Training health professional students in adolescent SBIRT using an online module

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Abstract

An interprofessional course on Screening, Brief Intervention and Referral to Treatment (SBIRT) for undergraduate and graduate allied health students (n = 159) offered a four-hour online module on how to implement SBIRT for adolescents. The first section of the module was an asynchronous online unit with information on SBIRT developed by experts, available for free in the public domain. The other section was a virtual simulation that allowed students to practice implementing SBIRT with adolescents. The objectives of this study were to assess how professionally competent students who completed the module (n =78) felt in performing adolescent SBIRT related aspects and how the training impacted their future practice. We used a pre-posttest design with a control group. The module was found to be successful in increasing overall competency in practice for adolescent SBIRT. Students who completed the adolescent SBIRT module were more likely to individualize substance use-related care based on factors such as age, gender, and race/ethnicity (t (57) = -3.167, p =.002), compared to those who did not. The study demonstrates that using reliable, vetted resources to create modules can aid in assisting educators in creating new course content while contributing to targeted learning outcomes.

Key Words: Simulation, SBIRT, Educational technology, Interprofessional education, online learning.

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Adolescence is a critical period for exposure to substance use. Nearly 72% of high school seniors have consumed alcohol, 37% by eighth grade (National Center for Drug Abuse Statistics [NCDAS], 2019). Fifty percent of teenagers have misused a drug at least once, with marijuana being the most common drug (NCDAS, 2019). Youth who use alcohol or drugs before adulthood are more likely to develop a substance use disorder (National Institute on Drug Abuse [NIDA], 2014).

Screening, Brief Intervention, Referral to Treatment (SBIRT) is an evidence-based practice to identify, reduce and prevent tobacco, alcohol and drug use and abuse (Substance Abuse Mental Health Services Administration [SAMHSA], 2016). Endorsed by the American Academy of Pediatrics (2011), SBIRT is based on a public health model with the goal, in relation to youth, to eliminate substance use and dependence (Sterling et al., 2019). Specifically, the model is based upon the Institute of Medicine (IOM)'s (IOM, 1990) recommendation to develop an integrated service system which enables those individuals who are at risk for or who have a substance use disorder to receive brief intervention and referrals to appropriate community resources, as necessary. This reduces the prevalence of substance use disorder and misuse, improving overall community health (IOM, 1990). The Social Development Model (SDM) posits that risk and protective factors influence substance use among adolescents (Catalano & Hawkins, 1996). Parents, peers, schools, and communities are four contexts that influence adolescent behavior. Adolescents, who have greater attachment to contexts that have positive behaviors that follow society's norms, are less likely to use substances (Cleveland et al., 2008).

SBIRT incorporates the SDM model by providing screening opportunities in health care settings, schools and community agencies to address the attachment to negative contexts. While most commonly delivered in primary care centers, SBIRT for youth can be performed in a variety of community and educational settings such as school health centers, after school programs, youth centers and prenatal clinics (The National Association of State Alcohol and Drug Abuse Directors [NASADAD], 2015).

Training future health professionals to recognize and prevent substance misuse and dependence in adolescents will help to address a costly and preventable health problem. Nevertheless, challenges to curriculum development exist. The curricula of health professions programs are already inundated with required content for accreditation (Miller et al., 2016). Furthermore, instructors struggle with creating additional content due to their increasing workloads and lack of expertise (Chen et al., 2015). To overcome these barriers and to prepare healthcare students (i.e., medical, nursing, pharmacy and social work) who were interested in working with youth, the impact of an existing module that addressed SBIRT for adolescents was examined.

Methods

This study was part of a larger study (see Acquavita et al., 2019, for detailed study information) that was classified as exempt from the University of Cincinnati institutional review board (IRB). In the larger study, a hybrid course on SBIRT was developed to train interprofessional students from medicine, nursing, pharmacy and social work. The SBIRT hybrid course was held five times between 2016 through 2018. Students had interprofessional experiences including practicing implementing SBIRT with an instructor round robin style, a standardized patient (SP) experience administering SBIRT to a patient and clinical experiences

implementing SBIRT in community agencies. A subset of these students completed an additional, optional module on using SBIRT in adolescents. This optional online adolescent SBIRT training module consisted of ~~a~~ free online training (~ 2-3 hours available at IRETA.org) and a virtual simulation whereby the student implemented SBIRT with an adolescent as a healthcare provider (www. Kognito®.com). A pre-post design was used to examine how competent the optional module students felt in implementing adolescent SBIRT. We then examined how their satisfaction with the training overall compared with that of course students, using those who did not complete the module as a control group.

Procedures

Optional module students first completed the online training, uploaded their certificate of completion, and then concluded with the virtual simulation. Prior to beginning the virtual simulation, the optional module students were administered a pre-test to examine how professionally competent they felt about implementing SBIRT with an adolescent; the same questions were asked afterwards. All students (course and module) completed a satisfaction survey at the end of the course, 30 days post course completion, and 12 months post course completion.

Instruments

Kognito® is a health simulation company that provides a platform in which health professionals and students can learn conversational skills and methods (e.g. SBIRT) that promote behavior change in patients. Through evidence-based simulations with virtual patients, users of the Adolescent SBIRT module can engage the virtual simulated patient via various approaches and receive personalized feedback to enhance their skills and confidence. (Kognito®, 2020).

The pre-post questionnaire, created by Kognito®, focused on the optional module students' perception of professional competence felt in performing alcohol and drug aspects of SBIRT when working with an adolescent (1= "Not at all competent" to 5 = "Very competent."). The Center for Substance Abuse Treatment (CSAT) Baseline and Follow-up Training Satisfaction Surveys (v2.0) were used to evaluate satisfaction for all students. Questions include whether any information from the training has been shared with others, and whether information gained has been used to promote or effect change. Students rated (a) the overall quality of the training, materials and the experience (1 = "Very Satisfied" to 5 = "Very Dissatisfied"); (b) the organization of the training, usefulness and relevance of the training and materials, instructor knowledge and preparation, whether the training enhanced their skills, and if participants would recommend the course to a colleague (1 = "Strongly Agree" to 5 = "Strongly Disagree"); and finally (c) the usefulness of information received from the instructor (1 = "Very Useful" to 5 = "Not Applicable").

Participants

Of the 159 hybrid course students who consented to the study, 78 (49%) completed the optional adolescent module. Of the optional module students, 26% were male, 74% were White, 13% Asian American, 4% African American/Black, and the remainder were Other/More than one race. Disciplines consisted of 35% medical students, 42% social work students, 13% pharmacy students, and 10% nursing students. There were no significant demographic differences between optional module students and course students. A total of 60 optional module students (76%) responded to 12-month follow up.

Analysis

This study used SPSS® version 26 (IBM Corp, 2019) for descriptive statistics, paired t-tests and independent t-tests. Paired t-tests were used to compare pre-post results of perceived competence in adolescent SBIRT in optional module students who completed the Kognito® questionnaire. Independent t-tests were used to compare module students' satisfaction with the overall course versus course students. Cohen's *d* was calculated with the effect size calculator (Stangroom, 2019). Cohen's *d* is the difference between two means, with small (0.2), medium (0.5) and large effect sizes (0.8) (Wuensch, 2019).

Results

Optional Module Students

For the question, "I feel confident in my ability to refer adolescents to additional substance use support services," (n =59), significant results were found (t (58) = -5.626, $p \leq .0005$). When asked, "How likely are you to conduct substance use screening, brief interventions, and referrals to adolescents" (n =52), the majority reported "Very Likely," (25%) or "Likely," (50%), with the remainder reporting "Unlikely" (21.2%) or "Very Unlikely" (3.8%). At 30-day post completion, optional module students reported high satisfaction with the quality of the training (95.2%), enhancement of their skills in the topic area (98.6%) and the relevancy of the training to their career (96.8%). The lowest score was found in sharing the materials from this training with others (48.4%). Significant results with paired t-tests had mostly large effects of perceived competence on aspects of adolescent SBIRT, demonstrating the virtual patient simulation increased student perception of competency in adolescent SBIRT skills (see Table 1). At 12-month follow up, 69% (n =59) of optional module students reported implementing components of SBIRT with at least one client within the last 12 months; 71% of module students screened for alcohol, while 69% screened for drugs.

Table 1

Health Professional Students' Professional Competency in Adolescent SBIRT Skills.

Please indicate how professionally competent you feel in performing these alcohol and drug (A & D) related aspects when working with an adolescent: (Not at all competent, Only a little, Moderately, Very)						
Question	*N*	*Pretest M (SD)*	*Posttest M (SD)*	*t*	*p*	*Cohen's d*
Asking adolescents about their A & D use.	37	2.49 (.8)	3.27 (.7)	-3.88	<.0005	1.04
Asking adolescents about quantity and frequency of A & D use.	37	2.43 (.7)	3.2 (.7)	-4.62	<.0005	1.09
Screening adolescents for A & D problems using a formal standardized screening instrument.	37	2.42 (.72)	3.2 (.7)	-4.21	<.0005	1.09
Discussing/ advising adolescents to reduce or halt their drinking and drug use behavior.	37	2.19 (.7)	3.16 (.7)	6.01	<.0005	1.44
Providing personalized feedback to adolescents about their risk associated with drinking and drug use.	37	2.24 (.68)	3.24 (.72)	5.5	<.0005	1.42
Tailoring brief interventions to adolescents' motivational level.	37	2.22 (.82)	3.11 (.69)	4.21	<.0005	1.17
Helping adolescents identify benefits of cutting back or stopping use of A & D.	37	2.46 (.69)	3.11 (.69)	3.55	<.005	0.94
Helping adolescents identify challenges/barriers in cutting back or stopping use of A & D use.	36	2.47 (.69)	3.17 (.69)	4.13	<.0005	1.0
Helping adolescents develop a personal plan for cutting back or stopping A & D use.	37	2.35 (.72)	3.14 (.71)	4.21	<.0005	1.10
Referring adolescents with A &D problems to appropriate treatment sources based on their need.	37	2.27 (.65)	3.11 (.69)	4.77	<.0005	1.24
Engaging parents in the discussion about treatment.	37	2.27 (.84)	2.86 (.89)	3.17	<.005	0.68
Arranging follow-up to help adolescents cut down or stop using alcohol and drugs.	37	2.36 (.72)	3.19 (.71)	5.0	<.0005	1.29

Optional Module Students versus Course Students

Independent t-tests did not find significant differences in satisfaction at course completion and 30-day post completion for module versus course students. At the 12-month follow up, independent t-tests indicated optional module students were more likely to ask clients/patients about their substance use (t (57)= -2.252, , p =.28), ask about quantity and frequency of substance use with clients/patients (t (57) = -2.542, p =.014), screen clients/patients for substance use problems using a formal screening instrument (t (57)= -2.937, p =.005), assess clients'/patients' readiness to change their substance use behavior (t (57) = -2.984, p=.004), discuss or advise clients/patients to change their substance use behavior (t (57) = -2.005, p =.05), use pharmacologic methods for ongoing management of their alcohol or other substance dependence e.g. relapse prevention (t (57) = -2.824, p =.007), refer clients/patients with substance abuse problems to treatment programs or self-help groups (t (57)=-2.425, p =.018), and individualize substance use-related care based on factors such as age, gender and race/ethnicity (t (57) = -3.167, p =.002).

Discussion

This study examined the impact of an online adolescent SBIRT module created to train future health professionals including medical, nursing, pharmacy, and social work students, specifically exploring perceptions of competence implementing adolescent SBIRT. Approximately half of the hybrid course students who consented to the study opted to take the adolescent module, indicating willingness to invest three additional hours to complete this training and highlighting the perceived relevance of this content in their careers. Seventy-five percent (n=52) of module students reported being "very likely" or "likely" to conduct SBIRT with adolescents. At 12-month follow up, module students were significantly more likely to

report using SBIRT skills, such as screening, assessing readiness and referring when needed. Moreover, 69% (n =59) of module students reported implementing components of SBIRT with at least one client.

This study highlights feasibility and potential utility of online adolescent SBIRT training. Faculty from the School of Social Work developed the module by combining existing online training from IRETA.org and Kognito® virtual simulation, minimizing the need to create new content or increase workload. Online modules and virtual simulations have become increasingly important in the delivery of interprofessional education (Pardue & Konrad, 2016; Sanborn, et al., 2019) as they provide solutions to barriers of schedule and time, offer students the opportunity for low-risk skill practice, and have positive outcomes. Kognito® online modules provided a nonthreatening environment that allowed for practice, learning, and modeling professional skills, allowing students to readjust their response based on the virtual patient's reaction. In addition, a virtual coach provided ongoing feedback to guide the student throughout the simulated counseling session. Thus, the module was beneficial for enhancing students' knowledge and skills as well as confidence in their patient encounters. At 30-day post completion, module students reported high satisfaction with the quality of the training and improved skills in the topic area.

Reports of adolescent SBIRT training for a specific health profession such as nursing have been published (Burmester et al., 2019, Kuzma et al., 2018, Ryan et al., 2018); however, to our knowledge, this study is the first to address adolescent SBIRT training for multi-discipline students. Burmester et al. (2019) evaluated adolescent SBIRT training in undergraduate nursing education, using the same adolescent SBIRT interactive computer simulation. Similar to our study, significant improvement in overall student competence, confidence, and readiness to

deliver SBIRT were reported (Burmester, et al., 2019). By incorporating interprofessional education (IPE) and SBIRT together, a shared approach to behavioral change management with patients can be implemented (Wamsley et al., 2018).

This study has several limitations, such as the limited number of students at one university. The small sample size did not allow for analysis of optional module impact or student satisfaction by profession, limiting generalizability to other settings. Additionally, self-perceived competence may not correlate to actual ability, and data were quantitative, subjective, and self-reported, thereby, not objectively assessing the use of SBIRT skills with adolescents. Finally, optional module students self-selected to participate in the additional training creating selection bias as they may be different as learners in motivation or ability than course students overall. Additional studies that incorporate adolescent SBIRT training modules with health professionals may be useful to identify optimal approaches for training.

Conclusion

This study demonstrates the feasibility of adolescent SBIRT training for health professional students and their positive reception of the online module. Module students reported significant improvements in perceived competence on aspects of adolescent SBIRT with modest time investment. This demonstrates the potential for this and other similar curricula to impact adolescent substance use. Furthermore, the IPE approach promotes consistency in addressing adolescent substance use across allied health professions.

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