



Reliability and Validity of Persian Version of WHO Mass Gathering COVID-19 Risk Assessment Tool- generic Events in Iranian Population

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Abstract

Background: The risk of transmission of COVID-19 infection significantly increases with mass gatherings during the pandemic. According to WHO recommendations, the decision to hold, modify, postpone, or cancel gatherings of any size during the COVID-19 pandemic should rely on a risk-based approach. WHO Mass Gathering COVID-19 Risk Assessment tool- Generic Events, to the best of our knowledge, has not been translated into Persian and its reliability and validity have not been determined in the Iranian population.

Objectives: The present study aimed to assess the reliability and validity of the Persian version of the WHO Mass Gathering COVID-19 risk Assessment tool- Generic Events in the Iranian population.

Methods: The content and face validity of the final Persian version of the WHO Mass Gathering COVID-19 Risk Assessment tool- Generic Event, Version 2 (10 July 2020) was confirmed by five experts and the WHO office in Tehran, Iran. Then, the tool was completed by 17 Iranian adults on two occasions at least two weeks after a hypothetical mass gathering event. The participants were mainly selected from the personnel of the Iranian red crescent society. All of them had a bachelor's or higher university degree in health sciences. The data were analyzed using SPSS software and related statistical tests (Pearson correlation coefficient).

Results: Risk evaluation and risk mitigation questions of the Persian version of the tool had high reliability on two occasions at least two weeks after a hypothetical mass gathering event based on the Pearson correlation coefficient ($r=0.81$, P -value=0.03 for risk evaluation and $r=0.75$, P -value=0.04 for risk mitigation questions based on their final scores).

Conclusion: The Persian version of the tool can be used to classify the risk of mass gatherings for COVID-19 infection.

Keywords: Covid 19, Mass gathering, Persian, Risk assessment, WHO

1. Background

According to WHO, a mass gathering is an organized or unplanned event where the number of people attending is sufficient to strain the planning and response resources of the community, state, or nation hosting the event (1). Historically, mass gatherings have caused the spread of infectious diseases worldwide (2). The scale of mass gathering, overcrowding, and proximity can affect this spread (3). The problem has been partially controlled over the years by implementing better public health measures (4,5) until recently with the outbreak of COVID-19 in 2019.

COVID-19 as a respiratory tract pathogen with high morbidity and mortality has drawn global attention to MGS events as a cause of national, regional, and pandemic outbreaks of infection. During the COVID-19 pandemic, the risk of transmission of this infection increases significantly with gatherings of any size (6). This is because the possible mobility and high density of participants provide a suitable environment for long-term, close, and frequent contact between individuals. The risk of COVID-19 transmission increases in long-term (several days) and indoor gatherings especially when precautions are not

followed. Mass gatherings can also deteriorate health services by straining planning as well as response resources in the host community or country. As the transmission of COVID-19 increases among large numbers of individuals, significant cases are generated which quickly saturate the capacities of health systems (7). According to WHO recommendations, the decision about postponing, modifying, holding, or canceling gatherings of all sizes during the COVID-19 pandemic must follow a risk-based approach including 3 stages: risk evaluation, risk mitigation, and risk communication. This risk assessment must be repeated at regular intervals, during the planning period and also the gathering until the end of the event and local health systems return to normal to ensure an assessment of the dynamics of the overall risk inherent in the event and proper response change (8). To achieve this goal, WHO has proposed a generic mass gathering COVID-19 risk assessment tool including the training of authorities and planning mass gatherings by event organizers through the COVID-19 outbreak. The tool should be completed in the Excel spreadsheets which include risk evaluation, risk mitigation, decision tree, and decision matrix, and the risk scores will be automatically calculated. The last (second) version of this tool was published on 10 July

2020; however, it was not translated into the Persian language until recently. Also, the reliability and validity of this translation have to be determined in the Iranian population.

2. Objectives

Therefore, the present study aimed to determine the reliability and validity of the Persian version of the WHO Mass Gathering COVID-19 risk Assessment tool- Generic Events in the Iranian population.

3. Methods

The present study was approved by the Ethics Committee of the research council of the Iranian Red Crescent Society of the Islamic Republic of Iran. The WHO Mass Gathering COVID-19 Risk Assessment Tool- Generic Events (Version 2; July 10, 2020) was technically translated into Persian by an experienced native Persian translator. The Persian version was then transferred to five experts and the WHO office in Tehran, Iran to review the face and content validity. After applying their comments, the Persian version of the tool was again reviewed by an experienced literary editor and minor changes were made to be closer to Iranian culture. The tool includes risk assessment and risk mitigation questions. Risk evaluation questions include 2 parts: 1-original risk of mass gathering, and 2- modifications of the event which are answered by yes or no. Risk mitigation questions include seven topics 1- Understanding COVID-19, the country situation, and the mass gathering, 2- Event emergency preparedness and response plans, 3-Stakeholder and partner coordination, 4-Command and control, 5-Communicating with Staff, Participants, Media, and Stakeholders, 6-Public health awareness of COVID-19 before and during the event, and 7- Surge Capacity. These questions have four alternative responses 1-yes/ completed, 2-Maybe/ in progress, 3-No/ not considered, and 4- Not applicable.

The final Persian version of the tool was then completed by 17 Iranian adults on two occasions at least 2 weeks after the hypothetical mass gathering. The individuals were mainly selected from the personnel of the Iranian red crescent society. All of them have bachelor's or higher university degrees in health sciences. The data were analyzed using SPSS software and related statistical tests (Pearson correlation coefficient).

4. Results

The demographic characteristics of participants are presented in [Table 1](#). Risk evaluation and risk mitigation questions of the Persian version of the tool had high reliability on two occasions two weeks later according to the Pearson correlation coefficient

($r=0.81$, P -value=0.03 for risk evaluation and $r=0.75$, P -value=0.04 for risk mitigation questions based on their final scores). In the risk evaluation questions, the highest scores were related to the original risk of mass gathering questions ($r=0.88$, P -value=0.04). In the risk mitigation questions, the highest scores were related to understanding COVID-19, the situation of the country, and the mass gathering questions ($r=0.71$, P -value=0.02).

Table 1. Demographic characteristics of the participants

Mean and Age Range	Gender	Education
42 (35-49)	10 women 7 men	5 Ph.D. or MD 8 Master 4 Bachelor

5. Discussion

The present study, to the best of our knowledge, is the first study to assess the reliability and validity of the Persian version of the WHO Mass Gathering COVID-19 Risk Assessment Tool- Generic Events in the Iranian population. The results of the present study confirmed that the Persian version of the tool had high reliability. As mentioned earlier, the content and face validity of the tool was confirmed by five experts and also the WHO office in Tehran, Iran. A literature review suggested tools for the managing health of mass gatherings. The Jeddah tool is based on the Health Emergency and Disaster Risk Management (H-EDRM) framework developed by WHO which is a risk assessment tool for all-hazard mass gatherings. It can provide a reference to monitor progress in strengthening the capacity during a defined period for health management of recurrent mass gatherings such as Hajj. The Jeddah tool determines risks in hazards and includes hazard identification and prioritization, susceptibility assessment matrix, capacity assessment matrix, reputational risk, and finally health risk assessment. Some changes were made to the tool considering feedback from WHO and global experts, and it was validated by several mass gathering risk assessments in the Kingdom of Saudi Arabia (9,10). According to this tool, the risk of contracting COVID-19 was very high during the Hajj; therefore, a significant decrease in the number of pilgrims especially preventing foreign pilgrims and individuals with high risk to participate in Hajj 2020 was recommended along with other measures (11). However, the Arabic version of this tool has not been provided and its reliability and validity must be defined.

The content validity of the new risk assessment tool for religious mass gatherings in India was reported by Sharma et al. They followed the qualitative approach for identifying the risks of mass gatherings and determining areas of interest in the risk assessment tool which then was given to six experts to assess content validity (12,13).

Other important tools are those related to triage. A mass-gathering triage tool should be practical, versatile, simple, and evolving (14). Cannon et al. proposed a mass-gathering triage tool for Australians according to the basis of triage, previous mass-gathering triage tools, Australian triage systems, and the target population of first responders. It was developed to be simple for first cases to respond as well as health care professionals with strong elements of vital sign parameters for easy application (15). This tool is a general one and has not been specifically designed for infectious diseases. It is theoretical and should be experienced in real-life situations. Also, the validity and reliability of the tool have not been yet declared.

6. Conclusion

The Persian version of the WHO Mass Gathering COVID-19 Risk Assessment Tool- Generic Events can be used for risk stratification of mass gatherings for COVID-19 infection regarding its reliability and validity. It is suggested that other WHO Mass Gathering COVID-19 Risk Assessment Tools (for sports and religious events) be also translated into Persian.

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Footnotes

Conflicts of Interest: None to declare.

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