Presenter: Jessica M. Thai

An Integrated mHealth App for Smoking Cessation in Black Smokers with Anxiety: Protocol for a Randomized Controlled Trial

(Protocol Abstract)

Thai, Jessica M; Matoska, Cameron, T; Businelle, Michael, S; Garey, Lorra; Gallagher, Matthew, W; Hébert, Emily, T; Vujanovic, Anka, A; Alexander, Adam; Kezbers, Krista; Robison, Jillian; Montgomery, Audrey; Zvolensky, Michael, J

Introduction: Black smokers have greater difficulty quitting cigarettes and higher rates of smoking-related diseases and disabilities than the general population. Smoking disparities experienced by this group are partly a consequence of multiple chronic life stressors (e.g., racial discrimination) that engender increased interoceptive stress symptoms (e.g., anxiety), which can ultimately lead to smoking as a means of immediate emotion regulation. This study aimed to test a novel, culturally adapted mobile intervention (i.e., Mobile Anxiety Sensitivity Program for Smoking [MASP]) that targets anxiety sensitivity (AS; a proxy for difficulty and responsivity to interoceptive stress) among Black smokers. The MASP intervention is culturally informed to address interoceptive stress management difficulties among Black smokers and is thus hypothesized to facilitate smoking cessation.

Method: For the present study, 200 Black smokers with elevated AS are randomized to receive nicotine replacement therapy and either the MASP intervention or the smartphone-based National Cancer Institute QuitGuide app for standard mobile smoking cessation treatment. Participants complete a web-based screener to determine initial eligibility. Those eligible at the screener complete a baseline call where informed consent is collected, followed by a smartphone-based baseline assessment. Eligible participants are then randomized to MASP or QuitGuide. Both conditions consist of a 2-week pre-quit phase and 4-week post-quit phase; daily smartphone-based ecological momentary assessments for 6 weeks; a qualitative interview at 6-week post-randomization; and smartphone-based follow-up assessments at post-baseline weeks 1, 2 (quit date), 3, 4, 5, 6, 28, and 54.

Discussion: If successful, data from this study will support the utility of a culturally informed, accessible treatment for Black smokers that is ready for dissemination and implementation.

Ethics: This study has received university IRB approval.

Registration: This study has been registered with ClinicalTrials.gov.

Presenter: Qiping Fan

Developing and Evaluating an Online Platform to Increase Access to Personalized Educational and Professional Assistance for AD/ADRD Caregivers: Protocol for CARES study

(Protocol Abstract)

Falohun, Tokunbo; DuBose, Logan, Lee; Ory, Marcia, G; Lee, Shinduk; Hoang, Minh-Nguyet; Vennatt, Jeswin; Fan, Qiping

Background: With the increasing number of older adults living with Alzheimer's dementia, family caregivers face the challenge of providing care without formal training. Technology solutions designed to address their needs have shown low adoption rates due to usability issues and a lack of contextual relevance. This study focuses on financial and legal planning information and education for dementia caregivers.

Objective: Our goal is to create a technology-based solution that connects caregivers with personalized and easily accessible resources. This project, involving industrial, academic, and community partners, focuses on two aims: (1) Developing a digital platform using a Dementia Care Personalization Algorithm and assessing feasibility and (2) Evaluating the acceptance and usability of the digital platform across racial/ethnic populations.

Methods: In Phase 1, we follow an iterative Design Thinking approach, involving at least 25 dementia caregivers as a user feedback panel to assess the feasibility of the digital platform. Phase 2 is a prospective usability study with 300 dementia caregivers in Texas (100 African Americans, 100 Hispanic/Latinx, and 100 non-Hispanic Whites). Participants will engage the digital platform for about four weeks and provide assessments of its functionality, aesthetics, information, and overall quality, using the adapted Mobile Application Rating Scale (MARS).

Results: The study received funding from National Institute of Aging in 2021, gained ethical approval from the university Institutional Review Board, and commenced participant recruitment in January 2022 for Phase 1 and in July 2023 for Phase 2.

Conclusions: Upon completing these aims, we expect to provide a widely accessible digital platform tailored to help dementia caregivers with financial and legal challenges by connecting them to personalized, contextually relevant information and resources in Texas. If successful, we plan to work with caregiving organizations to scale and sustain the platform, meeting the needs of the growing population of dementia.

Presenter: Jon Agley

Recruiting First Responder Agencies and Laypersons from a National CPR Responder Network for Overdose Education and Naloxone Distribution: Protocol for a Randomized, Controlled Feasibility Study

(Protocol Abstract)

Agley, Jon; Henderson, Cris; Seo, Dong-Chul; Parker, Maria; Tidd, David; Golzarri-Arroyo, Lilian; Dickinson, Stephanie

Introduction: The US opioid overdose crisis has claimed hundreds of thousands of lives. Naloxone can reverse opioid overdose but is underused; research suggests overdose education and naloxone distribution might address this deficiency. The national PulsePoint network operates an app-based system in thousands of communities for 1,000,000+ laypersons to respond to suspected public cardiac arrest with CPR. We plan to encourage this network to get trained around opioid overdose and to carry naloxone. As a first step, we will conduct a randomized, controlled trial of recruiting (a) community first responder agencies, and (b) layperson responders within the PulsePoint network.

Methods: We will draw a stratified random sample (half rural, half urban) of 180 PulsePoint communities and assign them (within strata) to 3 study arms using a 1:1:1 allocation ratio. Intervention Arm 1 will use tailored visual and telephonic recruitment methods to solicit participation from 60 first-responder agencies and then use community-tailored push messaging within PulsePoint to encourage overdose education and naloxone distribution among community lay responders. Intervention Arm 2 will be similar but will include messaging that debunks common misperceptions about overdose and naloxone. The Control Arm will recruit first-responder agencies for data collection only. Outcome measures will include agency recruitment ratios and layperson certification of opioid education and naloxone carrying. Analyses of primary outcomes will use linear mixed models. We hypothesize that Arm 2 (proactively addressing misinformation) will yield more successful agency recruitment than Arm 1 and predict tiered success for layperson certification (Arm 2 > Arm 1 > Control). Study procedures have been reviewed by an institutional IRB.

Discussion: This study will determine the feasibility of leveraging a large CPR responder network to facilitate OEND using different messaging approaches. This preliminary work is necessary before investing in the expense of a national randomized trial to reduce overdose fatalities.

Presenter: Matthew Lee Smith

Assessing Situation Awareness for Healthful Behaviors and the Self-care Gap Among Non-Hispanic Black and Hispanic Men with Chronic Conditions

(Research Based Abstract)

Cisneros Franco, Cynthia, L.; Brandford, Arica; Bergeron, Caroline, D.; Sherman, Ledric, D.; Prochnow, Tyler; Zumwalt, Richard; Smith, Matthew, Lee

Background: Non-Hispanic Black and Hispanic adults in the United States experience earlier onset of chronic conditions and develop multimorbidity earlier than the ethnic majority. Effective chronic disease management requires self-care practices performed in everyday settings; however, the intersection between self-care and situation awareness among men with chronic disease remains poorly understood. This study sought to identify factors associated with: (1) situation awareness (i.e., daily recognition of situations to make choices to act in the best interest of one's health); and (2) the self-care gap (i.e., not acting in one's best interest despite having recognized at least one opportunity to perform healthful behaviors).

Methods: Data collected using an internet-delivered questionnaire were analyzed from 1,761 non-Hispanic Black (58.4%) and Hispanic (41.6%) men aged 40 years or older with chronic conditions. Two linear regression models were fitted to assess factors associated with situation awareness and the self-care gap, respectively. Regression models adjusted for sociodemographics, disease symptomatology, prevention screening activity, health behaviors, and health-related perceptions.

Results: Situation awareness levels were lower for older individuals (B=-0.03, P<0.001). Men who had higher fatigue (B=0.11, P=0.002), more stress (B=0.07, P=0.032), utilized more prevention screenings (B=0.13, P=0.001), adhered to physical activity guidelines (B=0.36, P=0.044), and received more social support (B=0.89, P<0.001) reported higher situation awareness. The self-care gap was more pronounced among non-Hispanic Black men (B=-0.32, P=0.026). Men who reported higher fatigue (B=0.06, P=0.041), clinical depression (B=0.39, P=0.039), more barriers to self-care (B=0.11, P<0.001), and higher frustrations with healthcare (B=0.12, P<0.001) reported larger self-care gaps.

Conclusions: While experiencing more disease symptomatology, utilizing more healthcare screenings, and social supports may heighten men's recognition of healthful opportunities, the self-care gap is seemingly driven by mental health and challenges with disease self-management and healthcare interactions. Efforts are needed to narrow disparities in the self-care gap between non-Hispanic Black and Hispanic men.

Presenter: Aditi Tomar

Exploring the Impact of Normative Risk Perceptions and Social Influences on Intention to Vaccinate Against HPV Among College Students

(Research Based Abstract)

Tomar, Aditi; Thompson, Erika, L.; Smith, Matthew, Lee

Background: Human papillomavirus (HPV) can cause six types of cancers, yet prevention through HPV vaccination remains underutilized among college students. Normative perceptions and social influences are believed to critically influence college students' decisions to get vaccinated; however, the role of normative risk perceptions and the sources of social influence on HPV vaccine intentions remains understudied. This study explores the associations between normative risk perceptions, social influence to vaccinate, and HPV vaccine intention among unvaccinated college students.

Methods: Data were analyzed from a national sample of 1,054 U.S. college students using an internet-delivered questionnaire. At the time of the study, participants had not initiated the HPV vaccine series. Normative risk perceptions were assessed as latent variable with four underlying indicators (i.e., comparison to peers about getting HPV, genital warts, cervical cancer, anal cancer). Social influence measured how much the opinion of best friends influenced decisions to vaccinate against HPV. Structural equation modeling (SEM) was used to explore pathways between normative risk perceptions, social influence, and intention to vaccinate in twelve months. The model accounted for year in college, race, ethnicity, and marital status.

Results: The final structural model fitted well with the data (RMSEA: 0.02, CFI: 0.98; TLI: 0.97; SRMR: 0.04). Intention to vaccinate in twelve months was positively associated with normative risk perceptions ($\beta=0.23$, $p <0.05$). Normative risk was positively associated with social influence ($\beta= 0.25$, $p <0.05$).

Conclusion: Findings support the impact of normative risk perceptions on the intention to vaccinate. Highlighting factual statistics about HPV infection and transmission may make normative risk perceptions more accurate among unvaccinated college students, which may dispel unrealistic optimism regarding HPV susceptibility and increase intentions to vaccinate. Public health programs should also consider steering social influences to enhance normative risk perception and promote HPV vaccine acceptance.

Presenter: Roy Oman

Longitudinal Study of Parent-Child Communication and Youth Sexual Risk Behaviors

(Research Based Abstract)

Oman, Roy, F; Sanchez, Louisiana, M; Lensch, Taylor; Lu, Minggen

Purpose: Recommendations regarding parent-child communication and youth sexual risk behaviors have primarily relied on results from cross-sectional research. This study's purpose was to prospectively investigate the influence of several parent-child communication topics on youth sexual risk behaviors.

Methods: Parent and their children (N= 1111 parent-child pairs) were recruited through door-to-door canvassing of randomly-selected census tracts and blocks to participate in a 4-year longitudinal study. Cox proportional hazards regression analyses or generalized linear mixed model analyses were conducted to assess the prospective influence of parent-child communication on youth sexual risk behaviors.

Results: Youth demographic characteristics were mean age =14.3 years (SD =1.6); 52.8% female; 41% White, 29% Hispanic, 24% Black, and 6% other. Youth with stronger parent-child communication regarding delaying sexual activity (AHR= 0.82, 95% CI: 0.68-0.99), as well as general family communication (AHR= 0.73; 95% CI: 0.61-0.88), were significantly and prospectively less likely ever to have had sex. In contrast, youth with stronger parent-child communication regarding birth control (AHR= 1.30; 95% CI: 1.08-1.57) and STI prevention (AHR= 1.24; 95% CI: 1.03-1.49) were significantly and prospectively more likely to have had sex. For youth who reported having had sex, those who reported stronger parent-child communication regarding birth control (AOR= 1.54; 95% CI: 1.22-1.94), STD prevention (AOR= 1.40; 95% CI: 1.11-1.78), and general family communication (AOR= 1.30; 95% CI: 1.03-1.64) were significantly more likely to have used birth control at last sex. Finally, female youth with stronger parent-child communication regarding delaying sexual activity were significantly less likely to have ever been pregnant (AOR= 0.67; 95% CI: 0.45-0.99).

Conclusions: These longitudinal study results support the efficacy of parent-child communication in delaying youth sexual activity, using birth control, and preventing teenage pregnancy.

Presenter: Chen, Xuewei

Examining the Relationship Between Health Literacy and Primary Source of Information for Healthcare Services Among Rural Residents

(Research Based Abstract)

Chen, Xuewei; Njoroge, Rose, W.; Liu, Taiping; Hu, Tao

Introduction: Compared to urban residents, rural residents have lower access and use of healthcare services. The use of health information influences individuals' health behavior. Our study aims to evaluate the relationship between health literacy and the primary source of information for healthcare services among rural residents.

Methods: We collected data from June to September 2023 among residents living in two rural counties in Oklahoma through our online Qualtrics survey (n=464). We employed a purposive snowball sampling strategy by distributing recruitment flyers to organizations and colleagues serving these rural counties (e.g., County Health Departments). This study has received university IRB approval. Participants were asked to identify their primary source of information regarding the healthcare services available in their community. We used a health literacy measure developed by the CDC, which contains three self-report survey questions. We performed multiple logistic regressions to examine the relationships between socio-demographics, health literacy, and primary sources of information.

Results: Our sample contained of 53% women and 47% men, with a mean age of 34 (SD=6.5). The majority of the participants were White (77%). Social media (52%), the internet (39%), email (38%), and community newsletters (27%) were identified as the top primary sources for healthcare information. Those with higher health literacy had higher odds of identifying the internet (OR=1.12, p=.040) and community newsletters (OR=1.14, p=.036) as their primary information sources. Additionally, we found that after controlling for health literacy and other socio-demographics, compared to Whites, Hispanics/Latinos had higher odds of identifying the internet (OR=3.01, p=.045) as their primary source; Native Hawaiians or Pacific Islanders had lower odds of identifying social media (OR=0.16, p=.041) as their primary source.

Discussion: The findings of this study could be used to enhance the dissemination of high-quality health information among underserved rural population and, as a result, increase their healthcare services utilization.

Presenter: Ruopeng An

Build Neural Network Models to Identify and Correct News Headlines Exaggerating Obesity-related Scientific Findings

(Research Based Abstract)

An, Ruopeng; Batcheller, Quinlan; Wang, Junjie

Aims: Media exaggerations of health research may confuse readers' understanding, erode public trust in science and medicine, and cause disease mismanagement. This study built artificial intelligence (A.I.) models to automatically identify and correct news headlines exaggerating obesity-related research findings.

Methods: We searched popular digital media outlets to collect 523 headlines exaggerating obesity-related research findings. The reasons for exaggerations include: inferring causality from observational studies, inferring human outcomes from animal research, inferring distant/end outcomes (e.g., obesity) from immediate/intermediate outcomes (e.g., calorie intake), and generalizing findings to the population from a subgroup or convenience sample. Each headline was paired with the title and abstract of the peer-reviewed journal publication covered by the news article. We drafted an exaggeration-free counterpart for each original headline and fined-tuned a BERT model to differentiate between them. We further fine-tuned three generative language models—BART, PEGASUS, and T5 to autogenerate exaggeration-free headlines based on a journal publication's title and abstract. Model performance was evaluated using the ROUGE metrics by comparing model-generated headlines with journal publication titles.

Results: The fine-tuned BERT model achieved 92.5% accuracy in differentiating between exaggeration-free and original headlines. Baseline ROUGE scores averaged 0.311 for ROUGE-1, 0.113 for ROUGE-2, 0.253 for ROUGE-L, and 0.253 ROUGE-Lsum. PEGASUS, T5, and BART all outperformed the baseline. The best-performing BART model attained 0.447 for ROUGE-1, 0.221 for ROUGE-2, 0.402 for ROUGE-L, and 0.402 for ROUGE-Lsum.

Conclusions: This study demonstrated the feasibility of leveraging A.I. to automatically identify and correct news headlines exaggerating obesity-related research findings.