Students displayed a significantly increased desire to work with individuals who drink alcohol ($p = 0.0012$), viewing this opportunity as “rewarding” ($p = 0.0013$).

Change in Pre- and Post-Survey Competence, Confidence, and Readiness Items		
Competence	# + change % + change	p-values
Asking adolescents about their alcohol and drug use.	70/120 (58.33%)	$p < 0.001$
Assessing adolescent's readiness to change regarding their alcohol and drug use behavior.	98/121 (80.99%)	$p < 0.001$
Discussing/advising adolescents to reduce or halt their drinking and drug use behavior.	88/120 (73.33%)	$p < 0.001$
Helping adolescents identify benefits of cutting back or stopping use of alcohol and drugs	61/121 (50.41%)	$p < 0.001$
Helping adolescents identify challenges/barriers in cutting back or stopping use of alcohol and drugs	64/121 (52.89%)	$p < 0.001$
Helping adolescents develop a personal plan for cutting back or stopping alcohol; or drug use	93/121 (76.86%)	$p < 0.001$
Arranging follow-up to help adolescents cut down or stop using alcohol or drugs	92/119 (77.31%)	$p < 0.001$
Confidence		
Using information gathered about the adolescent's substance use to provide feedback	87/122 (71.31%)	$p < 0.001$
Helping an adolescent to agree to cut back or accept referral	95/122 (77.87%)	$p < 0.001$
Intervening with adolescents who misuse prescription medication	80/120 (75%)	$p < 0.001$
Expressing empathy and reflecting an adolescent's emotions during a brief intervention for substance use	80/122 (65.57%)	$p < 0.001$
Readiness		
To screen all adolescents for alcohol use	90/114 (78.95%)	$p < 0.001$
To provide brief interventions for adolescents who screen positively for alcohol use	91/118 (77.12%)	$p < 0.001$
To screen all adolescents for illicit drug use or prescription drug misuse	87/116 (75%)	$p < 0.001$
To provide brief interventions for adolescents who screen positively for illicit drug use or prescription drug use	89/118 (75.42%)	$p < 0.001$

QUALITATIVE RESULTS

Students praised the realistic, structured, and interactive aspects of the simulation. One student noted, “The simulation was very similar to situations I may encounter in real practice. The outline was very organized so I had a direction on how to intervene when adolescents could be the most motivated.”

Another student wrote, “I liked how the conversation, especially on the adolescent's end, was very realistic and similar to things I would have said when I was that age. I also liked how easy to use it was and how the generated responses always seemed to convey the emotions and things I wanted to be said by the practitioner.”

CONCLUSION

Adolescent substance use is a major public health problem, and undergraduate nursing students are in an ideal position to receive education about the delivery of adolescent SBIRT. Nursing students demonstrated significant improvements in self-perceived competence, confidence, and readiness to deliver SBIRT. Students responded with predominantly positive feedback regarding the clinical simulation experience. In summary, an interactive computer simulation for adolescent SBIRT was successfully integrated into an undergraduate nursing school curriculum.

ACKNOWLEDGEMENTS

The computer simulation, *SBI with Adolescents*, was provided by Kognito as part of an ongoing collaboration with the University of Michigan School of Nursing.

Correspondence: Please direct correspondence to Katie Burmester, University of Michigan School of Nursing, 426 N. Ingalls Street, Ann Arbor, MI 48109. E-mail: katburm@umich.edu



Figure 1. *SBI with Adolescents* (Kognito). The interactive computer simulation guided undergraduate nursing students through a series of different scenarios regarding adolescent substance use.

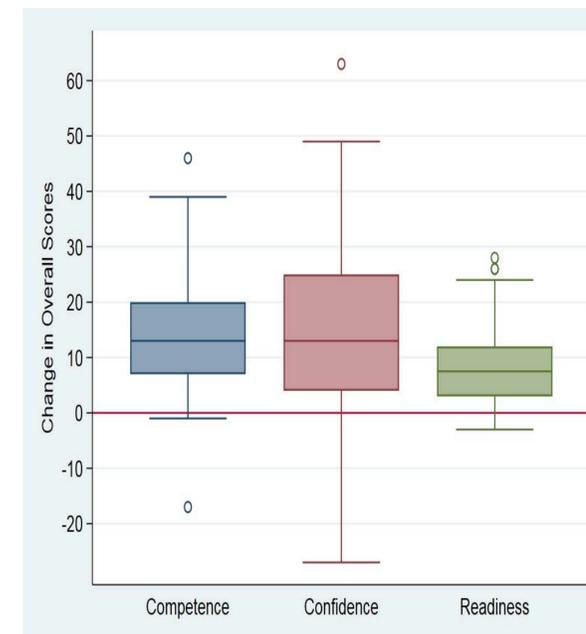


Figure 2. Changes in pre- and post-survey competence, confidence, and readiness to deliver adolescent SBIRT