

Validation study of the questionnaire assessing level of knowledge in the rescue personnel regarding warning signs installed on the heavy machines road transporting dangerous materials

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Abstract

Introduction: Given the increase of road transportation of dangerous materials, if an accident occurs, the first groups that present at the scene are rescue groups (emergency, red crescent and firefighters). The aim of this study was to investigate the validity and reliability of the questionnaire assessing level of knowledge in the rescue personnel regarding warning signs mounted on the road heavy machinery.

Material and Method: Firstly, a multiple-choice questionnaire was designed using the literature and material safety data sheets (MSDS). Validity of the questionnaire was examined using the viewpoints of 10 experts. The reliability of the questionnaire was assessed using test-retest in 20 subjects of the rescue groups in two-week intervals. The cut point of the questionnaire was determined by the Receiver Operating Characteristic (ROC).

Result: The mean of age and work experience of the participants was 32.42 ± 2.57 and 7.75 ± 2.70 . The results of correlation between the questions of the test showed that Cronbach's alpha is 0.708. Also, the stability and reliability of test scores over time showed that the correlation between the questions in the first and second series was significance at acceptable level ($r=0.698$ with $P\text{-value}=0.012$). The best value of cut point in the questionnaire of knowledge in the rescue personnel as obtained 18.5, with the sensitivity of 60% and specificity of 50%.

Conclusion: The validity and reliability of the knowledge assessment questionnaire in the rescue personnel were confirmed regarding the warning signs mounted on the road heavy machines; therefore, it can be used in the future studies.

Key words: Questionnaire, Reliability, Validity, Warning Signs, Rescue Groups

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