



**WARSZAWSKI UNIWERSYTET MEDYCZNY
MEDICAL UNIVERSITY OF WARSAW**

**ZAKŁAD MEDYCZYNY SPOŁECZNEJ
I ZDROWIA PUBLICZNEGO**

A review of the dissertation for the PhD degree

by Mohammad Sabbah

entitled "*Business continuity during disasters in the medical health system in Israel*"

Recent events, including COVID-19 pandemic and armed conflicts occurring in various regions of the world, clearly show how important is a prompt preparedness of the health care system for such events and disasters. The necessity of such actions does not raise any doubts, but too often when threats occur, it turns out that the prepared plans were incomplete or out of date, and the risks assigned to them were considered hypothetical, not real. In the light of the data presented above, I consider the topic chosen by Mohammad Sabbah as extremely up-to-date and practical.

In his study, the Author has attempted to describe how health care system in Israel is prepared for the event of long-term threats, taking into account the aspect of preparation of both infrastructure (hospitals) and medical staff.

The manuscript has a standard structure, it consists of introduction, description of research goals, questions and hypotheses, material and methods, results, discussion, conclusions, lists of figures and tables, a list of references and summary in English. The proportions of the manuscript are correct.

In the introductory part of the manuscript, the Author presented principles of the health care system in Israel, theoretical background for the preparation of action plans in the event of long-term events/disasters (divided into phases: mitigation, preparation, response, recovery), definitions of the concept of "*business continuity*" and methods of ensuring it in organizations and in health care system, taking into account WHO recommendations.

An interesting element of the introduction is the description of examples of actions taken to ensure the continuity of the work of health care facilities in other countries, such as Japan (in a context of earthquakes and tsunami), the USA (hurricanes) or Lebanon (terror attacks).

The Author correctly formulated the main questions/research goals: how much Israeli hospitals are prepared to continue providing health care services during long-term disasters and catastrophes, do hospitals have required plans, how do they create them, do they have backup plans (the so-called plan B), how medical staff is prepared to work in crisis situations.

The research methodology was accurately and correctly described: quantitative and qualitative research was carried out. In the first phase of the study, the author used the WHO questionnaire (The WHO Hospital Emergency Checklist) filled in by the management of selected hospitals (10 people), the aim of this survey was to obtain knowledge about the current state of preparation of a health care facility. In next step the author's questionnaire was used and completed by the medical staff (doctors and nurses). The aim of this survey of the study, which was conducted among 665 people (335 nurses, 340 doctors), was to determine the staff's knowledge of the rules of proceeding according to the plan in the event of long-term threats. It is worth emphasizing that the Author included in his research 10/23 (43%) of public hospitals providing medical services in Israel.

The data analysis was performed with a systemic content analysis tool, previously described and used by other authors (Kalio et al., 2016, Erlingsson and Brysiewicz, 2017). Analyzing data of his research, the Author concluded that there is a significant difference depending on the size of the hospital in terms of preparation for the event of long-term disasters and catastrophes; larger hospitals were better prepared, which was consistent with the assumed research hypothesis. The Author finds the possible reasons for this observation in a better financing of large hospitals from the state budget, better human resources, and better infrastructure. Smaller hospitals were intended only to support larger facilities, they were not fully prepared to operate in the event of radiation contamination, mass poisoning or combating the effects of adverse weather phenomena.

By analyzing the obtained findings, the Author demonstrated the ability to interpret them critically, comparing his data with the results of other researchers. The Author rightly noticed that comparisons may be difficult or impossible due to methodological differences. This ability to critically analyze and relate his results to data from international literature proves the Author's scientific and research maturity.

The discussion is conducted in an interesting way, with numerous references to the current literature, which the Author unequivocally confirmed his good knowledge of the literature of the problem to which he devoted his dissertation. Based on the analysis of the obtained results, the Author created appropriate and justified conclusions. Israeli hospitals seem to be prepared to maintain the continuity of medical care in situations of disasters and crises, although staff shortages and insufficient funding may significantly impact this functioning. An interesting conclusion is the one pointing to the lack of alternative plans in hospitals in crisis situations, and the fact that while the institutional preparation seems to be at a fairly good level, the knowledge of medical personnel on this subject is insufficient.

The list of references included in the manuscript consists of 112 articles and internet sources, mainly from the last 10 years and mainly in English. It is worth underlining that among the cited articles there are also ones published by Polish authors, which is interesting because it provides the possibility of making comparisons between Poland and Israel in terms of the state of preparation of the health care system in connection with the occurrence of threats and epidemiological and catastrophes. The references have been correctly selected and cited.

A careful and aesthetic graphic design of the dissertation draws attention of the reviewer.

What are the shortcomings found by a reviewer in this research and manuscript?

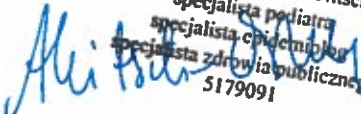
When citing websites, it is recommended to include the date of entry. The staff survey was conducted among doctors and nurses. In my opinion, it would be interesting to clarify why representatives of other medical professions (e.g. radiology technicians, paramedics, physiotherapists) were not included in the study. I would expect a broader answer to a question in the discussion: what roles are provided for these employees at the time of crisis situations? Some hospitals and public hospital managers refused to participate in the study. The Author indicated that hospitals from various regions of the country, that had experience in operating in crisis situations, were qualified for the study. Did the hospitals excluded from the study significantly differ from those in which the study was conducted (taking into account such features as their size, location, experience during disasters and catastrophes)? A short description of the hospitals not included in the study would, in my opinion, allow for a more justified recognition of the study group as representative.

The shortcomings of the manuscript described above do not significantly affect the positive assessment of the research. The Author presented a comprehensive and original study of a scientific problem that contributes to updating knowledge about the state of preparation

of the Israeli health care system to function in emergency situations. Personally, I do hope we will conduct similar studies in Polish hospitals and conditions, results of a reviewed doctoral dissertation can be an inspiration and interesting material for comparisons.

Summing up, I conclude that the research described in manuscript submitted for evaluation meets all the criteria for the dissertations for the PhD degree in medical sciences and I apply to the High Council of the College of Health Sciences at the Medical University of Karol Marcinkowski in Poznań for admission of Mohammad Sabbah, MA to further steps of the procedure.

Warsaw, 22nd March 2022


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