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Increasing the visibility of LGBTQ+ researchers in STEM

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Visibility creates a critical sense of individual belonging and security for LGBTQ+ people, and those who are able to be open about their sexuality and gender can serve as role models for the wider community.[1] Visible or not, LGBTQ+ people frequently encounter societal or legal discrimination, particularly in countries that retain colonial-era legislation.[2] One of the aims of The STEM Village Virtual Symposium, which took place in August, 2020, was to increase visibility of LGBTQ+ individuals in the science, technology, engineering, and mathematics (STEM) community. More than 700 attendees participated, including from countries where it is dangerous or illegal to be openly LGBTQ+.[3] We received feedback from people in these regions that events such as the symposium helped them to feel hopeful and part of a wider community.

The problem of invisibility is exacerbated in STEM fields due to heteronormative stereotypes, which can lead to challenges for LGBTQ+ individuals in the workplace.[4] Reticence to be out at work can be rooted in notions of wanting to appear professional and rigorous, something also often conflated with heteronormativity.[5,6] Therefore, it is perhaps not surprising that there is both a visibility and under-representation problem for LGBTQ+ professionals and students in STEM. A survey of LGBTQ+ physical scientists in the UK show that they commonly feel isolated and that almost 50% of transgender researchers have considered leaving or have left their jobs in STEM.[7] A Wellcome Trust study of 4000 biomedical research scientists in the UK found that 24% of LGBTQ+ respondents felt uncomfortable being open with col-leagues about their sexuality.[8] Another study surveying more than 270 000 people employed in US federal agencies highlighted the lack of LGBTQ+ representation in STEM-related compared to non-STEM federal agencies.[9] Thus, even in countries where LGBTQ+ identities are more widely accepted, there are barriers that require resolution within STEM workplaces. In the USA, under-representation and lack of visibility also has an impact on LGBTQ+ students in STEM who are less likely to be retained than their heterosexual, cis-gendered peers.[10] Despite these disparities, many government institutions, funding agencies, and educational organisations do not collect data on sexuality and gender identity. For instance, the National Science Foundation in the USA does not include the LGBTQ+ demographic in their national STEM census.[11] Scarce

data on LGBTQ+ individuals in the STEM workplace makes it difficult to fully understand, and subsequently address, the educational and career barriers that our community faces.

Changes cannot be initiated only by the LGBTQ+ community and must be embedded in institution-wide policies and procedures and part of wider diversity efforts to improve race, gender, and disability equality.[12] We propose micro- and macro-interventions that can help to increase LGBTQ+ visibility and inclusion in STEM (panel). Macro-interventions require institutional leadership **and system-wide institutional change**, while micro-interventions are steps that individuals and groups can take to create inclusive STEM environments.

Ultimately, we want LGBTQ+ people to be visible and included as part of the STEM community. We would like the future of STEM to be one that challenges gender stereotypes and notions of heteronormativity. We represent a number of different identities within the LGBTQ+ community as well as different nationalities, ethnicities, disabilities, and neurodiversities, but recognise that we do not and cannot fully represent the experience of all LGBTQ+ people. Multiple intersecting forms of oppression and privilege exist that some of us are disadvantaged by and some of us benefit from. Our proposals are intended to stimulate the important conversations that are needed so that we can continue working towards an inclusive STEM environment for everyone.

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Panel: Interventions to increase LGBTQ+ visibility and inclusion in STEM

Micro-interventions (individual and group level)

• Normalise sharing pronouns—include them in emails and introductions during meetings or classes.

• Demonstrate allyship with flags and symbols of solidarity and understand and know what they mean.

• Don't assume someone's gender or sexual identity and be mindful of phrasing if asking questions. Ask yourself, "Would I ask or say this if I thought the person was heterosexual?"

Macro-interventions (institutional level)

• Data monitoring—ensure inclusive gender and sexuality options as part of human resources monitoring in the workplace. Analysis of data around marginalised identities must be examined through an intersectional lens: discrete categorisation, while necessary to capture multiple elements of an individual's identity, must not lead to discrete analyses.[13,14]

• Required training—regular training, delivered by LGBTQ+ individuals, that focuses on the understanding of intersectional LGBTQ+ identities.

- Support and safety —institutions should ensure the safety of their LGBTQ+ staff and students in the workplace and when organising important overseas work in countries that openly discriminate against the community.[15]
- Resources—provide funding to support network building activities and create mechanisms to integrate them into the STEM environment.
- Accountability and transparency—experiences of workplace bullying and harassment is a reality for many LGBTQ+ people. Accountability and safeguarding are often inadequate and all stakeholders have a responsibility to create academic environments where LGBTQ+ people are fully protected against discrimination, harassment, and micro-aggressions.