Advancing research reproducibility and open science starting with students. - A case of MakSPH Reproducibilitetea journal.

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Background: To improve quality of scientific outputs, procedures and incentive structures research reproducibility and open science require novel and innovative approaches starting early by scientists. We initiated a MakSPH Reproducibilitea journal at Makerere University School of Public Health as graduate students to help build and establish an open science community for early career researchers.

Methods: Initiation of MakSPH Reproducibilitea journal was inspired by ReproducibiliTea journal club initiative. The initiative offers a unique opportunity for Early Career Researchers to discuss diverse issues, papers and ideas about improving science, reproducibility and the Open Science movement. Journal clubs are held on Saturdays accompanied by a cup of coffee/ refreshment to discuss various issues in open science using open materials with occasional online visitations from other clubs. The club now has up to twenty members since its inception in 2020.

Lessons learned: Since initiation, knowledge, attitudes and practices for open science and reproducibility has improved. All members are able to describe the process of pre-registering study protocols, preparing and openly sharing of data and study materials, analysis code, sharing preprints and using open science frameworks. Recent developments have resulted into special sessions to learn open statistical and programming software (R software) to ensure reproducibility of analysis code. Members have been able to understand the publication processes as well as the relevance of open science especially in the low income setting.

Next Steps: This is the first step to empowering early career researchers to practice and own open science and reproducible research. This provides an opportunity for other department and universities within and out of Uganda to promote a culture for open science and reproducible research as move to promote and advance research in low and middle income setting. Future of the journal club hopes for institutionalization of activities as part of graduate school program for better science movement within the science community.