Risks of Musculoskeletal Disorders among Betel Quid Preparers in Taiwan

Jer-Hao Chang, PhD,1 Jyun-De Wu, PhD,2 Chih-Yong Chen, PhD,3 Shih-Bin Su, MD, PhD,4,5 Hsin-I Yin, MS,2 and Der-Jen Hsu, PhD6

Background Betel quid chewing is common in Taiwan. The work of betel quid preparers is characterized by long hours of static work, awkward working posture and highly repetitive hand/wrist motion. However, the musculoskeletal health of betel quid preparers receives very little attention.

Methods The Chinese version of the Standardized Nordic Musculoskeletal Questionnaire (NMQ) was administered, and electrogoniometers and electromyography were used in this cross-sectional study to characterize the hand/wrist motion of the subjects. Physical examinations on the thumbs and wrists of the subjects were conducted by means of Phalen’s test and Finkelstein’s test, respectively.

Results Among the 225 participants, more than 95% attributed their musculoskeletal complaints to their work, and shoulder, neck, hand/wrist, and lower back discomfort were most frequently reported. More than 70% of the preparers did not seek medical treatment for their musculoskeletal problems. Based on the physical examination, 24% of the participants had suspected symptom of either carpal tunnel syndrome (CTS) or DeQuervain’s tenosynovitis. The instrumental measurements indicated that betel quid preparation is characterized by extreme angle ranges and moderate repetition of wrist motion as well as low forceful exertion.

Conclusions This study concludes that betel quid preparers are a high risk group of developing musculoskeletal disorders (MSDs). Future studies by electrogoniometers and detailed physical examination on betel quid preparers are needed to determine the predisposing factors for CTS. Some intervention measures to prevent MSDs and to lessen psychological stress for this group of workers are strongly suggested. Am. J. Ind. Med. 57:476–485, 2014. © 2014 Wiley Periodicals, Inc.

KEY WORDS: betel quid preparer; carpal tunnel syndrome; DeQuervain’s tenosynovitis; musculoskeletal disorders; nordic musculoskeletal questionnaire