

OCCUPATIONAL EXPOSURE TO NICKEL, CADMIUM AND COPPER AMONG WORKERS IN
JEWELRY MANUFACTURING

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Abstract: Introduction: working in jewelry exposes workers/technicians to certain heavy metals as either in production process or cleaning processes. Heavy metals include Nickel, Cadmium And Copper. Study objectives: we conducted the present study to satisfy the following objectives: to estimate the prevalence of toxicity for Nickel, cadmium and copper among jewelry workers in Jordan, and to correlate the study variables with the toxicity level and route of exposure. Methodology: study design is cross-sectional. The target population is all jewelry technicians who work in the jewelry shops in Jordan. A convenient sample of 50 jewelry technicians were selected from those available in Amman, the capital of Jordan. A special questionnaire was prepared to collect data from participants. The first set of questions in the questionnaire determined the demographic data of the participants such as age, gender, smoking habits, type and place of occupation, and duration of employment. The second set of questions included working type, job type, use of personal protective equipment such as mask, gloves and lab-coat, diseases such as sensitivity, urinary tract infection, the perception of participants for occupational dangers associated with their job, and the frequency of jewelry melting. Urine samples were taken from participant who agreed to participate in the present study. The concentrations of heavy metals (Cadmium, Copper and Nickel) were analyzed by atomic absorption spectrophotometer (AAS). Findings: the study included 47 male workers with average age of 31.7 years. The concentrations of Cadmium, Copper and Nickel were higher in study participants compared with control participants. Exposure to Cadmium was significantly higher among workers compared with control (12.65 μ g/l, 4.66 μ g/l; P 0.001). Exposure to both Nickel and Copper was not statistically significant (P > 0.05). Conclusion: workers in jewelry are exposed to heavy metals Cadmium, Copper and Nickel and Cadmium exposure