



Research article

Awareness of pharmacy researchers about the national research code of ethics: A study from Jordan

Nasr N. Alrabadi^{a,*}, Tareq L. Mukattash^b, Karem H. Alzoubi^b, Rana K. Abu-Farha^c, Omar F. Khabour^d, Nizar M. Mhaidat^b^a Department of Pharmacology, Faculty of Medicine, Jordan University of Science and Technology, Irbid, Jordan^b Department of Clinical Pharmacy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid, Jordan^c Department of Clinical Pharmacy and Therapeutics, Faculty of Pharmacy, Applied Science Private University, Amman, Jordan^d Department of Medical Laboratory Sciences, Jordan University of Science and Technology, Irbid, Jordan

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ABSTRACT

Objective: In Jordan, research ethics have been subject to increasingly formal regulations and structuring. Recently the Ministry of Higher Education and Research Published the National Research Code of Ethics. However, little is known about the awareness of pharmacology researchers of this code and the extent of its applicability to their research.

Methods: Purposeful sampling through institutions' websites was used to identify staff members with excellent profiles from 20 Faculties of Pharmacy in Jordan. After obtaining the required approvals, in-depth interviews were conducted, recorded, transcribed, and analyzed using NVivo 11 Software. The interviews followed a previously prepared and validated interview guide that covered various aspects of education, research, and training.

Key findings: Eighteen members of staff agreed to take part in the study. Qualitative analysis revealed three main themes each concerning respondents' awareness of the National Code of Research Ethics in Jordan. The emerging themes were: the lack of awareness regarding the code of ethics, the need for clear guidelines for pharmacology research in Jordan, and the need for further workshops and training courses for pharmacology researchers.

Conclusion: This study highlights a lack of awareness regarding the presence of the National Research Ethics Code among pharmacology researchers in Jordan. This might have negative implications on medical research. It was thought that the code of ethics should be incorporated in postgraduate pharmacy education, training courses for pharmacy researchers, and workshops for pharmacy academic staff.

1. Introduction

Ethical codes exist almost for every profession [1]. Healthcare codes of research ethics have been around for decades, each articulating specific ethical and professional guidelines [1]. However, researchers in many developing countries depended on international codes rather than specific ones authored for their countries or region [2, 3, 4]. Furthermore, with the current trend of conduction of international research projects that involve developed and developing countries, implementation of international guidelines might not always fit the local contexts of participating countries [5, 6]. Moreover, in many developing countries, capacity building in research ethics is demanding. This includes training researchers and graduate students on responsible conduct of research and having effective and standardized research ethics committees [7, 8, 9].

In this regard, an emphasis should be put on the fact that each country has a specific culture that is reflecting on its ethical standards [10]. Consequently, this should be reflected in specific ethical guidelines for practice and research. As such, international codes of ethics could set general guidelines for ethical aspects surrounding practice and research [11, 12, 13]. On the other hand, updating those ethical guidelines with local context would be more relevant, practical, and mandatory in facing any arising issues that could cause confusion among researchers [3].

Pharmacy or pharmacological research is amongst the most researched fields in Jordan. With more than 20 faculty of pharmacy in the country, Jordan is well known for its outstanding pharmaceutical industry requiring clear guidelines for research in this field [14]. Moreover, Jordan hosts several international clinical-research centers that conduct clinical trials for overseas pharmaceutical companies [15].

* Corresponding author.

E-mail address: nnalrabadi@just.edu.jo (N.N. Alrabadi).

Recently the Ministry of Higher Education and Research Published the National Research Code of Ethics. However, little is known about the awareness of pharmacology researchers of this code, the extent of its application to their research, and its relevance to local ethical and cultural standards. Thus, the present study aims to explore pharmacology researchers' awareness of the National Research Code of Ethics in Jordan. Besides, the view of researchers regarding research ethics training was also investigated.

2. Methods

The study applied qualitative one-on-one in-depth interview method. Purposive sampling was employed whereby websites of each faculty of pharmacy ($n = 20$) were searched for members of staff. Participants were chosen based on their research profile. It was assured that participants had excellent research experience which was reflected in the number of their publications, citations, and grants.

The identified members of staff were contacted by phone or email and asked to take part in the study. Interviewees were informed that their responses would be anonymized and audio-recorded. To achieve maximum comfort, respondents were offered to be interviewed in a place of their choice that was either in their workplace, a public place of their choice, or over the phone. Written informed consent to participate and record the interview was obtained and respondents were allowed to see the interview guide before the interview. For participants who choose to participate via online or phone interviews, consent was obtained electronically. The consent form described the study and its objectives. It was made clear that participation was voluntary, and participants could quit the study at any time. Sixteen interviews were required to achieve data saturation; however, two extra interviews were conducted to ensure saturation and that no new themes emerged.

Interviews took place between June and August 2019. They were conducted at a time convenient to the study participants and were conducted in private to ensure confidentiality. Each session lasted between 30 min to 1 h, and during the interview, field notes were also taken to capture key points. Participants were also requested to provide some demographic details via email or to fill a form designed for this purpose.

The interview guide was developed based on the study objectives, as well as, a review of the literature. Face and content validation was carried out by four experts in qualitative research, who were not involved in the study. Those were professors who had outstanding research profiles, had administrative research experience, and two were involved in drafting the national research code of ethics. The interview guide was covering topics related to the National Research Code of Ethics in Jordan, respondents' awareness, the applicability of the code in their research and the postgraduate training at their universities, and the need for this code to be applied as an advisory code or within the legislation of the universities. As well, it covered respondents' opinions on further ways to incorporate the recommendations of the National Code of Ethics in their research and for postgraduate training.

Interviews were conducted by a trained researcher who received special training to carry out qualitative research. Recorded interviews were transcribed verbatim, and de-identified before analysis. Results were then imported into QSR International's NVivo 11 Software. All audio recordings and interviewer field notes were also imported into NVivo for comparison and analysis. Thematic analysis was performed on the transcripts by two independent researchers. Any discrepancies were resolved by consensus. Quotations by respondents were edited on a limited basis to remove content that did not convey meaning (repeated words, stutters, etc), and to correct for grammar. An ellipsis mark was used to note the removal of such extraneous content. Square brackets were used in quotations to supply words omitted by the speaker or to replace sensitive information where names were mentioned. The research protocol was reviewed and approved by the Institutional Review Board at the King Abdulla University Hospital and the Deanship of Research at the Jordan University of Science and Technology.

3. Results

The characteristics of the participants in the study are shown in [Table 1](#). A total of 20 staff members were invited, of whom, 18 ended up participating in the study with a response rate of 90%. Of those respondents, 10 were males and 8 were between 40 and 49 years of age. Ten respondents were researchers in clinical pharmacy, while five were researchers in pharmacology and experimental therapeutics, and three were researchers in pharmaceuticals and drug delivery.

Our qualitative analysis revealed three themes concerning respondents' awareness of the National Research Code of Ethics in Jordan. The emerging themes were: the lack of awareness regarding the code of ethics, the need for clear guidelines for pharmacological research in Jordan, and the need for further workshops and training courses for pharmacy researchers. The emerging themes and relevant examples are presented in [Table 2](#).

Almost all participants in the study indicated that they had no knowledge of the National Research Code of Ethics in Jordan and that it was the first time they heard about it. It was stated that they have not received any notifications (emails, letters, lectures... etc.) that a National Research Code of Ethics in Jordan has been published. Furthermore, participants did not know if they were obliged to follow the guidelines in the recently published Code of Ethics. Only participants working at the Jordan University of Science and Technology claimed previous knowledge of the code of ethics and indicated that it has been circulated to all academic staff through the Deanship of research at the University.

In light of the discussion about participants' knowledge of the code of ethics, they highlighted the need for clear guidelines for pharmacological research in Jordan. The fact that Jordan is a leading Middle Eastern country regarding the pharmaceutical industry and research was highlighted as the main reason for this. Furthermore, participants indicated that there are almost 20 pharmacy schools in the country where many researchers may lack guidance when it comes to research ethics and guidelines. Interviewees indicated that having a uniform national guideline to govern pharmacy researchers is very important and will regulate pharmacy research in the country. Although participants were not aware of the current code, they raised concerns regarding its suitability for health research and pharmacy in particular. The participants also indicated that having a healthcare-specific code of ethics would be more suitable.

The participants who took part in the study highlighted the importance of attending workshops about the national guide of ethics. They thought that it is the responsibility of the universities and research centers to hold training sessions and workshops to introduce pharmacy researchers to local research guidelines. Some of the participants had strong views where they suggested that pharmacy researchers should have some sort of certification to allow them to carry out research. Many pharmacists indicated that responsible conduct of research courses should be delivered to all academic staff before allowing them to do research and supervise postgraduate students.

4. Discussion

This is the first study to assess pharmacological/pharmacy researchers' awareness, views, and attitudes toward the National Research Code of Ethics in Jordan. The response rate for participating in the study was high (90%) which indicates the researchers' interest and concern about the topic. In agreement with that, there is an increased interest in the ethical philosophies of conducting proper research worldwide [1]. As well, there are success stories in Jordan about international projects concerning responsible conduct of research with huge funds and a great turnout from researchers' especially pharmacological researchers and those from the faculty of pharmacy [16, 17, 18].

However, we found that there was a lack of awareness about the National Research Code of Ethics in Jordan. This result was expected as

Table 1. Respondents' profiles.

Respondent	Research Field	Academic Rank
R1	Clinical pharmacy	Professor
R2	Clinical pharmacy	Associate Professor
R3	Clinical pharmacy	Associate Professor
R4	Clinical pharmacy	Associate Professor
R5	Clinical pharmacy	Professor
R6	Clinical pharmacy	Assistant Professor
R7	Clinical pharmacy	Assistant Professor
R8	Clinical pharmacy	Assistant Professor
R9	Clinical pharmacy	Professor
R10	Clinical pharmacy	Assistant Professor
R11	Pharmacology and experimental therapeutics	Professor
R12	Pharmacology and experimental therapeutics	Associate Professor
R13	Pharmacology and experimental therapeutics	Associate Professor
R14	Pharmacology and experimental therapeutics	Assistant Professor
R15	Pharmacology and experimental therapeutics	Assistant Professor
R16	Pharmaceutics and drug delivery	Professor
R17	Pharmaceutics and drug delivery	Assistant Professor
R18	Pharmaceutics and drug delivery	Associate Professor

Table 2. Emerging themes and selected quotes.

Emerging themes	Selected Quotes
Lack of awareness regarding the code of ethics	<p>"I never heard of it before, I thought there were only international guidelines" R2</p> <p>"Local guidelines!! I only know the guidelines I learned through my Ph.D. education" R15</p> <p>"I have been working in this field for more than 10 years, I never heard of that" R9</p> <p>"Has this been circulated to us? I never heard about it!" R14</p>
The need for clear guidelines for pharmacy researchers	<p>"It would be great if we have local guidelines for research ethics. This is necessary to regulate current practices" R7</p> <p>"We face many ethical dilemmas during our research, there is an important need for local guidelines to cover this" R11</p> <p>"... knowing that the ethical practices in Jordan are influenced by religion and culture, there needs to be a local code of ethics based on our culture" R17</p> <p>"I deeply would like to have a local code of ethics; it would help a lot in our research" R8</p>
The need for further workshops and training courses for pharmacy researchers	<p>"There should be training courses, especially for new academic staff to make them aware of such guidelines" R10</p> <p>"Researchers should be enrolled in research ethics programs, national and international" R12</p> <p>"...This should be an integral part of academic promotions, researchers and academic staff should be enrolled in ethics courses..." R18</p> <p>"Pharmacy researchers and academic staff need more training and courses to increase their awareness in research ethics, especially regarding local guidelines" R13</p>

the National Research Code of Ethics was issued and published recently in 2018. Moreover, most of the researchers in developing countries including Jordan are following the known international ethical guidelines for conducting research and publishing scientific articles [2, 3, 4]. Unfortunately, most of the participants indicated that they didn't receive any formal notification about publishing this code. As well, it wasn't clear whether this code was mandatory to be followed or if it was published as a guide. This indicated that this code was not formally adopted by the educational or research institutes and was not legislated in their regularities. Such a step is necessary and important and yet to be taken. Thus, the government, represented by the Ministry of Higher Education should put more effort into implementing research ethics guidelines in Jordanian academic and research institutions. This might improve the degree of standardization of research ethics in the country, similar to that reported in other developing countries [19, 20].

On the other hand, the researchers realize the importance of having a specific code of ethics for Jordan and similar countries with close cultural and religious backgrounds. The importance of such a code is not based on the assumption of having different ethical standards for different cultures, alternatively, it focuses on re-phrasing those guidelines to engage and match those established and well-known ethical standards that

already exist within each cultural background. Moreover, those codes can focus on the main issues that cause ethical challenges which are expected to be different between countries. In agreement with that, the participants believe that Jordan should be a leading country in the region in adopting and applying such codes in pharmacological practice especially with being a leading Middle Eastern country in the pharmaceutical industry and pharmacological research [21].

The researchers' interest and awareness of the importance of those ethical codes can also be highlighted in the realization of the need for further workshops and training courses for researchers. This is a very critical and fundamental issue worldwide where proper ethical training is mandatory in almost all of the educational and research institutes at the beginning of researchers' training or career [22]. The participants raised their concern about the current code of ethics as they believed that their lack of awareness about it and consequently their lack of participation in building it may make it insufficient for Jordan or may need more modifications to be better applied and presented. Engaging as many researchers as possible is critical in building a proper and applicable code of ethics [23]. As well, they believed that having a specific code of ethics for medical research may be more appropriate than having the current code of ethics for research in general. This is a valid view as well when

considering the different nature of ethical challenges that face the medical sector, for example: establishing biobanks, storing biological materials for future research, and genetic mapping [24, 25, 26].

Finally, the participants agreed on the important role of the educational institutes represented by the universities in building and establishing such codes in their regular practice. Proper training, courses, and certified workshops should be mandatory for trainees and researchers at the beginning of their careers [22]. Nevertheless, continuous education and workshops are necessary for researchers to keep themselves updated on the progressive research procedures and the philosophy in conducting them properly based on the ethical principles and guidelines. It is believed that this is a continuous process and science revolutionized and with continuous improvement in medical practice.

This study has some limitations. Among them is the nature of the qualitative study design where it would not be possible to identify differences based on demographic characteristics. Qualitative inductive studies aim to give a general view about the research question which could be tested further in further quantitative studies. Therefore, a future study with quantitative design is warranted to test the predictive value of demographic variables and other characteristics on participants' knowledge and attitude toward the national ethical principles and guidelines.

In conclusion, this study highlights that pharmacy researchers lack awareness regarding the presence of the National Research Code of Ethics. Respondent believed that this has negative implications on the ethical conduct of research in pharmacy and healthcare research in Jordan. It was thought that the code of ethics should be incorporated in postgraduate pharmacy education, training courses for pharmacy researchers, and workshops for pharmacy academic staff. Even some sort of research certification was suggested.

Declarations

Author contribution statement

Nasr N. Alrabadi: Conceived and designed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Tareq L. Mukattash: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

Karem Alzoubi, Rana K. Abu-Farha, Omar F. Khabour and Nizar M. Mhaidat: Conceived and designed the experiments; Analyzed and interpreted the data; Wrote the paper.

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Data availability statement

Data will be made available on request.

Declaration of interests statement

The authors declare no conflict of interest.

Additional information

No additional information is available for this paper.

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