



**KERMAN UNIVERSITY
OF MEDICAL SCIENCES**

Faculty of Management and Medical Information

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Title

**Designing and Validation of a Community Adabtation Assessment Tool for Heat
Waves Hazard**

By

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Abstract

Background & Objectives : temperature fluctuations, global warming, and increasing concerns about their possible impact on health have redirected the focus of scientific studies around the world on the effects of temperature on health. According to previous studies, heat waves have been associated with increased mortality and disease, increased demand for ambulances, increased hospitalization, and severe effects, especially in vulnerable groups. Risk management and the use of policies and strategies to reduce natural disasters are very important. The most effective measures can be taken by planning and providing solutions in the harm reduction and preparedness stage to prevent the effects of natural disasters and reduce their effects. Accordingly, the present study aimed to propose the solutions for adaptation to heat waves and develop a tool to measure the level of adaptation to heat waves. The proposed tool can be used to plan and improve preparedness by assessing the adaptation and the needs of communities at risk.

Methods : This exploratory sequential mixed-method study was conducted in three phases. In the first phase, a qualitative study was conducted. In the second phase, a systematic study was conducted. then, the basic items of the tool were designed using the results of a systematic review and a qualitative phase. In the third quantitative phase of the study, the psychometric properties of the scale were examined using face validity, content validity, construct validity, and reliability indicators.

Results : With the results of the qualitative stage of the research, the concept of adaptation to heat waves and its factors and strategies were explained, then obtained 100 basic codes. The two main themes of the adaptation paradigm as well as its strategies were divided into the main categories of the theoretical and operational concepts, as well as personal care measures and government measures. Under the category of individual measures, we obtained "clothing, nutrition, building, place of residence and lifestyle", and under the category of governance actions, the "managerial, research, health, organizational" subcategories were obtained. In the literature review phase, after searching the relevant databases, 1529 related articles were found, and finally 58 studies were selected, and thus, based on the findings of the study, the adaptive behaviors for combating heat waves' hazard were summarized into 11 categories: Educating and increasing awareness, infrastructure effects, government actions, health actions, occupational safety, physical condition, individual adaptive behaviors, design and architecture of the building, green infrastructure, and urban design. Then, the developed scale and its items were validated. Exploratory factor analysis run using the

maximum likelihood method revealed three factors: lifestyle (7 items), awareness (3 items), and planning (3 items). These factors explained 814% of the total variances of the compatibility to heat waves. Internal consistency and reliability indices of all factors were evaluated and confirmed.

Conclusion : In this study, factors and strategies for adaptation to heat waves in the native community and also in the world were obtained and a comprehensive tool was designed to determine adaptation behaviors in the community. With this tool, it is possible to determine adaptation behaviors of people in different societies and to design mitigating interventions by identifying communities that are less adaptable and therefore more vulnerable.

Keywords : Climate Change, Heat Waves, Adaptation, Tools