Improving Alcohol Use Screening and Brief Intervention: A Multidisciplinary Mobile App Randomized Control Trial

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• The presenter and project collaborators have no disclosures

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Objectives

1) Discuss the global epidemiology of alcohol misuse
2) Review Screening, Brief Intervention and Referral to Treatment (SBIRT)
3) Review the SBIRT App
4) Present outcomes of a SBIRT Multidisciplinary Mobile App Randomized Controlled Trial
Global Epidemiology of Alcohol Misuse

3.3 Million Deaths per Year in 2012; 5.9% of all Global Deaths

5.1% of the Global Burden of Disease and Injury

Highest Deaths and Disability Reported in the WHO European Region
Adverse Outcomes related to Alcohol Misuse $^{1-3}$

- Substance Dependence
- Liver Disease
- Violence and Injury
- Infectious Disease: HIV
- Pancreatitis
- Gastritis
- Mental Health Issues: Depression, Family Dysfunction
- Cardiovascular Disease: Cardiomyopathy, HTN
- Cancer: Liver, Gastrointestinal, Breast
- Neuropathy
- Fetal Alcohol Syndrome
- Economic Impact: decrease in workplace productivity, health care costs, criminal justice costs
Addressing Alcohol Misuse

In 2010, the sixty-third World Health Assembly endorsed the global strategy to reduce the harmful use of alcohol including supporting initiatives for alcohol misuse screening and brief interventions.
Screening, Brief Intervention and Referral to Treatment (SBIRT) 5-10

- SBIRT is an evidence-based, best practices approach to early intervention for persons at-risk for harmful patterns of substance use applied by nursing internationally.

- **Screening**: Universal screening for quickly assessing use and severity of alcohol, illicit drug, and prescription drug use.

- **Brief Intervention**: Brief motivational and awareness-raising intervention provided to risky or problematic substance users.

- **Referral to Treatment**: Referrals to specialty care for patients with substance use disorders.
Screening for Risky Drinking Thresholds

- **Men:** Greater than 14 drinks per week; more than 4 drinks in any day
- **Women and all persons over 65:** Greater than 7 drinks per week; more than 3 drinks in a day

![Diagram of alcoholic beverages and their alcohol content](image)
### Screening: The Audit Domains

#### Domains and Item Content of the AUDIT

<table>
<thead>
<tr>
<th>Domains</th>
<th>Question Number</th>
<th>Item Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous Alcohol Use</td>
<td>1</td>
<td>Frequency of drinking</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Typical quantity</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>Frequency of heavy drinking</td>
</tr>
<tr>
<td>Dependence Symptoms</td>
<td>4</td>
<td>Impaired control over drinking</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>Increased salience of drinking</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>Morning drinking</td>
</tr>
<tr>
<td>Harmful Alcohol Use</td>
<td>7</td>
<td>Guilt after drinking</td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>Blackouts</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>Alcohol-related injuries</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>Others concerned about drinking</td>
</tr>
</tbody>
</table>

**Items Scored 0-4**  
Dependent (20+); Harmful (16-19); At- Risk (8-15); Low Risk (0-7)
Brief Intervention

• Any individual who screens positive for at risk alcohol use should receive a brief intervention regardless of the original reason for the medical or social service visit.
• 4 Key Elements to the brief intervention
  • Raise the subject
  • Provide feedback
  • Enhance Motivation
  • Negotiate a plan
Referral to Treatment

1) Use brief negotiating skills to create a plan
2) Determine the appropriate level of referral
3) Locate a referral source
4) Make a warm hand-off
5) Follow up
Rationale for SBIRT Mobile App to Enhance Skill Translation

- Decrease in post-training SBIRT delivery rates over time
- Low provider fidelity to screening questions
- Trainees can benefit from ongoing coaching and support in clinical placements
- Apps have been useful in other health training contexts
Theoretical Framework

- Theory of Planned Behavior (TPB): factors that influence provider behavior
  - Attitudes/Behavioral beliefs
  - Subjective norms
  - Perceived behavioral control
Theoretical Framework: TPB

**Atitudes/Behavioral Beliefs:**
- Perception of SUD: use & users
- SBIRT intervention

**Subjective Norm:**
- Who are the learners paying attention to?
  - Classmates
  - Teacher’s expectation
  - Preceptors
  - What does the clinic do?
  - What do their patients want?

**Perceived Behavioral Control:**
- Confidence/self efficacy
- Workplace context/expectations-time, demands -facilitates or impedes the application of the skills

**Primary App Functions:**
1. Review SBIRT/ things learned in the classroom
2. Apply in clinic- apply new skills in clinical practice
3. Report back- need to know if they are using SBIRT, what they are encountering, etc. Can use surveys or questionnaires (SUS, etc.)

**Notes:** Model was adapted from Ajzen (1991). SUD= substance use disorder; SUS= system usability scale.
App Development Process

- Develop wireframes and content
  - Review
  - Apply
  - Report
  - Tools
- Graphic designer assisted with App Logo
- Open Health Network (app developer)
- Focus groups, student feedback about app
- Beta testing
- Multidisciplinary RCT
SBIRT APP: Review

Review
- Basics
- Screening
- Brief Intervention
- Referral To Treatment
- Key Resources

Basics
- Epidemiology
- Drugs of Abuse
- Consequences
- What is SBIRT?
- Why SBIRT?
- Defining Risky Use

Brief Intervention
- What is a Brief Intervention?
- Brief Advice
- Brief Negotiated Interview
- Motivational Interviewing
- Harm Reduction
- Sample Reduction Strategies
- Ways to Cope with Cravings

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SBIRT APP: Apply

Screeners
Brief Intervention
Referral Tips
Graphic Tools

What do you want to screen for?

- Alcohol
- Drugs
- Depression
- Anxiety/Stress

Demographics
Not selected
SBIRT APP: Report-- Sample Items

- **Knowledge & Attitude (18)**
  - *Brief screening instruments can detect clinically meaningful drug, tobacco, or alcohol use; Strongly Disagree to Strongly Agree*

- **Confidence (3)**
  - *I am confident in my ability to perform a brief intervention; not confident to very confident*

- **SBIRT Usage (4)**
  - *Out of those patients, how many did you screen for alcohol, drugs, or tobacco?*

- **App Usage-System Usability Scale (10)**
  - *I think that I would like to use this system frequently; Strongly disagree to strongly agree*
RCT Design

- Following SBIRT instruction, participants were enrolled and randomized to the experimental condition (use of the app) vs. control (no access to the app). Participants were asked to complete self-report measures over the study duration (10 weeks).

- The study was conducted over two semesters; 10 weeks x 2 semesters

- N=100: 60 control & 40 intervention (297 invited)

- Implementation was conducted at the participants’ assigned clinical placement site.
RCT Participants

- San Francisco State University
  - Nursing
  - Social Work

- University of California, San Francisco
  - Internal Medicine
  - Psychiatry

- University of San Francisco
  - Nursing
  - Psychology
RCT Outcomes

- Statistically significant correlations were found between intent to screen and attitudes/behavioral beliefs \( (r=0.49) \); confidence \( (r=0.36) \); subjective norms \( (r=0.54) \) and workplace support \( (r=0.418) \).

- Significant were correlations between percent screened and confidence \( (r=0.24) \); subjective norms \( (r=0.22) \) and workplace support \( (r=0.23) \).

- Regression analysis demonstrated a significance between attitude \( (p=0.008) \) and subjective norms \( (0.001) \) and behavioral intent to perform SBIRT.
RCT Outcomes

- There were no statistically significant differences were identified between the intervention and control group in the percentage of patients screened for substance misuse (p= .978), brief interventions (p= .375) or referral to treatments (p= .724) completed.

- There was no statistical significance between attitudes/behavioral beliefs (p=.82); confidence in ability (p= .40); subjective norms (p= .94) or workplace support (p= .48) between the intervention and the control group.
Focus Group Outcomes

- USF FNP learners from the Beta testing (N= 19)

- The mobile app was useful in the ongoing development of SBIRT knowledge, skill confidence and motivation.

- App use was an acceptable tool to guide clinical practice however use of a personal mobile device during the context of a patient visit felt inappropriate.

- The clinical context including preceptor attitudes and workplace support is a major factor in facilitating the implementation of SBIRT overall.
Conclusions

❖ The TPB framework can be used to explain behavioral intent and alcohol use screening practices among health professions learners.

❖ Although clinical Apps are an accepted tool to facilitate skill translation among health professions learners, engagement remains problematic.

❖ The clinical context including preceptor and organizational support are major driving factors in clinical skill translation (subjective norms/workplace support).
Further Information

- **App development and trial protocol paper**

- **Alcohol and Drug Screening, Brief Intervention, and Referral to Treatment training and Implementation (SBRT): Perspectives from 4 Health Professions**

- **Implementation of Alcohol and Drug Screening, Brief Intervention and Referral to Treatment (SBIRT): Nurse Practitioner Learner Perspectives on a Mobile App**
  - *Journal of American Association of Nurse Practitioners* (Accepted June 2018)
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- App available through iTunes
References


References


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