Implementing an SBIRT Pilot Utilizing Student-mediated Screenings and Brief Interventions

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Abstract

Background: Excessive alcohol use is linked to numerous morbidities, in addition to the enormous economic impact on healthcare. Screening, brief intervention, referral to treatment (SBIRT) is a proven, effective tool in reducing alcohol use; however it is severely underutilized due to barriers such as provider time constraints and lack of confidence. Numerous missed opportunities exist regarding screening and early intervention, which could significantly improve patient outcomes. An SBIRT pilot utilizing student-mediated brief interventions could serve to increase provider confidence and awareness, as well as overcome time constraint barriers. **Purpose:** The purpose is to implement an SBIRT pilot at a campus clinic, utilizing nurse practioner (NP) students to conduct universal alcohol screens and brief interventions (BI) as a means to overcome barriers to accepting an evidenced based practice. **Methods:** Intervention group (IG) of two providers were matched with NP students to perform screens and BI's (n=111), while a comparison group (CG) of three providers conducted usual care (n=41). Single question screens were administered universally, followed by an AUDIT (Alcohol Use Disorders Identification Test) and BI for positive screens. A pre/post pilot provider attitude survey was administered to gauge provider acceptance. **Results:** Of 109 patients screened, 52% tested positive requiring a full AUDIT, 56% of AUDITS were positive requiring BI's, 88% agreed to a BI, and 93% agreed to reduce alcohol intake. Post attitude survey revealed a 22% increase in provider acceptance. Chi square testing showed statistical significance, $X^2(1, N = 152) = 142.31$, $p < .001$. **Conclusions:** Utilizing students to perform universal screenings and BI's is effective in implementing SBIRT while offering a sustainable option to overcome time constraint barriers and provider confidence as well as exposing misconceptions regarding patient acceptance.

Keywords: SBIRT, screening and brief intervention, brief intervention, motivational interviewing

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Alcohol abuse and its profound consequences continue to be of grave concern in the healthcare industry. In addition to its major contribution to mortality, alcohol dependence has been linked to numerous physical morbidities, as well as psychiatric and emotional distress (Cargiulo, 2007). While these effects only illustrate the negative impact on the individual, alcohol dependence has a far reaching impact, affecting families, communities, as well as industries (Gmel & Rehm, 2003). An effective means to address this dilemma is a crucial element in reducing alcohol use and its associated health risks in a university campus setting.

Background and Significance

There is significant data linking chronic alcohol use to numerous health conditions including hypertension, heart disease, and stroke (Cargiulo, 2007). In addition to its risk for heart disease, excessive alcohol consumption is linked with risk factors for various types of malignancies to the digestive tract, liver, breast, ovaries, and respiratory tract, in addition to its known risk for cirrhosis (Cargiulo, 2007). Other damaging effects of excessive alcohol use include various psychological and emotional issues such as mood disorders, increased risk for injury, brain pathology, neurologic cognitive deficits, financial strain, and domestic abuse to name a few. (Cargiulo, 2007; Rehm et al., 2003).

Alcohol Use and its Impact on a College Campus

College campuses nationwide are noted for its predominance of alcohol use. Although this is considered an accepted practice by many college students, underlying risk factors associated with college drinking is nothing short of alarming. Some disturbing facts regarding college drinking include

- 37.9% of college students engaged in binge drinking last month;

- 1825 college students die yearly from alcohol related injuries yearly;
- 20% of students meet criteria of alcohol use disorder (AUD);
- 97,000 students experience alcohol-related sexual assault yearly;
- 696,000 students are assaulted yearly by another student who was drinking (NIH, 2016);
- Female binge drinkers are five times more likely to acquire an STD (Hutton et al., 2008)

These facts are indicative of the need for universal campus screening and education given the significant harm associated with alcohol consumption. Furthermore, most patients aren't even aware of alcohols potential harm. Despite evidence justifying universal alcohol screening, there is no policy mandating this practice at the campus clinic.

Given the amount of well-documented evidence regarding the harmful effects of alcohol, implementing an evidenced based practice (EBP) to address this problem would not only be reasonable, but well-warranted. Screening, brief intervention, and referral to treatment, also known as SBIRT, is a process that includes universal screening, followed by either an immediate brief intervention or a referral to treatment. The decision to provide an intervention, or to refer to treatment is based on the severity of the alcohol use as determined by a reliable screening tool such as Alcohol Use Disorders Identification Test (AUDIT; Babor et al., 2001). Brief interventions employ a motivational interviewing style that is patient centered, non-judgmental, immediate, and takes anywhere between five to fifteen minutes. Evidence shows that this process is very effective in reducing adult risky alcohol use (Substance Abuse and Mental Health Services Administration [SAMHSA], 2011). Those who score in the harmful or severe range are immediately referred to treatment.

SBIRT has been recommended by the Institute of Medicine (IOM) 1990 (IOM, 1990), as well as the Centers for Disease Control and Prevention (CDC, 2014), and has a high evidence

rating with the U.S. Preventative Services Task Force (USPSTF, 2013), ranking alongside childhood vaccinations, hypertension and colorectal screenings for preventative services. Although there is substantial evidence that SBIRT is an effective tool in reducing alcohol consumption, SBIRT remains grossly underutilized in the primary care setting.

External and internal evidence shows that the clinical problem is multifaceted. Although alcohol use has significant negative effects, discretionary screening or usual care has no inherent standardized measures mandating universal screening or immediate intervention. Additionally, there is insufficient evidence to support that merely screening patients for alcohol use produces positive outcomes (Shapiro, Coffa, & McCance-Katz, 2013).

The greatest barriers preventing providers from addressing alcohol use with their patients seems to be time constraints, and either a lack of confidence, or unwillingness to conduct brief interventions (Columbia University National Center on Addiction and Substance Abuse [CASA], 2000; Rahm et al., 2015). Provider resistance to SBIRT persists despite the fact that it is recommended by the National Institute on Alcohol Abuse and Alcoholism (NIAAA), and that 20% of their patients are alcohol dependent (Agency for Healthcare Research and Quality [AHRQ], 2012; AHRQ, 2013). Other barriers include fear of questioning or angering the patient; feeling it is out of their scope; belief that insurance won't reimburse for their time; and a belief that patients lie (CASA, 2000).

Consistent with the clinical problem outlined by the external data, the campus clinic did not have an SBIRT process in place, primarily due to barriers such as time constraints, provider confidence, and perceived poor patient acceptance. This raised the question: In a college campus setting, would an SBIRT pilot utilizing NP students to do screenings and interventions, serve to raise awareness and gain provider acceptance, while overcoming time constraint barriers?

The EBP model guiding the project was the Rosswurm and Larrabee (1999) model for evidence-based practice change. This model is a six phase process designed to guide nurses and practitioners through an EBP implementation (Britt-Pipe et al., 2005). The six phases of the model consisted of: assessing need for change, search for the best evidence, critically analyze the evidence, design practice change, implement and evaluate the practice change, and integrate and maintain the practice change (Melnyk & Fineout-Overholt, 2015). The decision for selecting this model for this project was based on its step by step, detailed process in assessing for, designing, and implementing practice change, in a logical order that was consistent with this EBP.

Conceptual Model

The Network Technology Transfer Model (NTTM) was developed under the premise that technology transfer, or EBP implementation is slow moving, and that clarification of terms, and multiple strategies will hasten the transfer of new innovation by a process referred to as "diffusion", which is a continuous form of dissemination (Gotham et al., 2011). Given the data supporting the clinical problem, it was the most appropriate framework to guide this project. While EBP takes an average of 17 years to implement (Gotham et al., 2011), SBIRT has been an underutilized tool that dates back 27 years and is in need of a multifaceted approach to hasten its acceptance.

NTTM is a multiphasic process in which the phases overlap one another, providing continuous diffusion while moving the new innovation to the next phase, with an ultimate goal of implementation. The phases for this framework include the following: development, translation, dissemination, adoption, and implementation; all of which move the technology, while diffusion is occurring throughout the entire process.

The initial phase is development, which refers to transfer or assimilation of the new innovation into practice. In this case, the development phase referred to the SBIRT process. The translation phase involves explaining and packaging the essential elements of the innovation for its eventual dissemination. This process occurred at various stages of the project while translation took place during meetings with stakeholders. The dissemination phase facilitates awareness and knowledge of the new innovation to move it toward adoption and implementation. This particular model recognizes that adoption doesn't occur immediately, so dissemination occurs at several points during the process. The adoption phase is the process in which the stakeholders decide on whether to implement the process, or reject it. Assuming proper dissemination of the new technology took place, this stage will occur after completion of the pilot program. Post pilot meetings would facilitate a discussion on benefits and feasibility and whether to adopt the process. The focus shifts during the implementation phase from being aware of a new innovation, to integrating the change into practice. This includes change in the providers practice, administrative policy, and expected goals. If the clinic decides to implement this process, it will take place after the pilot project. Diffusion occurs throughout the entire process, and utilizes multiple angles and vehicles to move the technology. Provider training, stakeholder meetings, NP student training, process improvement discussions, and the pilot itself are all vehicles of diffusion.

Based on the underpinnings of the NTTM, the projects purpose has been defined as a comprehensive means to facilitate diffusion of the SBIRT process. This is accomplished by developing and implementing a student-mediated SBIRT pilot, while overcoming major barriers and paving the way toward eventual adoption.

Search Strategy

The literature search was conducted using databases which included the following: United States National Library of Medicine (NLM) Medline database (PubMed), the Cumulative Index to Nursing and Allied Health Literature (CINAHL), and the Cochrane Library. Key words used for the search included components of the PICOT question as well as variations and combinations of those components. Key words and terms such as "motivational interviewing", "brief intervention", "brief motivational interviewing", "SBIRT", "referral", "referral rates", "adolescents" "young adults", "risky behavior", "screening", and "screening tool". Medical subject heading (MeSH) terms, as well as Boolean phrases were used in the search. The search was restricted to publications no greater than 10 years old, written in English, and peer reviewed in order to be considered for this review.

Initial PubMed search using the above-mentioned search words and phrases and linking them with "OR" yielded 11,253,360 results. Additional, filters such as clinical trial, full text, humans, and last 10 years were added, reducing the yield to 49. A similar search was done through CINAHL producing an initial yield of 729,973, and eventually reducing the yield to 18 by restricting the age range criteria to 13 – 44.

A grey literature search using Google Scholar, targeting government sites, professional organizations, dissertations, and sites with web address suffixes ".org", .gov", ".edu". Additional key search phrases included pdf documents relating to SBIRT and brief intervention was conducted, all of which a hand ancestry search was applied. Many of the results from the grey literature search were protocol on implementing SBIRT initiatives without citing evidence. Much of the ancestry search results were either beyond the 10 year publication range, or articles that resulted in previous database searches. Nonetheless, the combination grey literature / hand ancestry search yielded 8 articles that could be considered for review.

Upon completion of the search, approximately 90 articles were reviewed for selection. In addition to the above-mentioned inclusion criteria, considerations for selection included the following: level of evidence; usable data and pertinence to the PICOT, articles that address alcohol abuse (can have substance abuse as well, but must have alcohol abuse), outcomes directly relating to screening/BI, and age range from adolescence through adulthood. The review narrowed the final results down to 10 articles for the evaluation table.

Evidence Synthesis

Ten studies were selected and varied in level of evidence and study design. All the studies investigated the effectiveness of screening and brief motivational intervention (BMI) in varying capacities. Three of the studies were systemic reviews (SR; Tanner-Smith & Lipsey, 2015; Vasilaki et al., 2006; Yuma-Guerrero et al., 2012) three were randomized control trials (RCT; Brown et al., 2007; Mertens et al., 2014; Sterling et al., 2015), two were Quasi-experimental design (Bernstein, 2007; Desi et al., 2010), one was a prospective comparative study (Madras et al., 2009), and the last study was a cross sectional design (LaBrie, 2011). All studies used reliable screening tools, most of which were Cut down, Annoyed, Guilty, and Eye-opener (CAGE), AUDIT, Rutgers Alcohol Problem Index (RAPI; White & Labouvie, 1989), the Alcohol, Smoking, and Substance Involvement Screening Test (ASSIST; World Health Organization [WHO], 2002), and the Car, Relax, Alone, Forget, Friends, Trouble Screen for Teenagers (CRAFFT; Knight et al., 1999). The exception to this was the Mertens et al., 2014 RCT study in which the researchers used a modified AUDIT, and Vasilaki et al., 2006 whose screening tool was not stated.

Limitations included bias due to the fact that the studies were reliant on self-report; however this was unavoidable given that all screening tools rely on participants to self-report.

Another common limitation is a relatively short follow up time frame of 3 months (Brown et al., 2007; Desi et al., 2010; Madras et al., 2009; Mertens et al., 2014).

The demographics of the study populations are varied, with the exception of LaBrie et al., (2011), which used a population of male college students, and Sterling et al. (2015), which used a population of adolescents. At least half of the studies used the transtheoretical model (TTM; Prochaska et al., 1992), also called the stages of change model (SCM), as their theoretical framework, which is reasonable given the fact that change readiness seems to be an integral part of behavioral change. Other theoretical frameworks used include cognitive behavioral therapy (CBT; Beck, 1967; Ellis, 1957), health behavioral change (HBC; Ryan, 2009), and one study used the chronic care model (CCM; Wagner, 1998).

Research was consistent in the use of a form of BMI for their experimental or intervention group, and mostly used alcohol consumption as their main dependent variable (DV), along with DV's such as frequency of consumption, alcohol related issues, and screening assessment scores. All studies showed statistical significance in improved outcomes, with the exception of one of the systemic reviews. Yuma-Guerrero et al. (2012) concluded that their findings were inconclusive due to the fact that only six out of seven of the RCT's reviewed showed significant, positive outcomes regarding alcohol consumption and alcohol related consequences.

The results of these studies concluded that there is significant evidence that SBIRT does produce positive outcomes, with the most conclusive results in outcomes such as alcohol consumption and alcohol related consequences in an adult population. Outcomes such as heavy drinking days, alcohol related issues, frequency of drinking, and an increase in assessments and referral to treatment, also shows positive significant changes. SBIRT has shown to be an

effective intervention for short term outcomes, with a great deal of promise in the future. Brown et al. (2007) yielded significant, positive outcomes for non-treatment seeking alcohol dependent patients by providing a low cost, telephone based intervention. Other areas that have shown a great deal of promise are long term results for outcomes such as general and mental health, arrests, and homelessness. Madras et al. (2009) has shown that participants who received more intense motivational intervention reported a significant reduction in these outcomes as well, indicating the vast potential of SBIRT beyond the realm of substance use.

Method

The design of this project is an SBIRT pilot comparing alcohol screenings and BI rates of providers matched with a student performing the actual screenings and BI's (intervention group), with providers offering usual care (comparison group). The protocol was reviewed by the university's Institutional Review Board (IRB) and approved. Participant criteria included the following: (a) licensed Arizona providers employed full time at the clinic; (b) must have attended the pre-pilot education module and consented (advised that they can withdraw at any time); (c) must be working on the primary care unit at the time of the pilot. A total of seven providers were consented, however two were excluded due to the fact that they did not work on the primary care unit during the pilot period. Of the five providers who met criteria, two volunteered to be in the intervention group (IG), while the other three were in the control group (CG).

The setting is a university campus primary care clinic, whose patients are predominantly students of the following demographics: 63% female; 37% male; 56% White; 4% Black; 13% Asian; 14% Hispanic. The participant providers were either an MD or an NP. Screening tools used were the single question alcohol screen which is 81.8% sensitive (95% confidence interval (CI) 72.5% to 88.5%) and 79.3% specific (95% CI 73.1% to 84.4%) for the detection of

unhealthy alcohol use (Smith et al., 2009); and the AUDIT, which is a 10 question screen and has a 92% sensitivity and 94% specificity (Williams, 2014). Participant providers were required to attend an educational session prior to the inception of the pilot, at which point, they were asked to complete a pre pilot provider attitude survey. The survey used to gauge baseline provider confidence and acceptance of SBIRT consisted of six questions and scored based on a five point Likert scale. Providers were asked to complete the same survey post pilot, to measure changes in provider confidence toward SBIRT. There is no reliability data for this survey due to the fact that it was designed specifically for this pilot. The student interventionists were second year doctoral nurse practitioner (DNP) students at the same university. The DNP students received formal training included in their DNP curriculum on motivational interviewing (MI), and the SBIRT process, as well as an additional two hour training workshop on administering BI.

Measured outcomes included the following: number of brief screens completed; number of positive brief screens that required a full AUDIT; number of AUDIT's completed; number of positive AUDIT's ("risky zone") warranting a BI; number of BI's completed; number of minutes for each BI, number of patients agreeable to a negotiated reduction of alcohol, and comparison of pre/post pilot attitude survey scores.

Medical assistants roomed the patient and introduced the patient to the DNP student prior to the IG provider stepping into the room. The DNP student then asked the single question: "How many times in the past year have you had 5 =/> drinks (4 for women) on any one occasion?" A "none" response was a negative result, and the survey ended, while a "1 or more" response warranted a full AUDIT. If positive, the DNP student had the patient complete the 10 question screen and submit it to the provider for scoring. The provider scored the AUDIT after the regular exam. If a positive score (zone II / risky use), the provider got permission from the

patient for the DNP student to re-enter the room to discuss the results. The DNP student re-entered the room and began the brief intervention (5-15 minutes), utilizing a motivational interviewing style. The DNP student then negotiated a reduction in alcohol consumption with the patient.

Data collected from the CG providers consisted of a random chart audit dating back one year, looking for any evidence of an alcohol screen, discussion on alcohol use, or treatment referrals.

Results

Out of 111 patients seen by the IG providers, 109 brief screens (93%) were completed, 57 of those brief screens (52%) were positive requiring a full AUDIT, all of which (100%) were completed. Of the 57 who completed the AUDIT, 32 (56%) were positive (Zone II/Risky) requiring a BI. Of the 32 BI's needed, 28 (88%) were completed, 26 of which (93%) agreed to reduce their alcohol intake to the low-risk zone. An average of 7.25 minutes were spent on each intervention. There were 41 random chart audits for the CG provider CG, revealing no evidence of alcohol screens, discussions on alcohol use, or any treatment referrals. Provider post-pilot attitude surveys showed an overall score increase of 22.33% in confidence of SBIRT, with the greatest increase when asked the question: "*How comfortable are you having student clinicians utilizing brief motivational enhancement such as MI for your patients?"* This particular survey question yielded an 83.5% increase.

Statistical testing was performed using a chi-square test to examine the relation between providers using students to perform SBIRT and usual care. The relation between these variables was significant, X^2 (2, N = 152) = 142.32, p <.001.

Discussion

Outcomes were designed to specifically address perceived barriers and objections to adopting SBIRT as standard practice. The results spoke directly to these barriers with clear, favorable outcomes indicating that utilizing students for universal screenings and BI's is an effective, low cost, and sustainable method to implement SBIRT. Barriers such as time constraints and lack of provider confidence are essentially negated by having trained students conduct the BI's. Additionally, the fact that 88% of patients agreed to discuss their risky alcohol use, and 93% agreed to reduce their use to low risk limits is a testament that patients are very receptive to this type of care. Perhaps the most significant finding from this pilot is the clear need for this type of screening as evidenced by a 52% positive brief screen rate, 56% of which scored in the risky drinking zone. This means that there was an overall incidence of risky drinking of almost 30% (29.4%) by patients at this campus clinic. While there was an alarming number of patients engaging in risky drinking, there was no evidence that this was being addressed consistently, confirming numerous missed opportunities.

Reliance on self-report is probably the projects greatest limitation. While this is a common limitation in research, it is unavoidable due to the fact that this is the only means of collecting this type of data in this setting. It is noteworthy that the AUDIT and the single question brief screening tools have a relatively high specificity and sensitivity. Another limitation was poor compliance for provider post assessment surveys. Although there was 100% compliance on the pre-assessment provider surveys, post assessment surveys yielded a compliance rate of 43%.

Future pilots are highly recommended in the event that the clinic decides not to adopt universal alcohol screening into their standard of care. Results from this pilot have shown that providers have become increasingly more comfortable with the process, and similar screening

results would serve to support the crucial need for this service. Projects involving development of a process where students from various programs in the university can do clinical rotations would lend sustainability while offering students valuable experience with SBIRT and motivational interviewing.

Conclusions

The findings of this pilot have not only shown a clear need to implement SBIRT at this clinic, but it also contradicted common misconceptions deterring implementation, such as fear of angering patients and patient resistance. Moreover, utilizing trained students to provide this service negates objections such as providers not having the time, or providers not being comfortable performing brief interventions. This is sustainable since universities have an abundance of students in need of real life clinical experience, which poses a “win win” situation for the clinic, students, and most importantly, patients.

A preponderance of evidence has shown the harmful effects of risky alcohol use, as well as the effectiveness of SBIRT in reducing it. A student-mediated SBIRT program is not only sustainable, it is highly implementable as evidenced by a 98% overall screening rate. Providers have an opportunity to optimize care by employing an effective and financially feasible process for early intervention, which in turn will have a significant positive impact on patient outcomes. Given the option to implement a validated process that is low cost and can circumvent common barriers is not only well-warranted, it is prudent.

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