Validation of the <u>T</u>obacco, <u>A</u>lcohol, <u>P</u>rescription medication, and other <u>S</u>ubstance use (TAPS) Tool for identification of problem use and substance use disorders in U.S. primary care patients

Jennifer McNeely, Li-Tzy Wu, Geetha Subramaniam, Gaurav Sharma, Robert P. Schwartz

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ORIGINAL RESEARCH

Performance of the Tobacco, Alcohol, Prescription Medication, and Other Substance Use (TAPS) Tool for Substance Use Screening in Primary Care Patients

Jennifer McNeely, MD, MS; Li-Tzy Wu, ScD, RN, MA; Geetha Subramaniam, MD; Gaurav Sharma, PhD; Lauretta A. Cathers, PhD; Dace Svikis, PhD; Luke Sleiter, MPH; Linnea Russell, BA; Courtney Nordeck, BA; Anjalee Sharma, MSW; Kevin E. O'Grady, PhD; Leah B. Bouk, CCRC; Carol Cushing, BBA, RN; Jacqueline King, MS; Aimee Wahle, MS; and Robert P. Schwartz, MD

Screening in primary care

- Tobacco, alcohol, and drug use are leading causes of preventable death in the US
- SBI for alcohol is guideline-recommended
- Alcohol and drug use is rarely identified in primary care
- Barriers to screening are well documented

Mokdad AH, et al. *JAMA* 2004
D'Amico EJ, et al., *Medical Care* 2005
Friedmann PD, et al., *Arch Intern Med* 2001
Saitz R, et al., *Am J Drug Alc Abuse* 1997

Study Aims

Aim 1: To develop a screen and brief assessment tool (the TAPS tool) to detect substance use, subthreshold substance use disorder, and substance use disorders among adult primary care patients.

Aim 2: To examine the validity of the TAPS Tool by comparison to reference standard measures.

Aim 3: To determine the feasibility and acceptability of the self-administration and interviewer-administration of the screen and TAPS tool among adult primary care patients.

TAPS Tool

Screening (TAPS-1)

Past 12 mos:
- Tobacco
- Alcohol
- Rx drugs
- Illicit drugs

+

Assessment (TAPS-2)

Past 3 mos:
- 7 substances
- 2-3 branching questions for each substance used
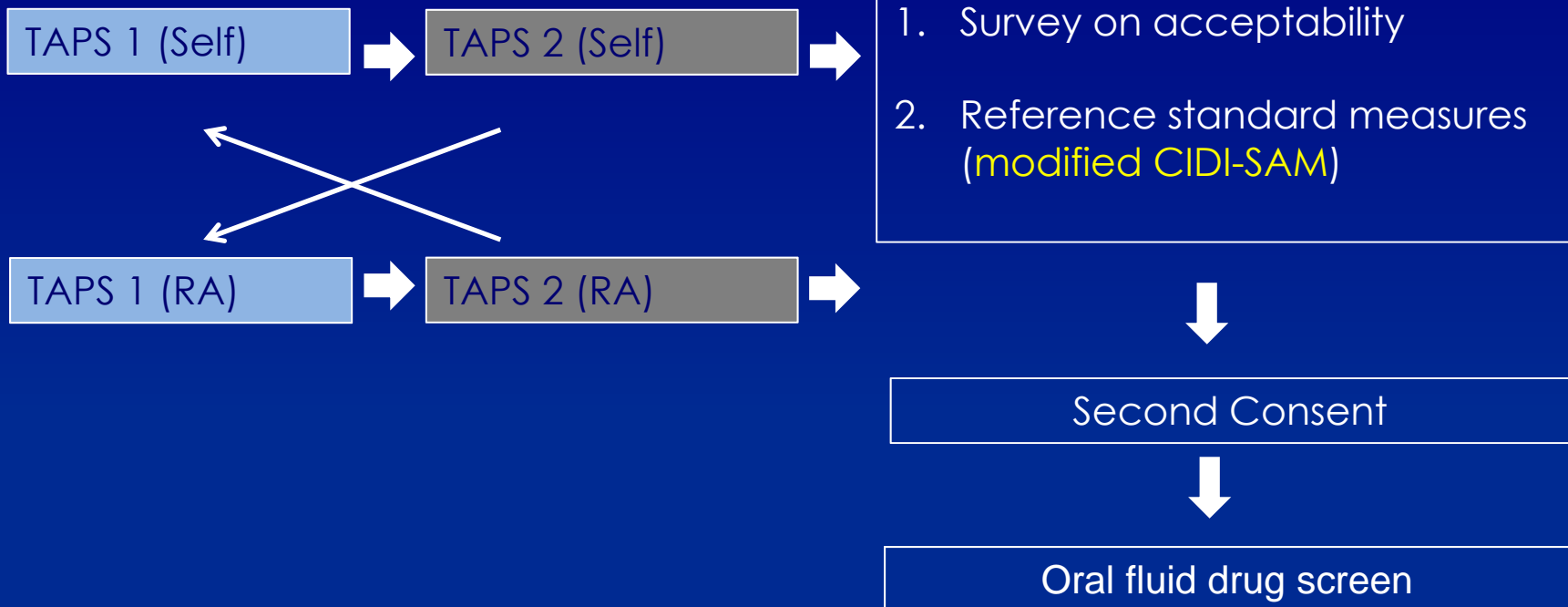
Self-administered (iPad)
Interviewer-administered

Validation Study Procedures

Screening   **Assessment**   **Validation Measures**

TAPS 1 (Self) ➡ TAPS 2 (Self) ➡

1. Survey on acceptability

2. Reference standard measures (modified CIDI-SAM)

TAPS 1 (RA) ➡ TAPS 2 (RA) ➡

⬇

Second Consent

⬇

Oral fluid drug screen

Participants

- 2,000 adults enrolled during their primary care visit at primary care sites in:
    - Baltimore, Maryland
    - Kannapolis, North Carolina (2)
    - New York, New York
    - Richmond, Virginia

- Patients recruited from the waiting room
- An IRB-approved information sheet for verbal informed consent

Eligibility Criteria

<u>Inclusion Criteria:</u>

- Primary care patients ages 18+

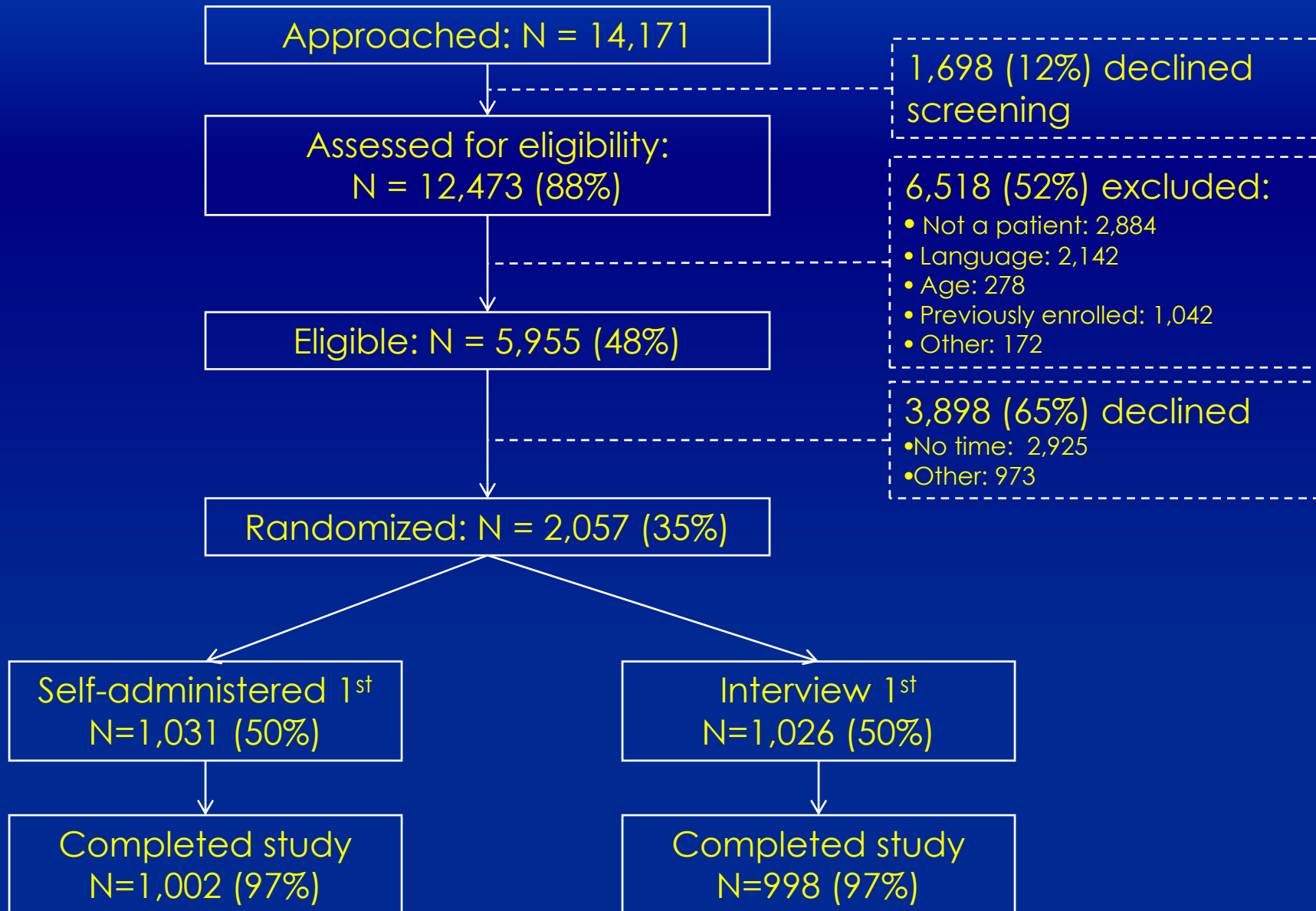- Able to provide informed consent

<u>Exclusion Criteria:</u>

- Inability to comprehend spoken English

- Inability to use the iPad due to physical limitations

- Previously enrolled in this study

Statistical Analysis

1. χ^2 test of independence to assess for differences based on order of administration
2. Assessed concurrent validity of the interviewer and iPad versions of the TAPS Tool in comparison to the modified CIDI for each substance class:
   o Problem use ($\geq$1 DSM-5 criteria)
   o Substance use disorder ($\geq$2 DSM-5 criteria)

Participant Recruitment

Approached: N = 14,171

1,698 (12%) declined screening

Assessed for eligibility:
N = 12,473 (88%)

6,518 (52%) excluded:
• Not a patient: 2,884
• Language: 2,142
• Age: 278
• Previously enrolled: 1,042
• Other: 172

Eligible: N = 5,955 (48%)

3,898 (65%) declined
•No time: 2,925
•Other: 973

Randomized: N = 2,057 (35%)

Self-administered 1st
N=1,031 (50%)

Interview 1st
N=1,026 (50%)

Completed study
N=1,002 (97%)

Completed study
N=998 (97%)

Participant Characteristics (N=2,000)

Age (years)	Mean = 46, SD = 15 Range = 18-94	
Sex (%)	Male Female	44 56
Ethnicity (%)	Hispanic	12
Race/Ethnicity (%)	Black/African American White/Caucasian Other	56 33 11
Education (%)	$\geq$ High school	88

Prevalence of substance use (N=2,000)

Substance	Past Year Use (from CIDI) N (%)
Tobacco	882 (44.1%)
Alcohol	1239 (62.0%)
Marijuana	416 (20.8%)
Cocaine	145 (7.3%)
Prescription Opioids	96 (4.8%)
Sedatives	82 (4.1%)
Heroin	78 (3.9%)
Prescription Stimulants	23 (1.2%)
Methamphetamine	14 (0.7%)

Validity for <u>problem use</u>
(interviewer-administered TAPS Tool)

Substance	CIDI Score ≥1 n (%)	TAPS Score ≥ 1 n (%)	Sensitivity (95% CI)	Specificity (95% CI)
Tobacco	646 (0.32)	778 (0.39)	0.93 (0.90, 0.95)	0.87 (0.85, 0.89)
Alcohol	474 (0.24)	679 (0.34)	0.74 (0.70, 0.78)	0.79 (0.76, 0.81)
Marijuana	231 (0.12)	317 (0.16)	0.82 (0.76, 0.87)	0.93 (0.91, 0.94)
Cocaine, Meth	120 (0.06)	102 (0.05)	0.68 (0.59, 0.77)	0.99 (0.98, 0.99)
Heroin	69 (0.03)	60 (0.03)	0.78 (0.67, 0.87)	1.00 (0.99, 1.00)
Rx Opioids	59 (0.03)	70 (0.04)	0.71 (0.58, 0.82)	0.99 (0.98, 0.99)
Sedatives	41 (0.02)	54 (0.03)	0.63 (0.47, 0.78)	0.99 (0.98, 0.99)
Rx Stimulants	9 (0.00)	12 (0.01)	0.78 (0.40, 0.97)	1.00 (0.99, 1.00)

# Validity for <u>SUD</u>
(interviewer-administered TAPS Tool)

Substance	CIDI Score ≥2 n (%)	TAPS Score ≥ 2 n (%)	Sensitivity (95% CI)	Specificity (95% CI)
Tobacco	506 (0.25)	533 (0.27)	0.74 (0.69, 0.77)	0.89 (0.88, 0.91)
Alcohol	278 (0.14)	449 (0.22)	0.70 (0.64, 0.75)	0.85 (0.83, 0.87)
Marijuana	147 (0.07)	190 (0.10)	0.71 (0.63, 0.79)	0.95 (0.94, 0.96)
Cocaine, Meth	107 (0.05)	76 (0.04)	0.57 (0.47, 0.67)	0.99 (0.99, 1.00)
Heroin	65 (0.03)	46 (0.02)	0.66 (0.53, 0.77)	1.00 (1.00, 1.00)
Rx Opioids	48 (0.02)	29 (0.01)	0.48 (0.33, 0.63)	1.00 (0.99, 1.00)
Sedatives	28 (0.01)	35 (0.02)	0.54 (0.34, 0.72)	0.99 (0.98, 0.99)
Rx Stimulants	8 (0.00)	5 (0.00)	0.50 (0.16, 0.84)	1.00 (1.00, 1.00)

Self-administered TAPS Tool

- Similar performance to interviewer-administered

- Generated the same cutoffs for problem use and SUD

Acceptability to patients

- Felt comfortable answering the TAPS Tool questions: 99%
- Would be comfortable sharing the results with their doctor: 95%
- Preferences for Modality:

Interviewer preferred, 31%

No preference, 45%

iPad preferred, 24%
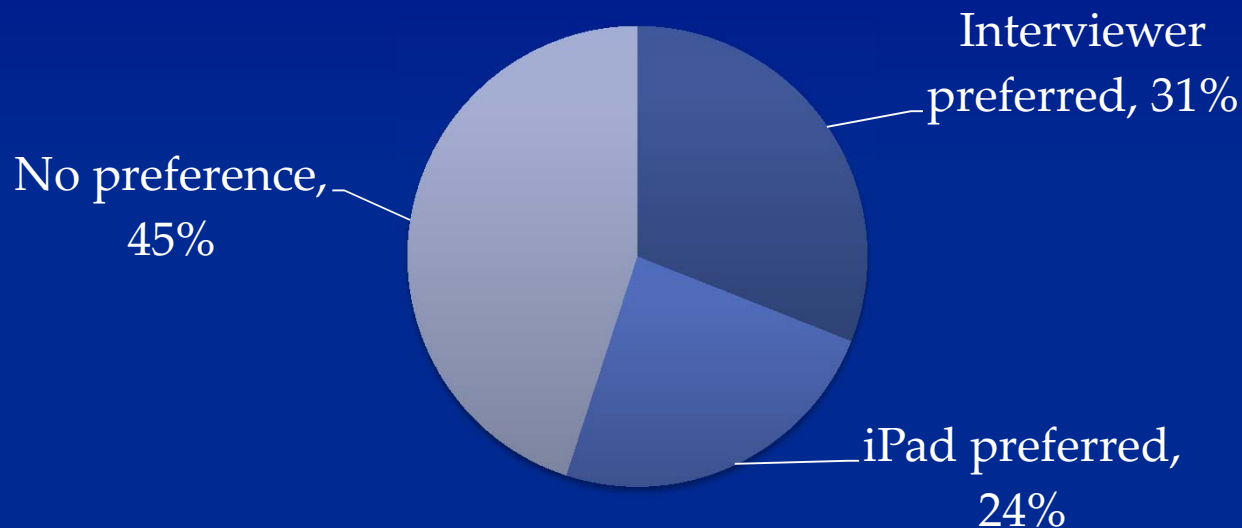
Limitations

- English speaking only
- Low prevalence of some drug classes
- RA was not blinded
- Cutoffs established in the validation study sample
- Tested in research context, with assurance of confidentiality

Conclusions

- Large validation study in US adult primary care patient population

- TAPS Tool identifies problem use at cutoff 1+

- For substances most commonly used by primary care patients (tobacco, alcohol, MJ), cutoff of 2+ may identify SUD

- For other drugs, patients with score of 1+ should have a clinical assessment for SUD

CTN-0059 Team

Mid-Atlantic Node
- Jack Chally, Courtney Nordeck, Anjalee Sharma, Robert Schwartz (Lead Investigator)
- Laurie Cathers (Site PI), Dace Svikis, Kate Polak, David Pomm

Greater New York Node
- Jennifer McNeely (Co-Lead Investigator), Patsy Novo, Linnea Russell, Luke Sleiter, Saima Mili, Phoebe Gauthier

Southern Consortium Node
- Li-Tzy Wu (Co-Lead Investigator), Leah Bouk, Kimberly Roseman, Carla Kingsbury, Melissa Johnston

NIDA
- Geetha Subramaniam, Carol Cushing, Ron Dobbins, Paul Wakim

Emmes
- Gaurav Sharma, Paul Van Veldhuisen, Coleen Allen, Anne Hassell, Eve Jelstrom, Robert Lindblad, Lauren Yesko, Patrice Yohannes, Alex Borbely