INTRODUCTION

In 2014, 27 million Americans ages 12 and over were living with a substance use disorder. Every year, more than 57 million American adults suffer from a diagnosable mental disorder. Substance use is linked to a range of immediate and long-term consequences. Despite opportunities to address substance use in a range of settings, training and adoption of screening and brief intervention has been slow. Primary care providers (PCPs), acting as the first point-of-care for nearly half of the U.S. patient population, are in a unique position to change this paradigm through early identification of patients with substance use and mental health disorders and, in collaboration with patients, develop treatment plans. Often-cited barriers to integrating behavioral health in primary care include a lack of tools, training, time, and treatment resources. The objective of this study is to examine the efficacy of At-Risk in Primary Care, an online learning experience designed to prepare primary care providers to screen patients for substance use and mental health disorders, perform brief behavioral interventions using motivational interviewing (MI), and integrate behavioral health into their treatment while building patients’ intrinsic motivation to adhere to it. At-Risk in Primary Care was developed by Kognito (www.kognito.com) with input from nationally recognized subject matter experts and end users. It is listed in Section III of the SPRC/AFSP Best Practices Registry for Suicide Prevention and approved for 1.50 CME AMA PRA Category 1 Credits™ and 1.50 ANCC CNE contact hour.

In the simulation, users take on the role of a primary care provider and engage in conversations with emotionally responsive virtual patients presenting with a range of substance use and mental health concerns. Users choose what to say at every point in the conversation and can see how the patients respond in order to learn effective and ineffective approaches. Using a motivational style and incorporating MI techniques (such as open-ended questions, affirmations, reflections and summaries) will help engage the patient, whereas using a directive style will disengage the patient or put them off.

Users are also privy to the virtual patient’s inner thoughts, and are provided with a patient trust meter that gauges how much the patient is willing to engage in the conversation at any given point. Users also receive affirmative and corrective feedback from a virtual coach who helps guide them through the simulation.

Description of Simulation

At-Risk in Primary Care, is an online learning experience designed to provide primary care providers with improved ability to screen patients for substance use and mental health disorders, perform brief behavioral interventions using motivational interviewing (MI), and integrate behavioral health into their treatment while building patients’ intrinsic motivation to adhere to it. At-Risk in Primary Care was developed by Kognito (www.kognito.com) with input from nationally recognized subject matter experts and end users. It is listed in Section III of the SPRC/AFSP Best Practices Registry for Suicide Prevention and approved for 1.50 CME AMA PRA Category 1 Credits™ and 1.50 ANCC CNE contact hour.

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SUBJECTS AND METHODS

One-hundred participants completed this study between November 2012 and August 2015. The sample included 37 nurses, 24 medical students, 19 doctors, 11 nursing students and 9 nurse practitioners. Eighty percent of the sample was female and 57% reported prior training in screening for mental health disorders and substance use. The average number of years working in a PCP setting was ten. Additional demographic information is shown in Fig. 1. All participants completed a pre-survey (baseline), then the simulation immediately followed by a post-survey and three months later, the follow-up survey.

RESULTS

Knowledge and Skills

Knowledge and skill were measured by six Likert scale survey items rated on a five-point Likert scale ranging from “Very Low” to “Very High.” These items addressed PCPs’ ability to identify warning signs, screen patients, discuss treatment options, and engage in collaborative decision-making about treatment plans and building intrinsic motivation in patients who are exhibiting signs of alcohol and substance use or mental disorder.

A Repeated-Measures ANOVA demonstrated significant increases from pre- to post (p < .001) and from pre- to three month follow-up (p < .001) in all knowledge and skill items, which are represented in Fig. 2 as a composite score which also demonstrated similar significant increases (p < .001). The individual items were prefaced with “Please rate your knowledge and skill to:”

- Discuss options for harm reduction and/or treatment with patients
- Engage in collaborative decision-making with patients
- Build intrinsic motivation in patients to adhere to a treatment plan

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- Identify risk factors and warning signs of substance use or mental health disorders
- Recognize when a patient is exhibiting signs and symptoms of substance use or mental health disorders
- Screen patients for substance use and mental health disorders using validated tools

Fig. 1: DEMOGRAPHICS

Fig. 2: KNOWLEDGE AND SKILLS
Behavior Change and Referral Rates

To assess behavior change participants responded to three survey items in the pre- and follow-up surveys where they were asked to approximate the number of patients over the past two months that they: 1) screened for mental health disorders or substance use, 2) conducted a brief intervention for mental health disorders or substance use, and 3) referred to treatment for mental health disorders or substance use. The exact percentage changes are indicated in Table 1.

### Table 1: CHANGES IN PATIENT SCREENING, BRIEF INTERVENTION, AND REFERRAL TO TREATMENT

<table>
<thead>
<tr>
<th>Average number of patients that participants...</th>
<th>Baseline</th>
<th>Follow-up survey</th>
<th>Percentage change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screened</td>
<td>12.4</td>
<td>17.6</td>
<td>41.9%</td>
</tr>
<tr>
<td>Conducted brief intervention with</td>
<td>8.2</td>
<td>15.0</td>
<td>82.9%</td>
</tr>
<tr>
<td>Referred to treatment</td>
<td>8.33</td>
<td>11.5</td>
<td>79.9%</td>
</tr>
</tbody>
</table>

In addition, participants reported, in the three month follow-up survey, about changes in their behaviors as result of *At-Risk in Primary Care*. Specifically, 51% indicated they had increased identification of patients at risk, 62% indicated an increase in screening, 60% indicated an increase in discussion of treatment options, and 56% indicated an increase in collaborative decision-making (Fig. 3).

### Fig. 3: CHANGES IN PROVIDER BEHAVIOR

- **51%** indicated they had increased identification of patients at risk
- **62%** indicated an increase in screening
- **60%** indicated an increase in discussion of treatment options
- **56%** indicated an increase in collaborative decision-making

**Medical and Nursing Students**

35 of the study participants were either medical (N=24) or nursing (N=11) students. A separate analysis was run to examine the impact on this population. The results were identical in that there were significant increases in 1) knowledge and skill, 2) behavior and 3) likelihood. As seen in Fig. 4, students scored lower in their initial composite knowledge and skill score when compared to non-students, but as a result of the simulation, these differences were minimal after completing the simulation thus demonstrating a greater impact or effect size on students.

**Fig. 4 shows the change in knowledge and skill composite score for students and non-students before and after completing *At-Risk in Primary Care*.**
Satisfaction and Learning Experience

There were several measures of reaction to the At-Risk in Primary Care that included means efficacy data and overall satisfaction ratings. Means efficacy is defined as an individual’s belief in the utility of the tools available for performing a job, and has been correlated with changes in behavior. The means efficacy questions used in this study included measures of the tools’ usefulness, ease to use, relevance of scenarios, and helpfulness in getting timely assistance for students. As seen in Table 2, all measures of means efficacy were high for Likert scale responses ranging from a “great extent” to a “very great extent.”

Table 2: MEANS EFFICACY ITEMS - PERCENTAGE OF PARTICIPANTS WHO ENDORCED EACH OPTION

<table>
<thead>
<tr>
<th>Response (% of participants)</th>
<th>To what extent is this course:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not all</td>
</tr>
<tr>
<td>A useful learning tool</td>
<td>0</td>
</tr>
<tr>
<td>Well-constructed</td>
<td>0</td>
</tr>
<tr>
<td>Easy to use</td>
<td>0</td>
</tr>
<tr>
<td>Relevant to your patient population</td>
<td>1</td>
</tr>
<tr>
<td>Helpful in learning how to identify and manage the care of patients with substance use or mental health disorders</td>
<td>0</td>
</tr>
<tr>
<td>Helpful in learning effective conversation tactics to increase patient engagement, trust, and adherence to treatment plans</td>
<td>0</td>
</tr>
</tbody>
</table>

Fig. 5: OVERALL SATISFACTION RATINGS

- 86% of participants rated the simulation from “excellent” to “very good”
- 94% would recommend At-Risk in Primary Care to colleagues
- 99% of students would recommend it to their fellow students
- 97% of CME or CNE participants found the simulation useful for their professional practice
- 97% stated the simulation had enhanced their knowledge or skill as a healthcare provider

CONCLUSION

This quasi-experimental longitudinal study examined the impact of the At-Risk in Primary Care simulation. Results show that participants experienced immediate and sustained significant increases in all dependent measures of knowledge and skill including 1) identifying risk factors and warning signs of substance use and mental health disorders, 2) recognizing when a patient is exhibiting signs and symptoms of substance use and mental health disorders, 3) screening patients for substance use and mental health disorders, 4) discussing treatment options with patients exhibiting signs and symptoms of substance use and mental health disorders, 5) engaging in collaborative decision-making about treatment plans with patients exhibiting signs and symptoms of substance use and mental health disorders, and 6) building intrinsic motivation in patients with substance use and mental health disorders to adhere to your suggested treatment plan. Furthermore, even though medical and nursing students started out lower in their knowledge and skills when compared to non-students, they also benefited more, which suggests the simulation might be particularly useful for this population.
Participants also reported three months after completing the simulation significant increases in the number of patients they screened, conducted brief interventions with and referred to treatment for mental health disorders or substance use.

Lastly, the results showed that participants endorsed a high level of means efficacy with relation to the intervention. Most participants find the training to be useful, realistic, and helpful in learning new valuable skills. Lastly, at a three-month follow-up, a large number the training group participants reported that as a result of the intervention there were increases in the number of at-risk patients identified, screened, discussed treatment options with and engaged in collaborative decision-making about treatment plans.

Integrating behavioral and physical health is a vital step in addressing the whole patient and has the potential for increased efficiency and cost savings for the national healthcare system. The implementation of universal screening for mental health and substance use in primary care has been shown to improve patient outcomes and satisfaction, but training on substance use and mental health among health professionals remains optional or specialized. Barriers to training, such as the high cost of standardized patients in face-to-face role-play can be overcome with scalable, cost-effective solutions. This study demonstrates that innovative digital learning experiences like At-Risk in Primary Care can offer an effective and engaging way for PCPs to learn, practice, and integrate these critical skills to improve the care of millions of patients living with substance use and mental health disorders.

Notes:
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