

EFFECT OF SMARTPHONE DEVICES OVERUSE BY MEDICAL UNIVERSITY STUDENTS OF KARAGANDA IN RELATION TO CLINICAL STATUS OF HAND

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Introduction: Despite the increasingly widespread popularity of smartphone devices, there are limited comprehensive studies on the effects of usage and exposure to multiple smartphone devices over extended periods of time. Therefore, this study explored the implications of exposure to smartphone devices among university students. This study investigates the results of a questionnaire, provocative tests, and ultrasonographic measurements of carpal tunnel morphological parameters in intensive and nonintensive smartphone device users.

Methods: Forty university students (equal numbers of intensive and nonintensive users, 5 h/day and <5 h/day of smartphone device usage, respectively) were randomly selected after questionnaire responses were received and evaluated clinically and by ultrasonography. All participants were right-handed.

Results: A total of 50 students (30 males=60% and 20 females=40%) aged 18-25 years completed the questionnaire. The results showed that 27 respondents reported hand pain discomfort. Intensive users had significantly more positive results in Phalen's and Durkan's tests and reported more hand pain compared with nonintensive users ($P < 0.05$). Intensive users also had significantly larger median nerve crosssectional areas, flattening ratios, and perimeters as well as greater bowing of the transverse carpal ligament compared with nonintensive users ($P < 0.05$).

Conclusions: Use of smartphone devices has been associated with problems of hand among Karaganda State Medical University. Overuse of electronic devices may adversely affect the median nerve within the carpal tunnel and the transverse carpal ligament, resulting in numbness, tingling, and pain in the hand. This phenomenon underlines the urgent need for ergonomic education and recommendations for enhancing the students' awareness about the dangers of excessive usage of smartphones.