

STEM Inqueery: How Belonging in STEM Might Differ Depending on LGBTQ Identities and Identity Openness

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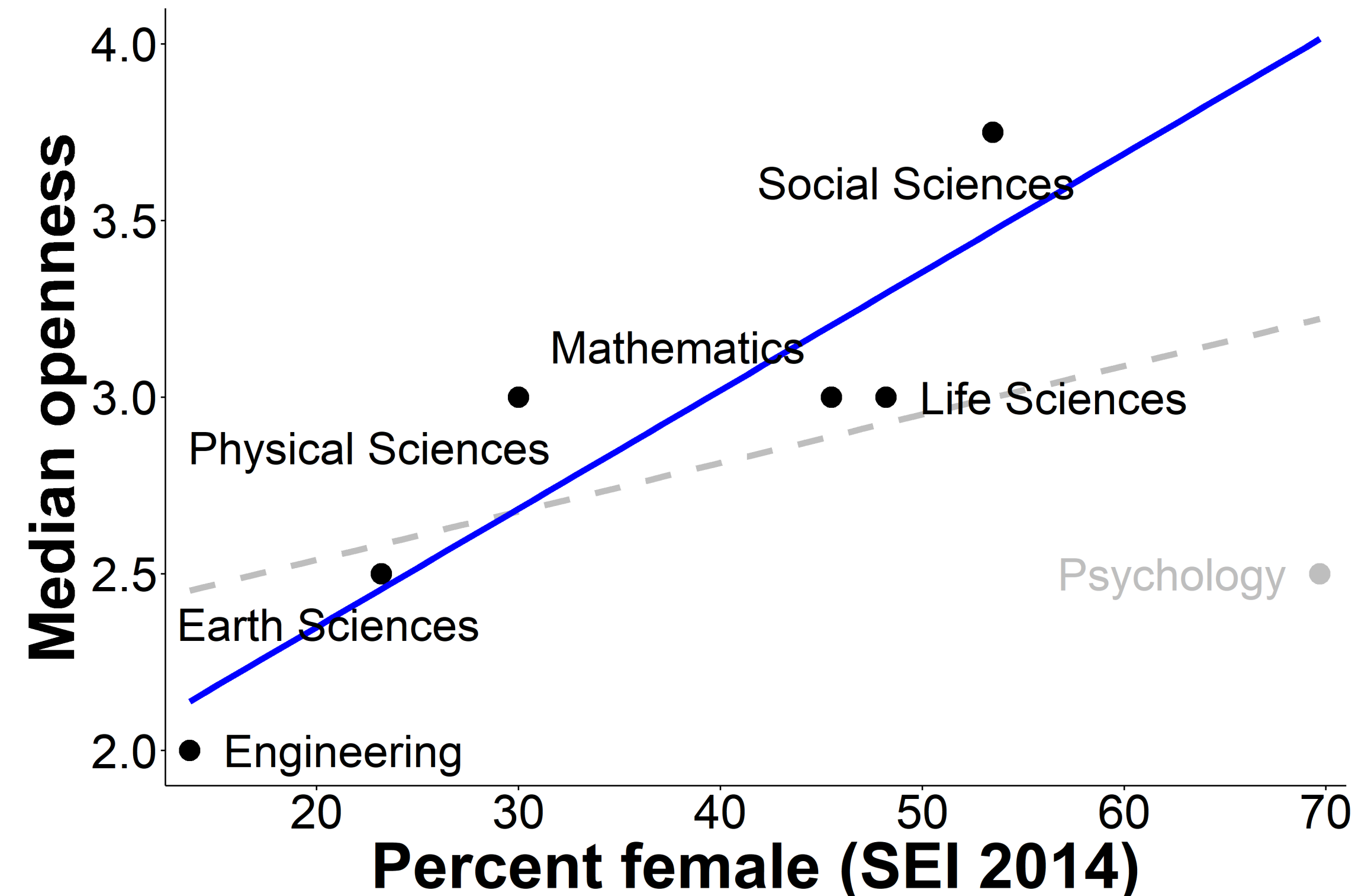
INTRODUCTION

Past Literature

- Science, technology, engineering, and mathematics (STEM) studies have investigated:
 - Gender (women versus men; Kim et al., 2018)
 - Race (Latinx and Black; Unfried et al., 2015)
 - Culture differences (Asian versus American; Brown et al., 2018)
- However, few studies have looked at the lesbian, gay, bisexual, transgender, and queer (LGBTQ) community (Stout & Wright, 2016).
- STEM has been stereotyped as a cis (same gender as birth) straight male field (Miller et al., 2020).
- STEM is viewed as an agentic field and lacking communal opportunities (Diekman et al., 2010).
 - Communal is other-oriented and working with others (Bakan, 1966).
 - Agentic is self-focused and achievement-oriented (Bakan, 1966).
- When communal opportunities are integrated into fields that are stereotyped as being noncommunal, STEM interest is boosted (Brown et al., 2018).
- The sense of belonging in STEM can affect a student's performance and interest in STEM (Good et al., 2012; Smith et al., 2013).
- This sense of belonging to STEM can be boosted by communal opportunities the individual perceives in STEM (Belanger et al., 2020).

LGBTQ & STEM

- Based on the figure below, LGBTQ individuals may feel less open about their LGBTQ identity in STEM fields, except psychology, that is more male-dominated (Yoder & Mattheis, 2016).
- For psychology that has a higher percentage of women in the field, LGBTQ individuals feel less open about their identity.



- LGBTQ individuals may receive (in)direct hostility from non-LGBTQ individuals in science and engineering (Bilimoria & Stewart, 2009).
- Transgender students presenting feminine within STEM are not respected as much by their peers compared to other students (Kersey, 2018).
- This may cause LGBTQ individuals in STEM to feel isolated, feel invisible (Bilimoria & Stewart, 2009), and the need to bottle up their identity (Cech & Waidzunas, 2011).

METHOD

Participants

- This study will have two samples.
 - General sample will be sample from MTurk.
 - Local sample will be sample from UNF.
- Minimum total sample size (based on power analysis, $d = .20$ at power = 0.80) will be 246.
- Ideal total sample size ($d = .20$, power = 0.80) is 390.

Materials

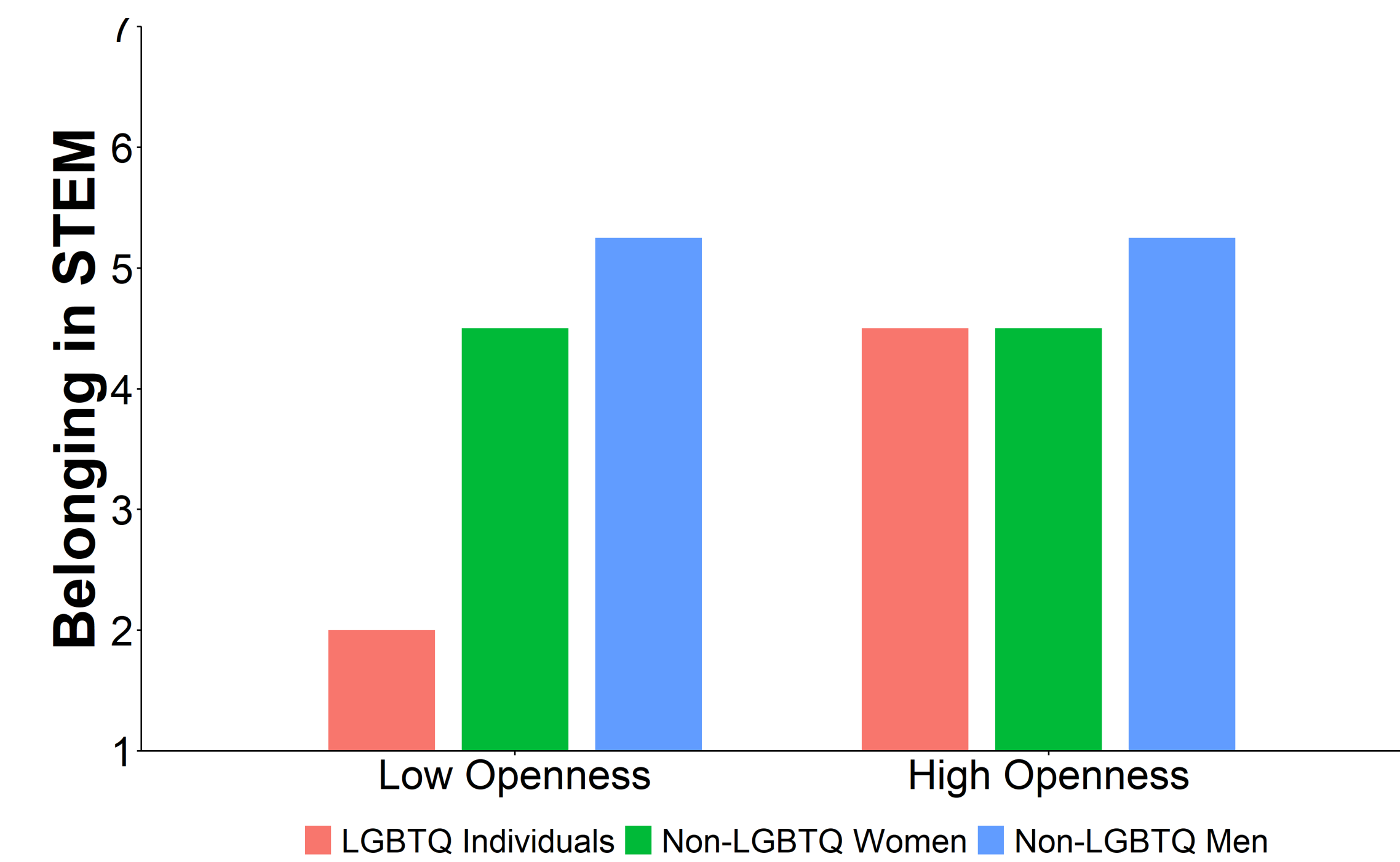
Categorical

- Participants demographics
 - LGBTQ individuals
 - Non-straight (Non-heterosexual)
 - Transgender
 - Intersex
 - Non-heteroromantic
 - People who are questioning
 - Non-LGBTQ women
 - Cisgender straight women (includes allies)
 - Non-LGBTQ men
 - Cisgender straight men (includes allies)

Measures

- Openness (Modified Outness Inventory; Resnick & Galupo, 2019)
- Gender expression
- Goal endorsement (Diekman et al., 2010)
- Communal and agentic opportunities (Diekman et al., 2010)
- (Future) Motivation to pursue STEM (Brown et al., 2015; Starr, 2018)
- Expectations for success in STEM (Eccles & Wigfield, 1995)
- Belonging in STEM (Smith et al. 2013)

EXPECTED RESULTS



- We hypothesize that LGBTQ individuals will have less feelings of personal belonging in STEM than non-LGBTQ individuals, with non-LGBTQ women having less feelings of personal belonging in STEM than non-LGBTQ men.
- We hypothesize that LGBTQ individuals with low-openness about their LGBTQ identity will have less motivation, expectations for success, and feelings of belonging in STEM than LGBTQ individuals with high-openness and non-LGBTQ individuals.

References & Script

