

# Reliability of a patient survey assessing “Short Form Injury Questionnaire 7” in Iran

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**【Abstract】 Objective:** Injury is a major cause of morbidity and mortality in the world. The assessment of patterns and severity of injury in high-risk groups is crucial for planning and service development. On a large scale national household survey, we estimated the annual incidence and the patterns of injury, the demographics of the injured people, as well as the service use for all injuries in Iran. The current study aims at assessing the reliability of the questionnaire before carrying out a national survey.

**Methods:** In a pilot study using cluster random sampling approach, 73 people were interviewed. The interviewers asked the participants to report all injuries occurred in them and the care provided during the previous 12 months,

based on “Short Form Injury Questionnaire 7”. About two weeks later, the interview was repeated by another interviewer.

**Results:** In our test-retest reliability, Kappa score was good for three and moderate for four questions. The question on the injured organ had the highest test-retest reliability with a Kappa score of 0.84.

**Conclusions:** The reliability of the questionnaire and the procedure of questioning are confirmed. The questionnaire is proper for utilization in large national surveys.

**Key words:** *Injury severity score; Reproducibility of results; Iran*

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Injury is the major cause of morbidity and mortality both in the developing and developed countries.<sup>1</sup> According to a report from Iran in 2003, injury has been the highest burden among disease groups.<sup>2,3</sup> Thus, the innovative strategies are required to reduce the burden and costs. The assessment of patterns and severity of injury in high-risk groups is crucial for planning and service development.<sup>4</sup>

On the other hand, there are challenges regarding the gather and process of mechanisms on data.<sup>5</sup> Despite the extensive use of survey questions to assess changes in health care use and related behaviors, scant information exists on the reliability of such questions.<sup>6</sup>

On a large scale national household survey, we estimated the annual incidence, mechanisms, causes and types of injury, the demographics of the injured people, as well as the service use for all injuries in Iran. The purpose of the current study is to assess the reliability of the questionnaire “Short Form Injury Questionnaire 7” (SFIQ-7) before carrying out the national survey.

## METHODS

In a pilot study using cluster random sampling approach according to the design of the principal household study, 73 people from three different cultures and socioeconomic situations including Tehran (capital city of Iran), Ahwaz in southwest of Iran and Dasht-e-Azadegan (a district whose native language was not Persian) were interviewed. The interview was carried out in Persian language and people who could not understand Persian were excluded. The interviewers asked

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the participants to report all injuries and the care of injury provided during the previous 12 months. The interviews were done by semi-structured questionnaire which was developed and administered by expert opinions and was based on previous experiences in population-based studies in Tehran.<sup>7</sup> The questionnaire included the internal and external causes, place and type of injury, injured organ, as well as the place of treatment for each injury, so it was named Short Form Injury Questionnaire 7 (SFIQ-7). About two weeks later, the interview was repeated by another interviewer. The International Classification of Diseases for injury data was used to classify the injuries. After the data cleaned up, the comparison was made by STATA 8 SE and Kappa analysis.

## RESULTS

Test-retest interval for SFIQ-7 was (11.8±6.1) days. The test-retest reliability for the occurrence of any type of injuries and injured patients referring to a treatment center were 0.44 and 0.46, respectively. Table 1 summarizes the agreement statistics describing the reproducibility of respondents' answers in the first and second interviews. The Kappa score was 0.61-0.80 for three questions and 0.41-0.60 for four questions. The questions on the injured organ had the highest test-retest reliability with a Kappa score of 0.84.

**Table 1.** Test-retest reliability of the questionnaire

Questions	Cases	Kappa score (mean±SE)
Injury occurrence in past 12 months	73	0.44±0.12
Internal cause of injury	11	0.42±0.23
External cause of injury	11	0.65±0.16
Place of injury	11	0.76±0.22
Type of injury	11	0.52±0.16
Injured organ	11	0.84±0.21
Type of treatment	11	0.46±0.29
Injured patients referred to a treatment center	11	0.46±0.29

## DISCUSSION

Based on Altman's<sup>8</sup> as well as Landis and Koch's standard criteria for the interpretation of Kappa<sup>9,10</sup>, in our test-retest reliability, Kappa was good for three ques-

tions (0.61-0.80) and moderate for four questions (0.41-0.60). Since there was moderate to good item-level agreement (Kappa)<sup>11</sup>, the reliability of the questionnaire is acceptable and appropriate for the utilization in the national survey. Penfold and colleagues<sup>6</sup> researched the reliability of a patient survey assessing cost-related changes in health care use among high deductible health plan enrollees. They showed that the test-retest reliability was moderate for the majority of questions and the level of test-retest reliability did not differ substantially across each of the broader domains of questions. Shoukri et al<sup>12</sup> reported that in many clinical investigations, the reliability of at least 60% is required to provide a method of measurement that has practical utility.

Walter et al<sup>13</sup> indicated that for reliability values of about 40% or higher, the use of two or three observations per subject will minimize the total number of observations required. We questioned each person two times.

In some studies, the questionnaires were mailed to the target population.<sup>14</sup> However, it seemed that the face-to-face interview results in higher response rates, though it is more costly.

Based on our study, the reliability of the questionnaire, the procedure of questioning were confirmed and the questionnaire was proper for utilization in the large national survey.

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