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## Determinant factors of dental caries in Ethiopian military personnel

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**Background:** A military based case-control study was conducted from December, 2011 to February, 2012 among Core 105 Ethiopian Army found around Dessie, to assess socio-demographic and lifestyle determinants of dental caries and to review knowledge and practices towards oral health among cases and controls of dental caries in military personnel.

**Methods:** The study population was selected using multi-stage sampling technique, comprising stratification and simple random sampling technique. Dental examination was undertaken to identify cases and controls of dental caries. Once cases and controls were identified, a semi-structured and self-administered core questionnaire was made

**Results**: Oral hygiene practice was found to be lower among cases (57.0%) as compared to their controls (83.2%), and the differences were statistically significant after adjusting for other variables (OR=3.40, 95% CI, 2.30, 5.02), but there was no differences among cases andcontrols in using toothpaste, tattooing the gum and mouse rinsing practices. In this study, year of employment, grow riftvalley area, consumption of sweet food items, Khat chewing habit and presence of calculus, gingivitis and plaque in the oral cavity was significantly associated with dental caries. There was no significant difference between cases of dental caries and their controls in their knowledge towards oral health, age, rank, educational status, marital status, religion, ethnicity, diet, alcohol drinking, and cigarette smoking habits

**Conclusion and recommendation:** Promotion of good oral hygiene practices In addition, initiation and strengthening of thescreening program for the new militaries are recommended to minimize cases of dental caries. The results of this study help the Health Command and other concerned bodies to design effective intervention and strategies to improve oral health of the militaries.

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## Antimicrobial properties of silver-chitosan nanocomposite coating on PMMA: An *in vitro* study

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In the present study poly methyl methacrylate (PPMA) which is the most frequently used implant in craniofacial reconstructions, is coated by a chitosan-silver nanocomposite to provide an antibacterial modification, reduce the risk of bacterial contamination and increase the success rate of implant. Two microbiological tests (antibacterial efficacy and biofilm formation) were used to evaluate this coating against *Staphylococcus aureus* and *Pseudomonas aeruginosa*. The results of antibacterial activity via colony counts showed a decrease number of *S.aureus* and *P. aeruginosa* colonies from $10^{6.7}$ and $10^{6.3}$ to 0 CFU/ml respectively. Two time-points of 24 and 72 hours were considered for biofilm formation. The number of *S. aureus* colonies formed as for the 24 hours reduced from $10^{6.7}$ to $10^{5.2}$ CFU/sample and in the case of *P. aeruginosa* it similarly declined from $10^{6.3}$ to $10^{5.1}$ CFU/sample. As regard 72 hours after colonization this decrease was from $10^{7.5}$ to $10^{6.3}$ and $10^{7.4}$ to $10^{6.1}$ CFU/sample for *S. aureus* and *P. aeruginosa* respectively. The results of our study suggested the antibacterial effect of chitosan-nAg coating on PMMA against *S. aureus* and *P. aeruginosa*, however more evaluations on synergic effect of chitosan-nAg as the coating on PMMA and other materials are needed.

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