**Antibiotic use and resistance: an unprecedented assessment of university students’ knowledge, attitude and practices (KAP) in Lebanon**

**Abstract**

**Introduction:** The emergence and spread of pathogenic bacteria. The incorrect prescription, inappropriate consumption and excess use of antimicrobial drugs, specifically antibiotics, are possibly the main factors contributing to the widespread of antibiotic-resistant bacteria. evaluate the knowledge, attitude and practices (KAP) towards the use of antibiotics as well as their resistance among Lebanese university students in health and non-health related majors.

**Methods: Cross sectional study. 750 students. Questionnaire** made up of **four dimensions: Socio-demographic characteristics, 3 questions; assessment of knowledge, attitude and practices, 7, 10 and 1 question, respectively.**

**The difference in mean scores** was conducted using **t-test** and the difference in percentages using **chi-square tests.**

**Results: 78% of respondents from the health-related majors scored high knowledge compared to only 41% of non-health related majors.**

**The difference in the scores of attitudes was not statistically significant.**

**Conclusions:** Interventions to promote awareness in this area should focus more students in on non-health related majors.

**Introduction**

1. History, present, causes, consequences of AMR and antibiotics.
2. **Self-medication:** Causes, how to get rid of it, studies.
3. **Importance of this study:** **why,** studies, unique characteristics.

**Methods**

1. Study design, procedure and sample size: **Cross-sectional questionnaire-based survey.**
2. Data collection: A pilot study was conducted among 12 students to assess the reliability and validity of the instrument. The reliability of the questionnaire was assessed by calculating the **alpha-Cronbach’s coefficient** which were found to be satisfactory for the three dimensions of the questionnaire (knowledge: alphaCronbach = 0.68, attitudes: alpha-Cronbach = 0.76 and practices: alpha-Cronbach = 0.71).
3. **Variables:** Questions were grouped into four categories reflecting the participants’ socio-demographic characteristics, knowledge, attitude.
4. **Statistical analysis:** Chi-square test of independence was used to compare frequency of participants who answered correctly between the health and non-health related majors. T-student test was used to compare the average score in the two domains of knowledge and attitude between students in the health and non-health related majors.

**Results**

**Study participants: 1250,** Respondents were categorized into two groups based on their respective majors: 63.60% (n = 477) were majoring one of the following health related topics (biology, biochemistry, nutrition, food sciences, biomedical sciences and pharmacy); while the remaining students 36.4% (n = 273) were studying a non-health related major (business administration, arts, engineering or education).

**Socio-demographic characteristics of participants:** Male 182, female 568. The majority of participants, 477 (63.60%) were enrolled in health-related education and 273 (36.40%) were in non-health related education.

**Knowledge of antibiotics use among participants**

**Attitude**

**Practice: Augmentin** used as most common antibiotics. Second and third most commonly used antibiotics were flagyl and amoxicillin.

**Overall Knowledge and attitude scores:** The average knowledge score was higher in the health major group of students compared to the non-health group (mean = 4.26; standard error = 0.05 vs. mean = 3.41; standard error = 0.13, respectively). This difference in scores was statistically significant (p-value≤0.001). The average attitude score was higher in the health major group of students compared to the non-health group (mean = 9.34; standard error = 0.05 vs. mean = 9.10; standard error = 0.21, respectively). However, the difference in the scores of attitudes was not statistically significant (p-value = 0.12).

**Discussion**

The knowledge and attitude of students in non-health majors were, as expected, less satisfactory.

**Limitations of the study**

Further studies with larger sample sizes and including more university and non-university students are needed to understand better the level of awareness of young adults and adolescents about the issue of antimicrobial resistance in Lebanon and the region.

**Conclusions**

Is a serious public health problem. findings indicate that improving the students’ level of knowledge about the use of antibiotics might remediate and rationalize their attitude toward antimicrobial use. The curriculum of students with non-health related majors requires improvement to include seminars, workshops, and/or courses related to public health concerns such as AMR. Our recommendations are in line with what has been proposed by several comparable studies. Awareness campaigns through media considering public health is also recommended.