

Medical student research productivity in LMICs: Challenges to achieving sustainability through international collaboration

Chilando M. Mulenga, BSI; Musunga M. Mulenga MS1; Darius Balumuka, MD3;Janat Nakachwa2; Jonathan Mulungi2; Brea C.Willey, MS5;Natasha Ntembwa7; Kelsi Krakauer, BS3; Adriana A. Solis, BS8; Samantha Burch, BS3; Uche C. Ezeh, MS5; Mirembe Joy, MBChB4; Leoson Ssetaba Junior4; Nabaweera Rebecca6; Sanjay Krishnaswami, MD3; Martin Tungotyo MBChB3, Priti P. Parikh, PhD1; Mbaga Walusimbi, MD1;Amanda Gosman, MD8;

¹Department of Surgery, Wright State University, Dayton, OH, USA; ²Division of Plastic & Reconstructive Surgery, Oregon Health & Science University School of Medicine, Portland, OR, USA; ³Department of Surgery, Mbarara University of Science and Technology, Mbarara, Uganda; ⁴The Makerere University School of Medicine, Kampala, Uganda; ⁵The University of Miami Leonard M. Miller School of Medicine, Miami, FL, USA; ⁶Kampala International University School of Health Sciences, Kampala, Uganda; ⁷Levy Mwanawasa Medical University, Lusaka, Zambia; ⁸Department of Surgery, Division of Plastic & Reconstructive Surgery, Indiana University, Indianapolis, IN, USA; ⁹Department of Surgery, Division of Plastic & Reconstructive Surgery, University of California, San Diego, San Diego, CA, USA

Introduction

Studies have shown an upsurge of students from low middle income countries (LMICs) showing interest in research participation. Several factors hinder these students from participating in research, including time, lack of funding, availability of research mentors, and lack of formal teaching of research methodology. There is limited research investigating the productivity of medical students, in both LMICs and high-income countries (HICs), involved in international research teams.

Objective

- Explore medical students' barriers and facilitators of international research collaboration
- Assess the difference in research education, opportunities between medical students in between higher income countries (HIC) and Low-middle income countries (LMIC).
- Understand the attitudes toward research and productivity between medical students in HIC and LMIC counterparts.

Methods

An anonymous Qualtrics survey was prepared and distributed using social media platforms including Twitter, Instagram, Facebook, WhatsApp, and GroupMe. Respondents represented the USA, Uganda and Zambia.

The survey included both open and closed ended questions regarding:

- Demographics
- Prior research experience
- International research experience

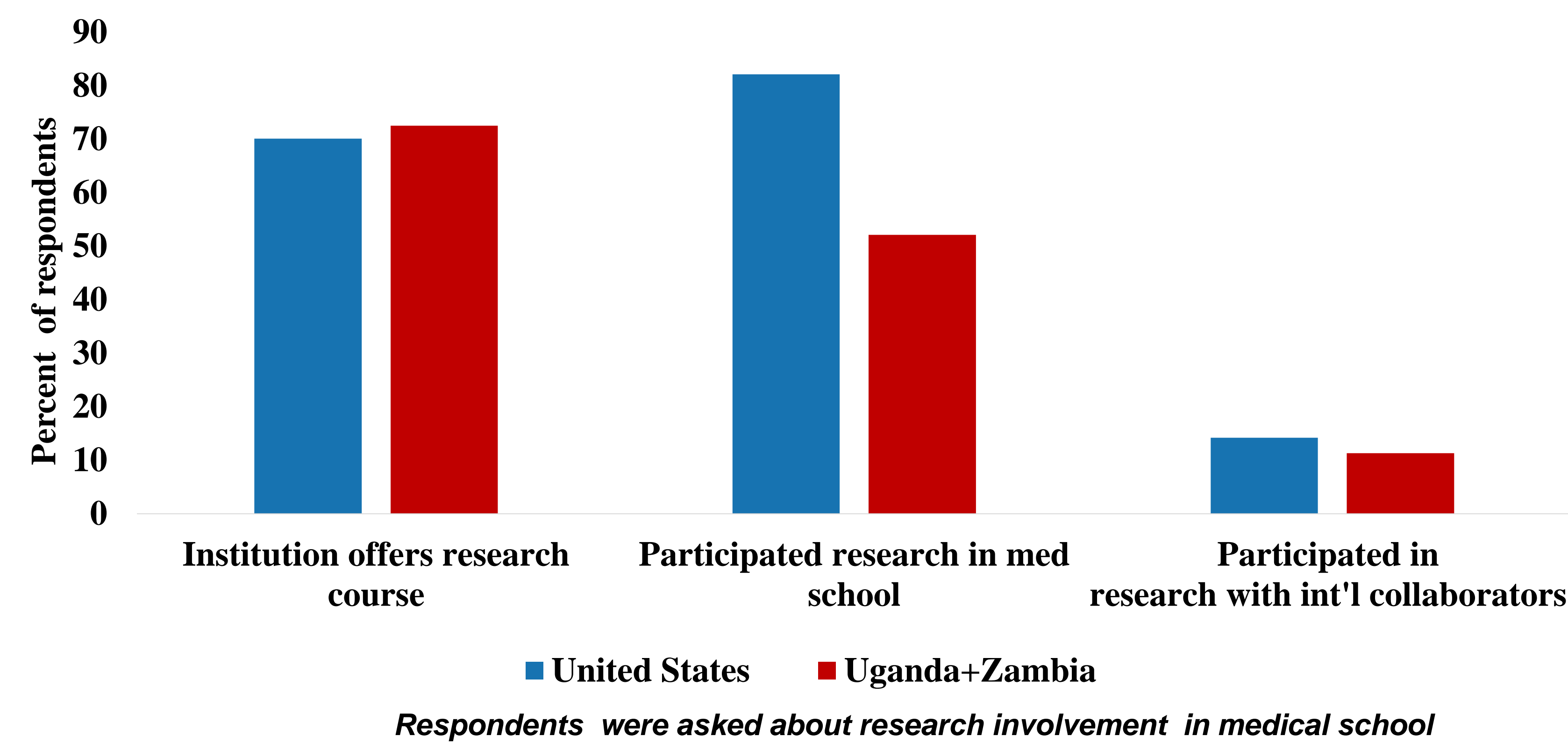
Descriptive statistics and comparisons between surveys from the United States (n=134) vs. Uganda (n=102) + Zambia (n=40) combined (n=142) for all survey items are provided. Comparisons between the two groups for categorical variables are made with chi-square (c) or Fisher's exact tests (f); comparisons between quantitative (and Likert scale) variables are made with Mann-Whitney U tests.



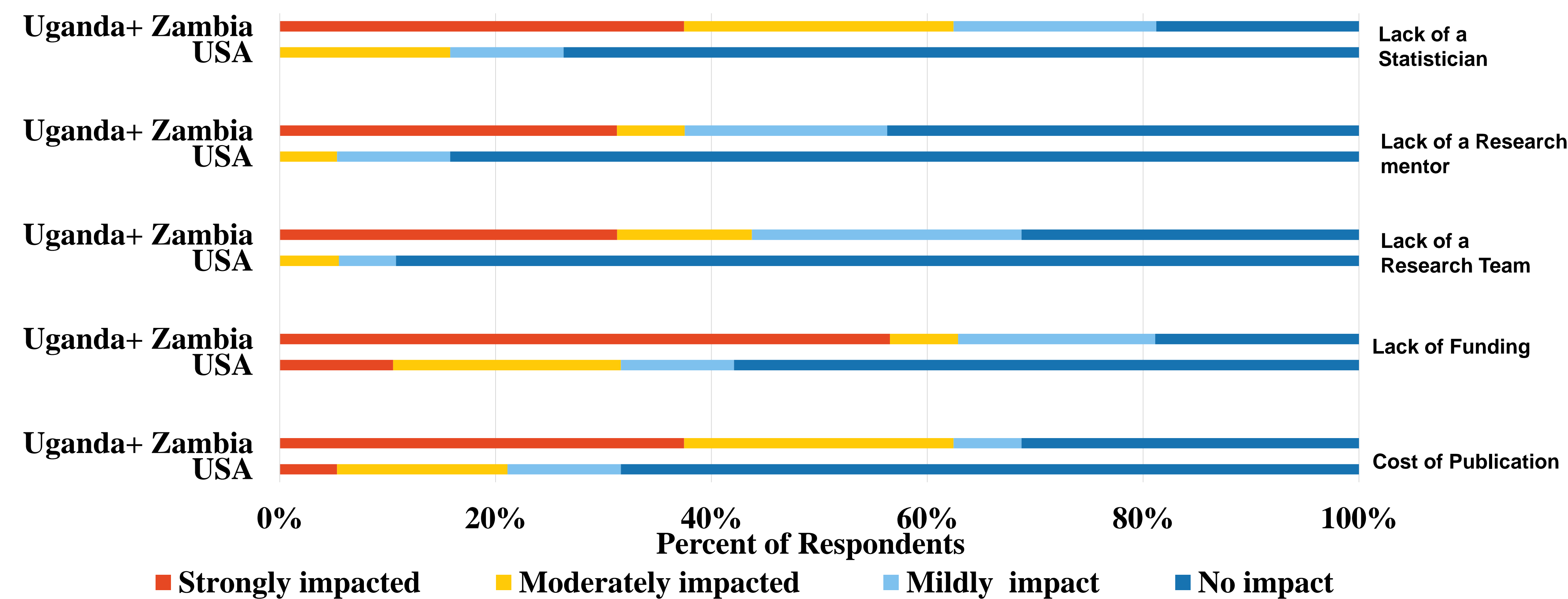
Uganda
Zambia

Results

Research Experience



Barriers

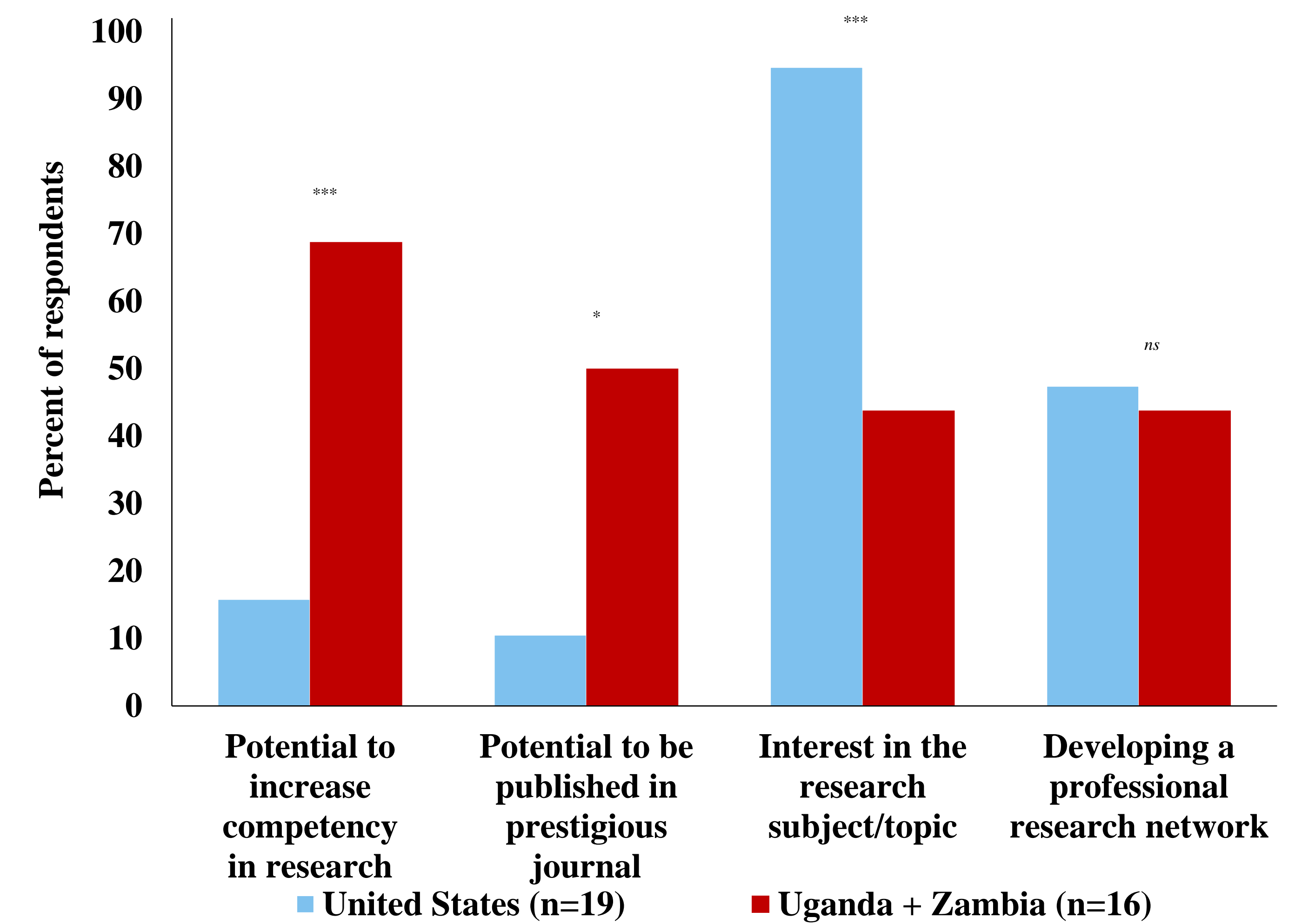


Respondents were asked to about the impact of several factors on their ability to conduct international research.

Demographics			
	United States	Uganda + Zambia	P value
Sample size	134	142	***
Age (years), mean (SD)	27.0 (3.5)	23.6 (3.2)	***
Male sex, n (%)	28 (20.9)	97 (68.3)	***
Current academic level, n (%)			ns
Pre-Clinical years	50 (37.3)	53 (37.3)	
Clinical Years	76 (56.7)	76 (53.5)	
Other	8 (6.0)	13 (9.1)	

p value: *p<0.05, ** p<0.01,***p<0.001

Motivations



Summary

- Students in the US had participated in more research, had greater research productivity, and more peer reviewed publications compared to their counterparts in Uganda and Zambia.
- Majority of Uganda and Zambia students (50.7%) feel research should be a graduation requirement compared to US students who felt research should be optional (62.7%).

Suggested Actions

Although research education is offered, hands on research experiences is sparse. Therefore, international research collaboration and coordinating dedicated research mentors as part of global surgery partnerships can aid in enhancing Uganda and Zambia students research experiences. Exposure to research early during medical school can provide the basic skills students need to conduct research and contributes to the practice of evidence-based medicine for enhanced patient care.