

## **Combating Antimicrobial Resistance Through Education: A Pre-Post Intervention Study Among First-Year Allied Health Sciences Students**

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Antimicrobial resistance (AMR) is a growing global health threat that undermines decades of progress in infectious disease management. Inappropriate antibiotic use drives AMR, highlighting the need for targeted educational interventions to promote responsible use. This study aimed to evaluate the impact of an educational intervention on improving knowledge and perceptions regarding AMR among first-year Allied Health Sciences (AHS) students, representing the disciplines of Nursing, Medical Laboratory Sciences, Pharmacy, Physiotherapy, and Radiography, with comparisons across these academic programs. A pre-post intervention study was conducted among all first-year AHS students of the University of Peradeniya using census sampling method. A structured questionnaire, developed from previous studies, was pre-tested and adapted to suit the Sri Lankan context. Participants completed the same questionnaire at three time points: pre-intervention, immediately after, and two weeks post-intervention. The intervention comprised a 10-minute video documentary and a printed leaflet. Phase 1 (pre- and immediate post-assessments) was conducted in person, while Phase 2 (two-week follow-up) was administered via Google Forms. Data were analyzed using chi-square tests, paired t-tests, and repeated measures ANOVA. Of 198 eligible students, 144 (73%) participated in Phase 1, and 65 (45% of Phase 1 participants) completed Phase 2. The 55% attrition was due to the voluntary nature of participation. The majority of participants were female (75%), and 88.2% reported no prior exposure to antibiotic awareness programs. Notably, 66% had used antibiotics within the past six months, often for non-bacterial illnesses such as fever (34%) and the common cold (25%). The mean knowledge score increased significantly from  $19.81 \pm 4.94$  (pre-intervention) to  $27.11 \pm 5.36$  (immediate post-intervention), with a slight decline to  $24.58 \pm 6.07$  at follow-up. Differences between the time points were statistically significant ( $p < 0.001$ ). Among disciplines, pharmacy students had the highest post-intervention scores ( $30.16 \pm 4.83$ ), while physiotherapy had the lowest ( $25.59 \pm 4.54$ ). The educational intervention significantly improved AHS students' knowledge and perceptions on AMR, with inter-disciplinary differences indicating the need for curriculum-tailored, periodically reinforced strategies for sustained impact.

**Keywords:** Educational intervention, antimicrobial resistance, healthcare students, antibiotics, awareness program