

DTMU – BU partnership

Current collaborative overview

Ilia Nadareishvili, MD, PhD

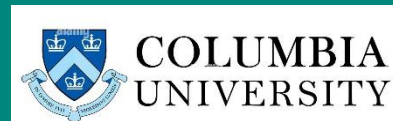
Karsten Lunze, MD, MPH, DrPH, FAAP, FACPM

Fogarty K43 TW013136-01

NIMH R34MH134077

NIDA R61DA059856

Fogarty D43TW012768





NIA Training and
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Programs

Award Deadline

**Emerging Global Leader
Award (K43)**

Tuesday, December 3, 2024

K43

Implementing screening and brief intervention for substance use in primary care in rural Georgia

Ilia Nadareishvili

Fogarty K43 TW013136-01



Study Team Members

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The goal of this study is

to **identify individual, environmental and systemic barriers and facilitators for implementation of SBI in primary care in Georgia's rural communities and to address barriers** by developing and pilot testing an online **educational intervention**.

I hypothesize that **providing contexttargeted training to PCPs can improve adoption of SBI, mitigating the implementation barriers**.

I also hypothesize that **the proposed intervention will be feasible, acceptable and appropriate to proceed to a full-scale randomized implementation trial**.

The study will be informed by three implementation science approaches: Implementation Outcomes Framework (IOF); the SBIRT Program Matrix; and the updated Consolidated Framework for Implementation Research (CFIR).

Specific aims:

Aim 1: To assess contextual and environmental factors, both barriers and facilitators, to effective SBI implementation in rural primary care in Georgia.

I will collect qualitative data through individual interviews with PCPs (~30, depending on data saturation), and five leadership focus groups to inform the targeted intervention design and delivery. I will assess implementation barriers and facilitators at organizational and individual levels following the SBIRT Program Matrix components, CFIR, and IOF. I will use observation and document analysis methods to assess the primary care context, existing practices and policies.

Aim 2: To develop an adapted educational intervention. Informed by Aim 1, I will adapt an existing educational intervention.

I will introduce digital solutions, such as virtual patients and problem-based learning cases of clinical scenarios for online educational intervention, aimed to improve SBI implementation. Aim 1 will also guide the content and number of the scenarios/cases (est. 12-15) and the training volume. I will translate materials into Georgian and pilot the cases prior to implementation among family medicine resident physicians.

Specific aims:

Aim 3: To pilot and assess feasibility of the future SBI intervention implementation trial. I will deliver the targeted SBI CME to 32 PCPs from 24 municipalities and will enroll 32 control PCPs. I will assess acceptability, appropriateness and feasibility of the intervention. I will also compare changes in self-reported readiness to adopt SBI, and knowledge on SBIRT within the intervention group (pre- and post-) and between the intervention and the control groups. I will measure outcomes at individual and organizational levels using primary survey data collected prospectively. I will use valid implementation outcome measures. I will qualitatively explore perceived change in SBI implementation barriers and intervention complexity.

Budget: \$628,652.2

| Aim | Activities | Yr 1 | Yr 2 | Yr 3 | Yr 4 | Yr 5 |
|------------------------------|---|------|------|------|------|------|
| Aim 1 Situational assessment | Interviews, focus-groups, document analysis | | | | | |
| Aim 2 Intervention design | Targeted e-CME design and programing | | | | | |
| Aim 3 Intervention pilot | Intervention implementation; outcome data collection and analysis | | | | | |
| Manuscripts | Manuscript submission | | M1 | M2 | M3 | M4,5 |
| Conferences | Presenting study results, dissemination | | | | | |
| Grant writing | Writing the full-scale trial proposal | | | | | |

Preventing Mental Disorders Among Women Internally Displaced by War in Ukraine: The SHAWL Trial

Karsten Lunze & Kimberly Hook

Site PI: Pavlo Smyrnov, MPH

NIMH R34MH134077



Study Team Members



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Data Management

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Harvard University

Kimberly Hook (PI), PhD, MA



Background: Prevention of disease burden

- The war in Ukraine has provoked the world's current largest humanitarian displacement
- Since February 2022, over 13 million people (1/3 of Ukrainians) have been forced to leave their homes, incl 6 million internally displaced persons (IDPs)
- ~ 1/5 persons affected by conflict will develop mental disorders
- Incidence and prevalence of unhealthy substance use in humanitarian settings are currently unknown
- Behavioral and pharmacological approaches to prevention

Study Aims

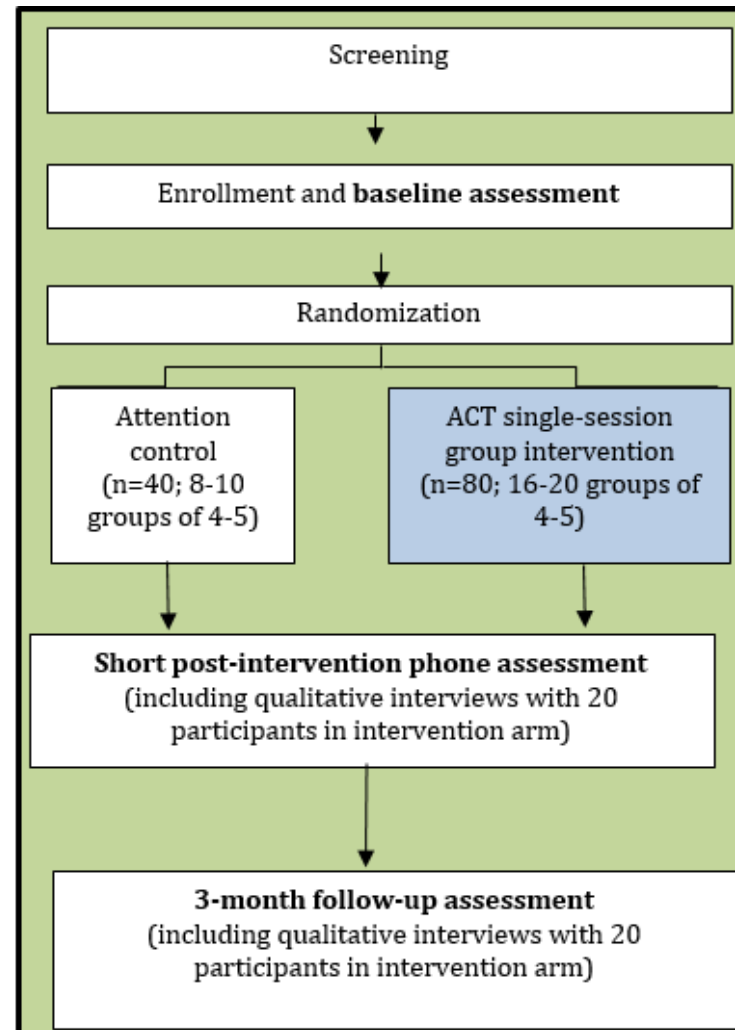


1. To develop a mental health prevention intervention for displaced women in Ukraine
2. To determine the potential effectiveness of a single-session ACT group on maintaining or decreasing symptoms of depression and anxiety among displaced women (n=120).
3. To evaluate implementation outcomes of adapted ACT delivery through a mixed methods approach.

Study Outcomes

- Developmental: focus groups and interviews
- Primary outcome at 3 months : Maintenance or decrease in anxiety or depressive symptoms (MHAI).
- Secondary outcomes all measured 2-weeks post-intervention:
 1. Changes in experiential avoidance (as measured by the Multidimensional Experiential Avoidance Questionnaire- MEAQ).
 2. Changes in psychological flexibility (as measured by the Acceptance and Action Questionnaire- AAQ-2).
 3. Measurements of acceptability, appropriateness, and feasibility.

Study Flow Chart



Study Groups



Intervention

- One 3-hour group session of 4-5 women each
- Each session follows an ACT intervention manual, adapted from a prior intervention
- Intervention involves a mixture of didactic instruction, discussion, metaphors, and experiential activities
- Delivered by trained interventionists

Control

- One 3-hour group session of 4-5 women each
- Attention-control session, focusing on health promotion
- Conducted by a separate facilitator, not a study interventionist trained in ACT

Study Timeline



| | Year 2 | | | | | | | | | | | | Year 3 | | | | | | | | |
|--|--------|---|---|---|---|---|---|---|---|----|----|----|--------|---|---|---|---|---|---|---|--|
| | 2025 | | | | | | | | | | | | 2026 | | | | | | | | |
| Activity | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| DSMB meetings | X | | | | | | X | | | | | | X | | | | | | X | | |
| Recruitment and intervention | | X | X | X | X | X | X | X | X | X | X | | | | | | | | | | |
| Follow up | | X | X | X | X | X | X | X | X | X | X | X | X | X | | | | | | | |
| Qualitative data collection | | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | | | | |
| Data analysis and manuscript preparation | | | | | | | | | | | | | | | X | X | X | X | X | X | |

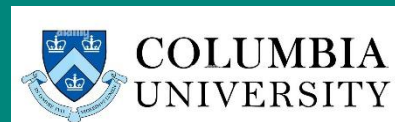


Substance Use Prevention for Recently Displaced Adults (SUPRA) R61R33

Karsten Lunze (BU), Kimberly Hook (Harvard); Jeremy Kane (Columbia)

Site PI: Pavlo Smyrnov, Alliance

NIDA R61DA059856



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Olha Biklian, MA

Data Management

Yuliia Sereda, PhD, MA
Kim Watson, MPH

Background

- The war in Ukraine has provoked the world's largest humanitarian displacement
- Addressing this knowledge gap is an immense priority for Ukraine and other humanitarian settings

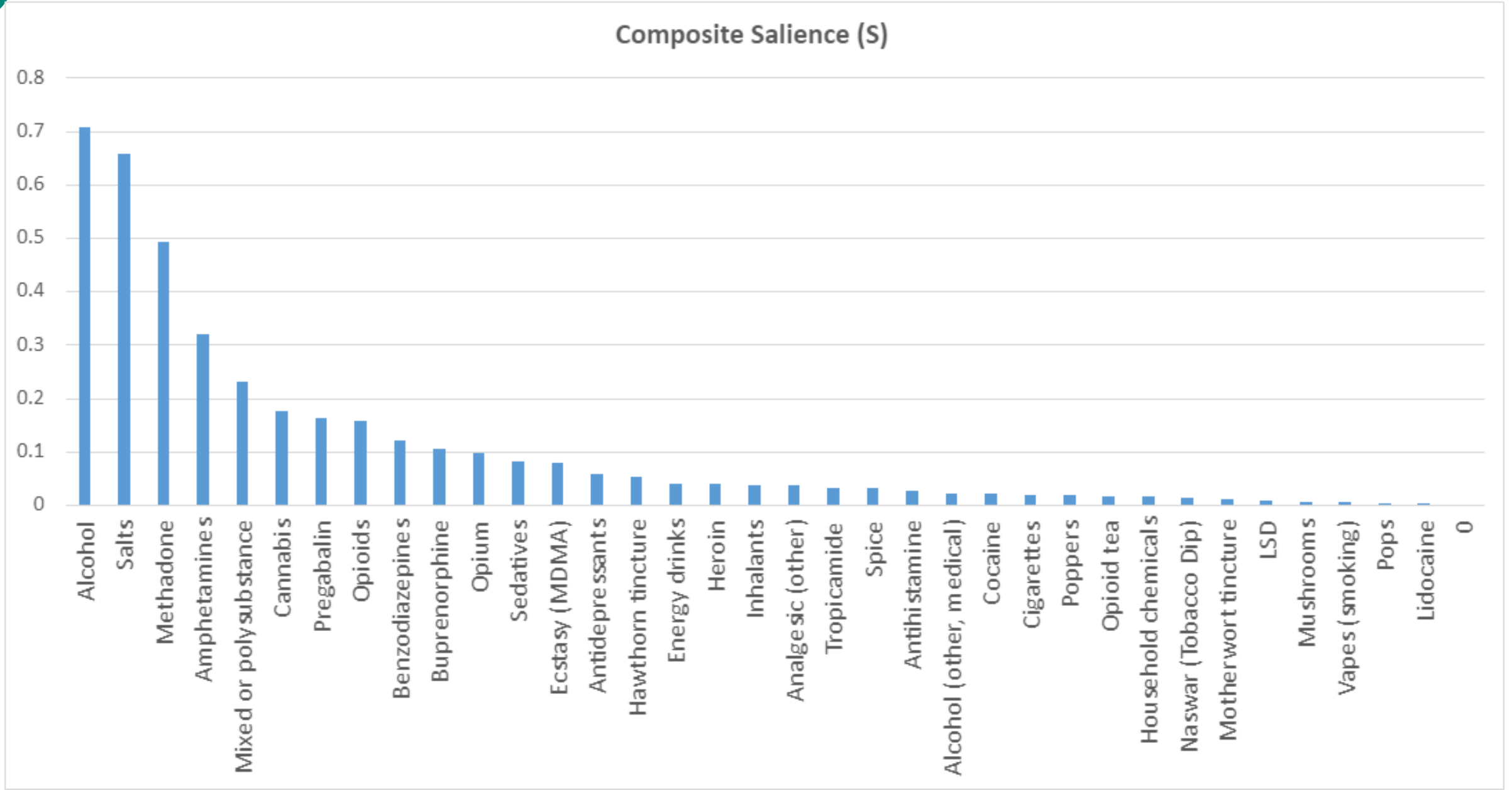
Study Aims

- Aim 1 (R61 phase): To measure the prevalence and patterns of substance use among IDPs in Ukraine
 - Develop and implement a **substance use survey (n=600)** deployed in settings serving IDPs
 - Assess the prevalence of recent substance use among IDPs
 - Ascertain determinants that the subsequent intervention will address
 - Evaluate participants' readiness and preferences for preventive interventions.
- Aim 2 (R33 phase): To adapt a substance use prevention intervention to target IDPs at risk in Ukraine
- Aim 3 (R33 phase): To determine the feasibility, acceptability, and preliminary effectiveness of the intervention among IDPs

Study Design – Aim 1

1. Rapid free-listing interviews with 40 adults identified by partners at Alliance as knowledgeable about substance use patterns in the community- completed
2. Cognitive interviews with 20 individuals from the target population to improve quality of survey questions- in process
3. Multi-stage cluster survey to estimate the prevalence and patterns of lifetime and past 3-month substance use among 600 IDPs in Ukraine

Free-Listing Interview Results



Substance Use Survey

The proposed survey will include the following measures:

- Demographics
- Household Food Insecurity Access Scale (HFIAS)
- Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)
- Alcohol Use Disorders Identification Test (AUDIT)
- History of chronic diseases, HIV, tuberculosis, hepatitis
- Mental Health Assessment Inventory (MHAI)
- Life Events Checklist for DSM-5 (LEC-5)

Substance Use Survey continued

- Quality of Life (EUROHIS-QOL 8)
- Social Support Scale
- Perceived Stigma for Substance Use
- Everyday Discrimination Scale
- Adverse Life Experiences (Post Migration Living Difficulties)
- Humanitarian Emergency Settings Perceived Needs Scale (HESPER)
- VR-12 Health Survey

Building Capacity in HIV/TB and Mental Health in Ukraine's Humanitarian Crisis

Adam Levine, Tim Flanigan, Karsten Lunze, Sergiy Boghdanov & others
Site PI: Iliia Nadareishvili
Fogarty D43TW012768



D43: multidisciplinary research training model

- Brown University, Boston University, National University of Kyiv-Mohyla Academy, Alliance Ukraine, DTMU
- Targeted attacks against hospitals and educational institutions
- Highest burden globally of HIV and TB, including multidrug-resistant TB
- Enhance high priority research capacity aiming to improve equitable access to HIV, TB care and comorbidities (SU, MH) in humanitarian settings in Ukraine

D43: multidisciplinary research training model

- Aim #1: To train a multidisciplinary cohort of Ukrainian researchers (2 doctoral and 7 masters)
- Aim #2: To strengthen the capacity of Ukrainian faculty and researchers to conduct research in HIV and comorbidities through an innovative faculty fellows training program, with 6-12 month trainings provided to 3 Ukrainian faculty
- Aim #3: To establish an annual symposium for research dissemination and intensive one-week training workshops

National Institutes of Health
National Institute on Drug Abuse
International Program
INVEST FELLOWSHIP

Ilia Nadareishvili

NIDA INVEST Fellow 2023-2025





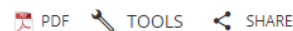
RESEARCH ARTICLE

Regulatory environment for complementary and alternative medicine in Georgia—a health policy analysis

Iliia Nadareishvili✉, Giorgi Pkhakadze, Nato Japiashvili, Karsten Lunze

First published: 18 March 2021 | <https://doi.org/10.1002/hpm.3142>

Read the full text >



Abstract

International bodies such as the WHO call on member states to regulate and, where possible, integrate Complementary and Alternative Medicine (CAM) into health systems, to the benefit and safety of patients. Research on CAM regulations in the Republic of Georgia has been limited. The aim of this study was to identify key actors and analyse the regulatory environment for CAM in Georgia in its local and international contexts. We conducted a health policy analysis using a triangle framework of content, context and processes. We used data from national government, professional associations and academia; and drew from primary qualitative data of stakeholders' perspectives and needs regarding CAM in Georgia. The several CAM associations we identified have limited capacities for self-regulation. CAM practices are currently not effectively regulated in Georgia, while the government has no expressed intention to develop regulatory frameworks. Georgia's CAM health policy is currently not compliant with WHO and European directives and recommendations. Government, lawmakers, public administration, academia, physicians, non-physician CAM practitioners and other actors should constitute a national working group dedicated to CAM regulations in Georgia to identify, classify CAM practices; and develop core principles for policy making for safe and effective CAM practiced in Georgia's health system.

The Approach to the COVID-19 Pandemic in Georgia—A Health Policy Analysis

Iliia Nadareishvili^{1*}, Ana Zhulina², Aleksandre Tskitishvili¹, Gvantsa Togonidze¹, David E. Bloom³ and Karsten Lunze^{4,5}

¹David Tskitishvili Medical University, Tbilisi, Georgia, ²Independent Researcher, Tbilisi, Georgia, ³Department of Global Health and Population, School of Public Health, Harvard University, Boston, MA, United States, ⁴School of Medicine, Boston University, Boston, MA, United States, ⁵Boston Medical Center, Boston, MA, United States

Objectives: This study aimed to analyze key COVID-19 pandemic-related policies and national strategic responses in light of Georgia's political, socioeconomic and cultural backgrounds.

Methods: We applied a policy triangle framework for policy analysis, performed document and media content analysis, and described pandemic trends statistically.

Results: Early introduction of stringent restrictive measures largely prevented a first wave in March–May 2020. This was communicated as a success story, prompting a public success perception. With unpopular restrictions lifted and hesitancy to embrace evidence-informed policymaking ahead of nationwide parliamentary elections, SARS-CoV-2 infection spread rapidly and was met with an insufficiently coordinated effort. Facing health system capacity saturation an almost complete lockdown was re-introduced in late 2020. Factors as delayed immunization campaign, insufficient coordination and, again, little evidence-informed policymaking eventually led to another devastating COVID-19 wave in summer of 2021.

Conclusion: Georgia's pandemic health policy response was adversely impacted by a volatile political environment. National pandemic preparedness and response might benefit from an independent body with appointment procedures and operations shielded from political influences to effectively inform and communicate evidence-based pandemic policy.

Keywords: COVID-19, health policy, policy analysis, politics, Georgia

INTRODUCTION

The COVID-19 pandemic, with almost have a billion reported cases as of April 2022, has taken over 6 million lives, has had unprecedented health effects with high morbidity and health complications such as long COVID syndrome, and adversely impacted socioeconomic development of populations around the world. Coordination and management of response and mitigation efforts (on international or local levels) have revealed deep systematic challenges. New strains and outbreaks have continued to emerge, and some of them are highly virulent. Despite similarly unprecedented vaccination efforts, it is yet unclear when the pandemic will transition to an endemic. It seems obvious though that tens of millions more will contract the disease and millions more will die through future waves of the disease.

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Georgia's healthcare system and integration of complementary medicine

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ARTICLE INFO

Keywords:
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Integration

ABSTRACT

Background: An increasing number of people in the Republic of Georgia use complementary and alternative medicine (CAM). CAM has long been practiced in the country, but is not currently part of the formal medical system. The aim of this study was to explore patients' CAM use and their perspectives of CAM complementation of existing services in Georgia's health care system.

Methodology: We conducted a qualitative study exploring patient needs and wants by performing in-depth, contextual interviews with patients using CAM. We recruited participants at CAM clinics and collected data until we reached saturation. A thematic analysis involving line by line coding explored perspectives and allowed us to formulate recommendations of CAM integration in Georgia.

Results: Study participants voiced that they pursued care beyond symptom relief, their disappointment in that regard with conventional medicine in Georgia directed them towards CAM as a safe and effective care setting. Most sought natural approaches as a sustained approach to their health and perceived CAM as empathetic therapeutic and preventive space. Participants were in favor of integration of CAM with conventional health services through government support and regulation. They saw coverage of payments for CAM visits and treatments as important aspect for an effective and sustainable integration.

Conclusion: Patients favor an integration of CAM into Georgia's current healthcare systems to ensure CAM's broad availability as well as effective regulation and financing, including coverage by health insurance.

1. Background

The Republic of Georgia in the South Caucasus is a country of unparalleled natural beauty, with a high culture developed over thousands of years, including its own language and its own alphabet only used in the country. The Georgian population has used different forms of complementary and alternative medicine (CAM) for many centuries. Medical traditions in the region developed under various influences. Traditions from Central Asia, Greece, the Byzantine Empire, among others, found an area for influence and development in Georgia.

The first written medical records in Georgia, documented in the 11th century, relate a millennium-old reference to contemporary CAM practice in Georgia.¹ Early, well-known references to CAM in the country dates back to the 13th to 16th centuries,^{2–4} with subsequent editions published later. These works provided knowledge on folk remedies, herbs and other health related approaches.

The 20th century and the rise of Soviet Union left many medical

traditions in the background due to fast development of conventional medicine. At the same time, other complementary and alternative medical methods such as homeopathy or acupuncture reached the Georgian population through literature and new-coming practitioners specialized in these modalities. Despite general suppression of CAM in the Soviet Union, knowledge on the methods was maintained and even there has been some research conducted in the country. Following the end of the Soviet Union, the use of CAM became more and more common in the post-Soviet countries, including Georgia.^{5,6} There's a limited scientific evidence on current contemporary CAM practice in Georgia, and it is not clear if this gap is due to CAM's disconnection from existing medical services, lack of CAM financing, philosophic or religious attitudes on CAM in the country, or other reasons.

The World Health Organization (WHO) *Traditional and Complementary Medicine Strategy 2014–2024* states that “policymakers and consumers should consider how [CAM] may improve patient experience and population health”, which emphasizes on global demand for

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Researchers From Georgia and Nigeria Selected as INVEST Fellows

NIDA has selected postdoctoral researchers from Georgia and Nigeria to receive INVEST Drug Use and Addiction Research Fellowships:

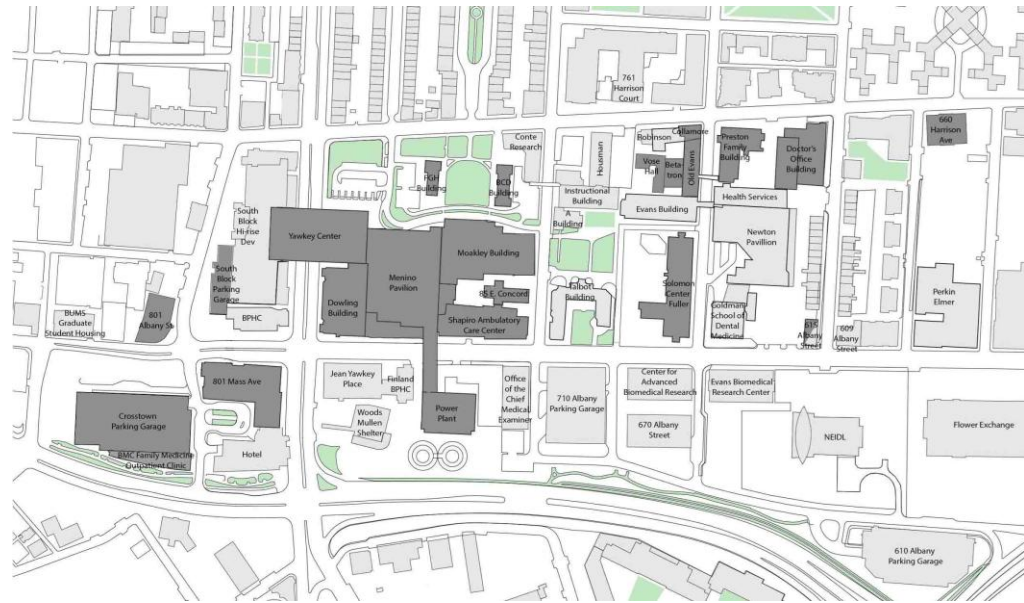
- Ilia Nadareishvili, M.D., Ph.D., (Georgia) will work as an INVEST Fellow with Jeffrey Samet, M.D., M.A., M.P.H., at the Boston University School of Medicine and Public Health. Dr. Nadareishvili is currently Head of Research Unit at David Tvildiani Medical University in Tbilisi, Georgia, where he also previously served as educational program coordinator. His main research interest is in public health, and he also completed additional training in global health programs. With his INVEST fellowship, he hopes to strengthen his addiction research capacity as well as knowledge and skills in innovative study designs, methods, biostatistics, data management, and data analysis. During his fellowship, he will study ways to address the acute problem of cannabis use among emerging adults in Georgia. He will conduct a health policy analysis, using qualitative document and media analysis approaches, of emerging adults' medical recreational cannabis use in Georgia following its legalization in 2018. Additionally, he will design, implement, and analyze an online survey for Georgian emerging adults to assess their recent cannabis use as well as their attitudes and knowledge about cannabis use.

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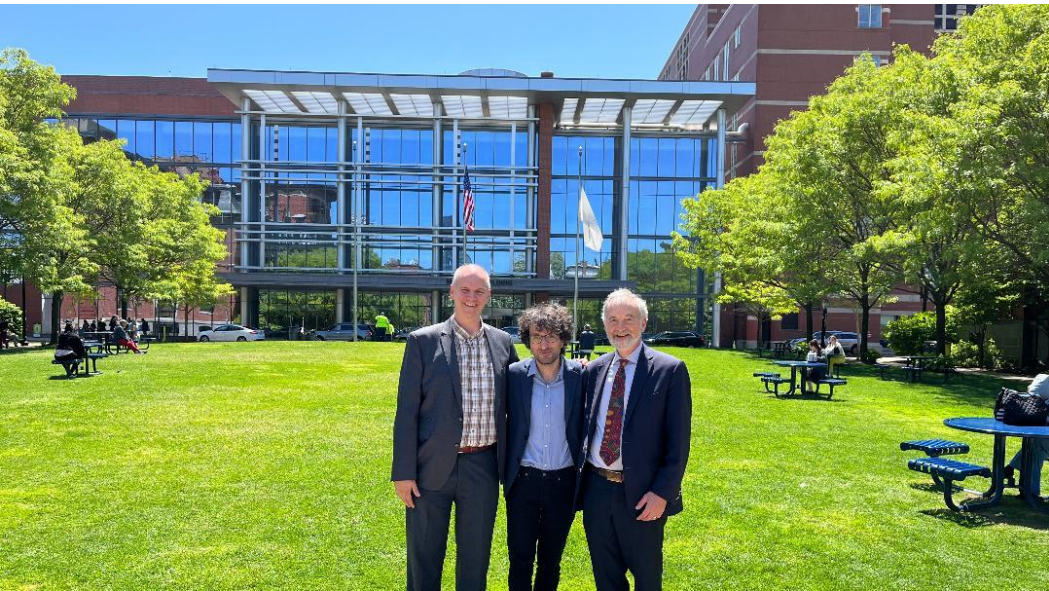
EXCEPTIONAL CARE. WITHOUT EXCEPTION.



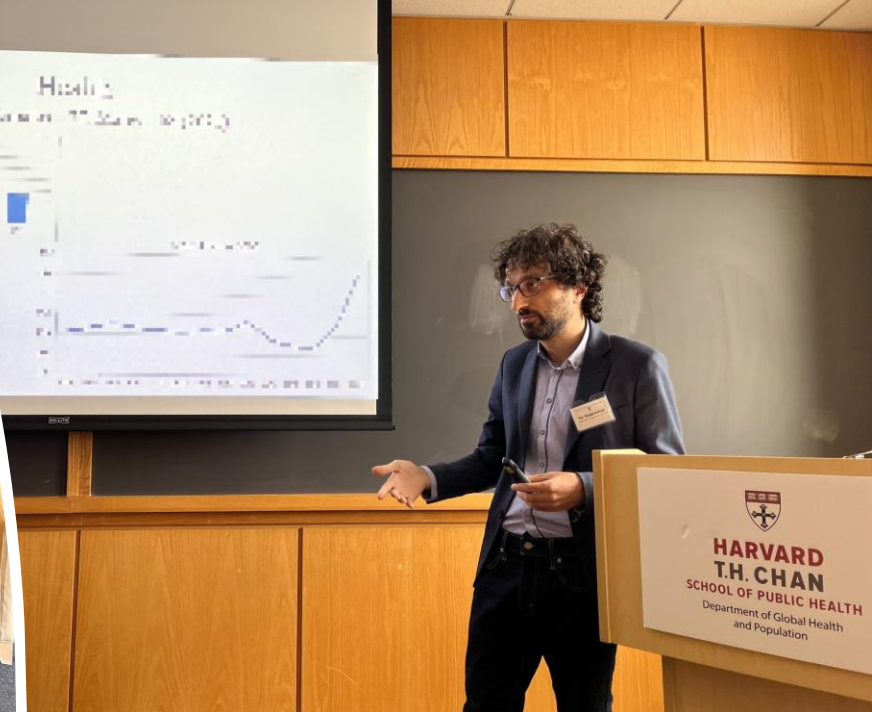


General Internal Medicine

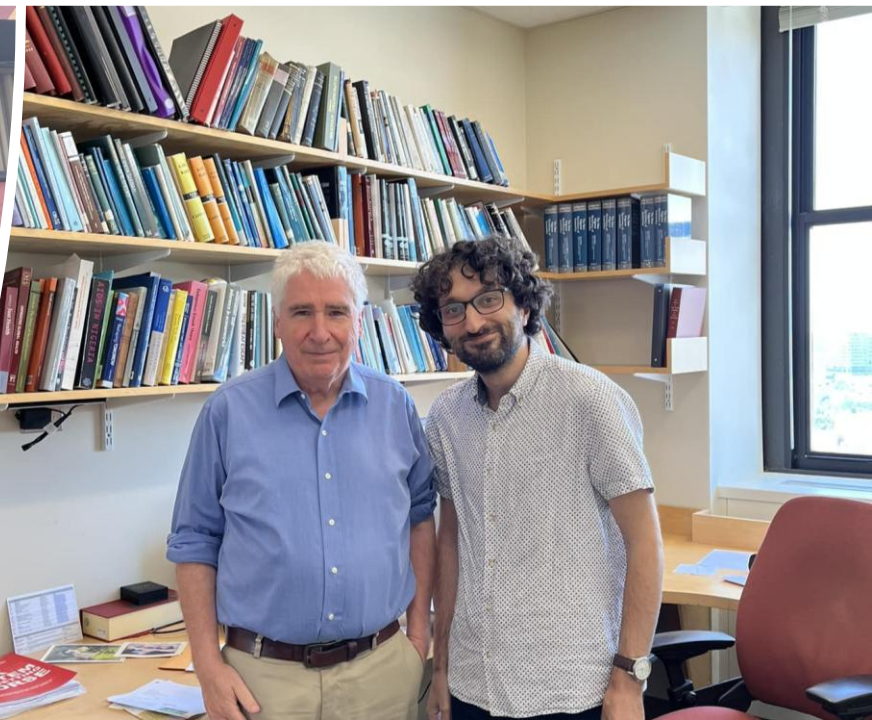
Faculty and trainees proudly providing compassionate internal medicine and primary care for patients and extensive research expertise to prevent disease and improve wellness



Collaboration with
HARVAR T.H. CHAN
School of Public Health



Strengthening Human
Resources for Health



Humphrey Fellows and NIDA INVEST Postdoctoral Fellows Visit NIDA

On November 29 and 30, 2023, the NIDA International Program invited 11 2023-2024 Hubert H. Humphrey Drug Use and Addiction Research fellows at Virginia Commonwealth University as well as three NIDA INVEST Postdoctoral fellows to an orientation meeting at NIDA, to visit the NIDA facilities and learn more about NIDA's programs.









Numerous occasions and opportunities to meet experts and global leaders





DTMU students at BUMC

Post-legalization shifts in cannabis use among young adults in Georgia—A nationally representative study

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Karsten Lunze and Irma Kirtadze contributed equally to this work.

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Abstract

Background and aim: In 2018, the country of Georgia legalized cannabis for recreational use and decriminalized limited possession. This study aimed to assess whether cannabis use increased among young adults (ages 18–29 years) in Georgia after national policy changes and to evaluate whether perceived access became easier after legalization and current risk factors of young adult cannabis use.

Methods: We used data from the Georgian nationally representative survey administered in 2015 ($n = 1308$) and 2022 ($n = 758$), before and after decriminalization. We performed appropriate bivariate analyses and multivariable linear and logistic regressions to assess the following: legalization's impact on cannabis use; perceived difficulty to obtain cannabis; age of first use; differences in use between females and males; and factors associated with current use.

Findings: Among young adults lifetime prevalence of cannabis use was similar in 2015 (17.3%) and 2022 (18.1%) [Odds Ratio (95% confidence interval) = 1.1 [0.7, 1.6], $P = 0.726$]. Annual prevalence (7% in 2015 vs 7.7% in 2022) was also similar (1.1 [0.7, 2.0], $P = 0.650$). In 2022 it was less difficult to obtain cannabis than in 2015 (0.5 [0.4, 0.8], $P = 0.021$). The age of first use increased statistically significantly (18.1 years in 2015 vs 19.1 in 2022, $P = 0.003$).

In 2022, annual prevalence of use was lower among females (1.9% vs 13.1%; OR = 0.1 [0.0, 0.3], $P < 0.0001$) and higher among those who gambled (11.7% vs 4.4%; OR = 3.2 [1.5, 6.8], $P < 0.003$). Males initiated cannabis use at an earlier age (19.1 years vs 20.6 for females, $P = 0.03$), and could obtain cannabis easier than females ($P < 0.0001$).

Conclusion: There was a minimal shift of cannabis use in young adults following implementation of recreational cannabis use legalization in Georgia. Males and people who gambled were at higher risk of cannabis use.

KEYWORDS

cannabis, decriminalization, Georgia, legalization, policy, prevalence, young adults, youth




Drug and Alcohol Dependence

Volume 267, Supplement, 1 February 2025, 111966




W24 - Emerging Adults' Cannabis Use in Georgia Following Legalization


Ilia Nadareishvili^{1,2}, Sowmya R. Rao², David Otiashvili³, Natalia Gnatienco¹, Jeffrey Samet¹, Karsten Lunze¹, Irma Kirtadze⁴

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Drug Category: Cannabis/Cannabinoids

Topic: Policy

Abstract Detail: Other

Abstract Category: Original Research

Aim: We assessed whether the 2018 national legalization of cannabis recreational use and limited possession in the country of Georgia resulted in increased cannabis use and availability among emerging adults (18–29 years) and evaluated factors associated with current cannabis use in this population.

Methods: Data on emerging adults were from the nationally representative “General Population Survey” administered in 2015 ($n=1308$) and 2022 ($n=758$), before and after decriminalization. The main outcome variables were cannabis use and availability. The main exposure variable was the survey year (2015 or 2022). We performed bivariate

Press Release: Study Finds Legalization Didn't Increase Recreational Cannabis Use Among Young Adults in Country of Georgia

(Boston)—Cannabis is one of the most widely used drugs, with an estimated 219 million users globally in 2021, with the highest number of users in the Americas. It is also the most used drug among young people. In the U.S., cannabis use among young adults (age 19 to 22) reached a historically high level in 2021, with 42.6% reporting use in the past year.

Effects and impact of recreational cannabis legalization and decriminalization on societies is a topic of global relevance and increasing scientific interest. Despite a rapidly growing body of published evidence, findings remain mostly mixed with little attention given to young adults.

A new study from researchers at Boston University Chobanian & Avedisian School of Medicine and Boston Medical Center (BMC) has found that cannabis use among young adults in the country of Georgia, did not increase following recreational use legalization, despite having easier access.

“We saw that a country can carefully legalize cannabis use, without a surge in use in the mid-term. It would be reasonable to additionally actively regulate and control production and distribution, to restrict black market, control the quality of products while keeping populations, particularly young people, safe. We need

Dichoptic Therapy in Amblyopia Management

Nino Kobakhidze, MD, PhD

Amblyopia

- Also known as Lazy Eye
- Vision development disorder in which one eye fails to achieve normal visual acuity despite full optical correction
- Caused by disturbed binocular vision promoting interocular **suppression**
- The brain favors one eye over the other due to poor visual input from the weaker eye

Amblyopia

- Affects 2-4% of population worldwide
- The number estimated to grow to 175 mln by 2030
- Visual Symptoms
 - Decreased visual acuity
 - Impaired or absent binocular function
(3D vision)
 - Impaired or absent stereopsis
 - Strabismus (squint)

High-order cortical functions

- Problems with attention, reading and learning
- Perception and processing of shape and contour
- Altered perception of alignment and symmetry
- Altered visual decision-making
- Altered audiovisual speech perception
- Impaired spatial audiovisual localization
- Impaired temporal judgment tasks

Standard Treatment of Amblyopia

- Early detection
- Treatment effective up to 10-12 years
- Full optical correction
- Patching the fellow eye to force the amblyopic eye see
- Functional training



Treatment Drawbacks

- Compliance and resistance
- Slow and incomplete recovery
- Lack of long-term stability
- Social stigma
- Reverse amblyopia (decreased vision in a good eye)
- Does not address underlying cause (binocularity)
- Frequent visits to vision therapy centers

Dichoptic Therapy



- Novel approach approved recently
- Simultaneous stimulation of both eyes
- Improves binocular vision and stereopsis
- Equally effective in both children and adults
- Home-based

Approved Software



Novasight

Luminopia



Bynocs



Perceptual Learning

- Visual Search Tasks
- Motion Perception Training
- Crowding Phenomenon
- Ambiguous or Degraded Stimuli
- Visual Noise Stimuli
- Optotype Training
- Contrast Sensitivity Charts
- Spatial Frequency Gratings
- Random Dot Stereograms
- Texture Discrimination Tasks

Visual Perceptual Learning

Vision involves both the eye and brain!

Vision =



+



Perceptual Learning: training the brain to efficiently process information from the eyes!

Aim of the Study

To determine neurophysiologic changes in amblyopic eyes, determine the effects of classic (patching) and novel treatment methods on the function of neural pathways and evaluate the functional effectiveness of the treatment by developing the proprietary software (digital videogames) based on dichoptic as well as perceptual learning principles

Objectives

1. To design and develop digital videogames tailored for dichoptic stimulation and perceptual learning, ensuring engagement and usability for the intended user population.
2. To investigate the characteristic changes of ERG parameters (VEP, PERG) in amblyopic eyes .
3. To compare ERG results of amblyopic eyes with healthy controls.
4. To investigate the potential neuroplastic changes induced by the dichoptic stimulation utilizing electroretinography (VEP, PERG).
5. To compare ERG data of patients treated with dichoptic therapy vs patching
6. To evaluate the impact of digital games on visual acuity, binocular function and stereopsis in individuals with amblyopia.
7. To validate the software for the treatment of amblyopia.

Study Protocol

- Study group – 50 amblyopia patients subdivided by:
 1. Age
 2. Refractive error
 3. Presence of strabismus
 4. History of patching

- Healthy controls - 20 patients (ERG only)

Training protocol

- 30 minutes a day
- Up to 3 months
- Or until showing improvement

Expected Outcome

- In-depth knowledge of amblyopia pathophysiology
- In-depth knowledge of effects of dichoptic therapy vs patching
 - New home-based software for amblyopia vision therapy