45. **ASSESSMENT OF UNDERGRADUATE RESEARCH EXPERIENCE IN TERM OF BENEFITS, BARRIERS AND MENTORSHIP FROM STUDENT'S PERSPECTIVES: A MIXED QUANTITATIVE-QUALITATIVE METHOD**

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INTRODUCTION: Undergraduate research has many demonstrated benefits like enhancement of student's critical thinking, understanding of research process, and soft skills development, yet so many challenges are facing medical students with availability of time being the most cited among many undergraduates. The aim of this study was to assess the undergraduates research experience in terms of benefits, barriers and mentorship from students perspectives. **METHODS:** This study used a mixed quantitative-qualitative approach. The quantitative part was observational, analytical cross-sectional study design with census sampling and 900 participants from 3 batches. The qualitative part constructed in 6 focus group discussions with thematic analysis. The data were collected using standardized pre-validated questionnaire for the quantitative data, and structured questions for the qualitative data. Statistical analysis for the quantitative data was performed using Statistical Package for Social Science (SPSS) ® version No. 26, while qualitative data were analyzed using ATLAS.ti 9 software. **RESULTS:** From 950 census of the three batches, 900 student filled the questionnaire with 94.7% response rate. The mean age of the participants was 24.7, with 69 % females. After finishing their research only 7.7% published their work (65.3% journal, 16.7% conferences presentations). The highest gains reported from this experience were understanding the research process in the medical field, learning to work independently, and ability to read and understand primary literature, while the lowest were learning laboratory techniques, clarification of career path, and confidence in their potential to be science teachers. Themes generated from the qualitative data regarding undergraduate research benefits were: 1. Research knowledge, 2. Soft skills and 3. Scientific/Academic paradigm. The three most reported barriers were research knowledge and skills (44.4%), mentorship (24.4%), and time management (21.7%). When assessing mentorship, 28.9% indicated that their supervisor was about average "He was very good, He wasn't always available, but when available he tries to give us everything he can, generally he was so nice" group3, participant4, 15.8% said he/she is outstanding as a teacher and mentor "she was so supportive (supportive as a supervisor, teacher and even as a mom), she was trying to get the best out of us " group1, participant1. We investigated the association between students evaluation of their supervisors and their evaluation of the overall research experience, these two variables were moderately correlated (r=.31 , P = .000). Also there is a significant positive correlation between supervisor`s evaluation and students tendency to choose another research experience as undergraduates (r= .2 , P= .000). Nevertheless, Supervisor`s evaluation also correlate with the overall benefits from the research experience (r= .2 , P =.000). **CONCLUSION**: Undergraduate research experiences had many well-established benefits yet so many challenges were encountered by students when conducting medical researches. These challenges need to be addressed properly in order to maximize the outcomes. Nevertheless, Mentorship is a defining feature and can determine the outcome of the whole research experience among undergraduates, and this necessitate baying further attention to this factor.

Table. The Mean of Rating for Twenty-one Potential Gains of Undergraduate Research Experience.

Item	Mean	SD
Clarification of a career path	2.22	1.31
Skill in the interpretation of results	3.14	1.25
Tolerance for obstacles faced in the research process	3.17	1.27
Readiness for more demanding research	3.08	1.35
Understanding how knowledge is constructed	3.28	1.29
Understanding of the research process in your field	3.42	1.27
Ability to integrate theory and practice	3.08	1.27
Understanding of how scientists work on real problems	3.14	1.29
Understanding that scientific assertions require supporting evidence	3.22	1.33
Ability to analyze data and other information	3.14	1.31
Understanding science	3.03	1.29
Learning ethical conduct in your field	3.23	1.32
Learning laboratory techniques	1.87	1.24
Ability to read and understand primary literature	3.31	1.28
Skill in how to give an effective oral presentation	3.01	1.34
Skill in science writing	3.07	1.30
Self-confidence	3.17	1.35
Understanding of how scientists think	2.93	1.35
Learning to work independently	3.35	1.37
Becoming part of a learning community	2.94	1.41
Confidence in my potential to be a teacher of science	2.70	1.48

Legend: SD: Standard deviation.

Key words: Undergraduates; Research Experience; Benefits; Barriers; Mentorship; Sudan.