

Original Paper

Evaluating Scientific and Research Productions of Reproductive Health Graduates in Terms of Social Accountability: An Auditory Study



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ABSTRACT

Introduction: An educational system that responds to the needs of society, besides needs assessment and community-based education, should allocate part of its research to society's needs and priorities.

Objective: This study aims to evaluate the scientific and research products of reproductive health graduates in the field of social accountability in Iran.

Materials and Methods: The present study was conducted as an auditory study on all submitted dissertations in the field of reproductive health from 6 schools of midwifery nursing in Iran from 2010 to 2021. The first outcome of this study was the evaluation of scientific and research products of reproductive health graduates in the field of social accountability and the second one was the evaluation of these dissertations in three levels of responsibility, responsiveness, and accountability. The standardized and localized social accountability scale was used to evaluate the social responsiveness of the dissertations. Descriptive statistics were used to summarize the data.

Results: In this study, 235 PhD reproductive health dissertations were assessed. The obtained score for social accountability was 34.5 (range: 30-40). Regarding social responsiveness, the obtained score was 63.8 (range: 50-70), and regarding the social responsibility dimension, the obtained score was 90 (range: 70-100).

Conclusion: It is necessary to qualitatively evaluate the titles and objectives of the dissertations in this field before their approval and implementation. It is increasingly emphasized to achieve the research priorities of the field and, more importantly, the logic of this research to meet the health needs of the target community.

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Highlights

- The existential philosophy of universities and academic institutions is to meet the demands and expectations of society, and accountability is an inseparable part of the higher education system.
- Education for various dimensions of reproductive health is considered one of the prerequisites for achieving the goals of perpetual development in today's societies.
- The poor quality of education in this field for service providers is an undeniable barrier to providing quality reproductive health services to the target community.

Plain Language Summary

Reproductive health is not only the absence of disease or weakness in all aspects related to the reproductive system and its functions but also the complete state of physical, mental, and social well-being in all aspects related to this system. In this study, the scientific and research products of reproductive health graduates in the field of social accountability in Iran were assessed. The results showed that many studies related to doctoral reproductive health dissertations had an average score of social accountabilities. As a result, it seems necessary to carry out research priorities according to the needs and challenges in community health and financial support for these research projects.

Introduction

Education about various dimensions of reproductive health is considered one of the necessities for achieving the goals of perpetual development in today's societies [1]. The poor quality of education in this field for service providers is an undeniable barrier to providing quality reproductive health services to the target community [2]. Likewise, the World Health Organization recommends international efforts for training healthcare providers based on correct education and global standards [3].

The Philosophiae Doctor (PhD) in Reproductive Health is a field of medical and health sciences in which students are familiarized with various aspects of reproductive health, such as population issues, nutrition, law, epidemiology, and advanced techniques in fertility and infertility. They learn planning, management, research, and education in reproductive health. The graduates of this program would acquire abilities for policy making, program planning, leadership, planning/design, implementation, evaluation, management, research and training, conducting research, and taking educational responsibilities in the field of reproductive health. They will work in different centers for education, research, and decision-making related to reproductive health [4]. In Iran, the specialized doctoral course in reproductive health began at Shahid Beheshti, Tehran, and Isfahan universities in 2006 [5]. The existential philosophy of universities and academic institutions is to meet the de-

mands and expectations of society, and accountability is an inseparable part of the nature of the higher education system [6]. On the other hand, because of the expensive costs of training graduate students, the main purpose of these institutions in admitting and training students at this level was to educate skilled graduates, reconstruct careers, development of innovation, and growth of the community, which is always considered by university educational policymakers and ministries in the world [7].

Social accountability is defined in three levels: responsibility, responsiveness, and accountability [8]. Medical sciences universities have three main tasks, i.e. education, research, and service, and they should be accountable to society in these three areas. However, a very low level of social accountability is seen in the research field [9]. We found no study evaluating student dissertations (the research aspect) regarding social accountability in the literature. However, one study was conducted in Iran to determine the factors associated with social accountability in the faculties of midwifery and nursing using the Delphi technique by 15 experts in this field. One part of this study was concerned with evaluating the social accountability of the research outputs of faculties of midwifery and nursing in Iran. The results of this study indicate that students must be provided with the research framework required to carry out research activities tailored to the needs of their society. In this regard, research activities are designed for the community's health needs as long as they are determined

by the Ministry of Health and supported by the proper technical and financial resources for the researchers [10].

It is necessary to review the medical sciences curriculum to keep pace with changes in accordance with society's priorities [11]. On the other hand, the extent of reproductive health complications and the importance of maintaining women's health, the provision, and access to reproductive health services based on the needs of society are of particular importance [12]. Therefore, evaluating the social accountability of the program and educational and research activities of higher education institutions is a vital issue. An educational system that responds to the needs of society, besides needs assessment and community-based education, should allocate part of its research to society's needs and priorities. Therefore, this study aimed to evaluate the scientific and research products of reproductive health graduates in the field of social accountability in Iran. The question of this study was to what extent the scientific and research products of reproductive health graduates could meet the needs of the target community in the areas of social responsibility, responsiveness, and accountability.

Materials and Methods

The present study was conducted as an auditory study from February to June 2021. Since the education of doctoral students in reproductive health has been done at Shahid Beheshti, Tehran, Tarbiat Modares, Isfahan, Mashhad, and Shahrood universities in Iran so far, all completed dissertations titles of reproductive health were collected by census method from six faculties of nursing and midwifery. To collect data, we entered the main site of each faculty in the Vice-Chancellor of Research and Technology of Iran and extracted a list of completed dissertations in the field of reproductive health from 2010 to 2021 (The first defended dissertation was in 2010). All the completed dissertations and the articles derived from them were examined based on the similarities between the articles' titles and authors. Also, PubMed, MEDLINE, Scopus, Web of Science, CENTRAL, and ProQuest for English articles resulting from dissertations and search engine Google scholar and Magiran, IranDoc, Iranmedex, Scientific Information Database (SID) for Persian articles were searched for articles extracted from completed dissertations using the appropriate keyword with the subject of each dissertation and the appropriate operators to each scientific database. A search syntax was created in PubMed for such topics as pregnancy, childbirth, and postpartum, midwifery and reproductive health services, obstetrics and reproductive health education, children and ado-

lescents, menopause, breast, and genital cancers, infertility, sexually transmitted diseases (including AIDS and Papillomavirus), reproductive and sexual health, rural-marginalized abused women, parenting, childbearing, polycystic ovary, marriage, male participation, reproductive health services management, abortion, fetal and neonatal death, and other items. Then, these synonyms were adapted and searched in other databases.

In this study, the completed dissertations and articles resulting from them in PhD Reproductive Health were considered by the census method. The first outcome of this study was the evaluation of scientific and research products of reproductive health graduates in the field of social accountability and the second one was the evaluation of them in three levels of responsibility, responsiveness, and accountability.

All dissertations obtained from six faculties were classified and evaluated according to their subjects. To categorize the dissertations, two individuals classified them independently, and the contradictions were revised through dialogue between the two reviewers until they reached an agreement. To evaluate the theses in terms of social accountability, the standardized and localized scale of social accountability evaluation of Abdolmaleki et al.' study in Iran [13]. Written permission by email was obtained from the corresponding author. This scale has three dimensions: responsibility, responsiveness, and accountability.

To accurately evaluate the dissertations, the resulting and accessible articles in the databases were searched with the appropriate keywords for the title of each dissertation. Two independent researchers did this task. The conflicts were reviewed by them and resolved until they reached an agreement. The evaluation method was based on this checklist as follows: in terms of the amount and how to consider the "needs assessment and prioritization of them" (problem load assessment, consideration of demand, expectations, and quantification, distribution and coverage of services or products, use of scientific approach in needs assessment, existence of needs assessment system and continuous environmental monitoring, prioritization of services and programs based on needs assessment) with a maximum of 20 scores and "matching program goals/planned intervention" with prioritized needs (setting a clear, objective, measurable and accessible goals, adjustment of them with the needs and counted priorities) a maximum of 10 points (maximum 5 points per each item). By the same token, if there is a plan or intervention, it is reviewed in terms of planning related to the needs

of the target community and the extent of community involvement in the planning process up to a maximum of 10 points (maximum 5 points per each item).

The extent of meeting the target community's needs in terms of "implementation of interventions and the type of program outputs to meet the needs" is examined. In addition to the items mentioned above, implementation/intervention stages (fulfillment of the program inside the community, community involvement in program fulfillment, mixed performance with other health subsystems), maximum score of 15 (maximum 5 points per each item), and output related to the community according to the determinate goals (making responsive manpower, community-related knowledge, and provision effective service to society) maximum score 15 (maximum 5 points per each item) are evaluated. The extent of meeting the target community's needs is also assessed in terms of medium-term results and long-term effects of interventions on the community. In addition to the items mentioned above, by reviewing the results (provision of quality and suitable services, distribution, obtaining and applying quality and related knowledge, reducing the load of community health problems) maximum score of 15 (maximum 5 points per each item) and influence on the community (promoting community health, increasing community satisfaction, improving the state of fairness in society) maximum score 15 (maximum 5 points per item), the accountability of the thesis is scored and assessed (Table 1). The reliability of this tool was investigated using the necessity test by Abdolmaleki et al. [14]. This test specifies whether a trait must be considered among the traits and features of this concept. This test was conducted on all the traits obtained for the concept of social responsiveness in the medical science education system, and the necessary traits were considered as the final traits of the desired concept that were later used in the analytical definition. The tool also underwent psychometric assessments by a panel of 6 experts consisting of faculty members of medical education. Before the study, written permission by email was received from the corresponding authors of articles and dissertations.

Descriptive statistics were used to summarize the obtained data. The obtained score is calculated from the sum of the score of each dissertation divided by their number in three dimensions of responsibility, responsiveness, and accountability. Stata v. 13 software was used for calculations, and EndNote software for managing studies and citing.

Results

In this study, 235 doctoral reproductive health dissertations were found. Of them, 76 were related to Shahid Beheshti, 46 to Isfahan, 26 to Mashhad, 49 to Tehran, 20 to Tarbiat Modares, and 15 to Shahroud Faculty of Nursing and Midwifery. Dissertations were about pregnancy, childbirth and postpartum ($n=51$), midwifery and reproductive health services ($n=6$), obstetrics and reproductive health education ($n=6$), children and adolescents ($n=24$), menopause ($n=9$), breast and genital cancers ($n=10$), infertility ($n=14$), sexually transmitted diseases ($n=9$), reproductive and sexual health ($n=33$), rural-marginalized abused women ($n=11$), parenting ($n=6$), childbearing ($n=9$), polycystic ovary ($n=8$), marriage ($n=9$), male participation ($n=3$), reproductive health services management ($n=2$), abortion, fetal and neonatal death ($n=6$), and other items ($n=21$).

The obtained scores were 34.5 (range: 30-40) in the area of responsibility, 63.8 (range: 50-70) in responsiveness, and 90.0 (range: 70-100) in social accountability for all dissertations.

Regarding the highest number of titles about pregnancy, childbirth, and postpartum, the obtained scores were 34.7 (range: 30-40) for responsibility, 63.2 (range: 55-70) for responsiveness, and 92.9 (range: 70-100) for social accountability.

Regarding the lowest number of titles about reproductive health services management, the obtained scores were 37.5 (range: 35-40) for responsibility, 59.7 (range: 55-60) for responsiveness, and 82.5 (range: 70-90) for the social accountability (Table 2).

Discussion

Findings showed that most of the titles of 235 dissertations related to the doctoral of reproductive health in Iran were about pregnancy, childbirth, and postpartum. The lowest score in the dimension of responsibility was related to the topics of marriage, childbearing, and infertility in dimensions of social responsiveness and accountability and health services management. On the other hand, the highest score in the dimension of responsibility was related to the participation of men, rural-marginalized abused women in the dimensions of social responsiveness and accountability, midwifery and reproductive health services, and sexually transmitted diseases. Regarding the country's policy priorities, maternal and child health indicators are among the most important criteria for judging the development of coun-

tries. These titles have paid less attention to the health system problems.

In addition, among the dimensions of social accountability, the highest obtained score belonged to social responsiveness. This means that in the field of needs assessment, planning and implementation related to the target community's needs have correctly been fulfilled. However, interventions and programs that were supposed to end in desirable results, did not continue for various reasons such as being provisional research, lack of adequate budget for the continuation of proposed programs by relevant executive organizations, ignoring such research by health policymakers in current programs and the field of reproductive health social services [14]. The design of standard questionnaires, compared with other conducted studies, took the lowest score of social accountability. In the first stage of social responsibility, reviewing and assessing the needs of special social groups, as one of the screening tools related to health needs, is considered valuable and useful. Nevertheless, regarding the main objective of medical faculties, aligning research activities to help reduce problems and meet the health needs of individuals is essential to reduce or eliminating community health problems [15]. A qualitative study was conducted in Iran to explore the views of graduates and students of reproductive health in this field. Based on the results, the necessity of matching the teaching syllabus with the aim of the course, reinforcing the nature of sociology and clinic modules, and improving their provision method were identified as the main items. Participants stated that the educational and research content of their course is more theoretical and is not based on the needs of society. So, it is essential to review and reinforce the nature of society-based education [16]. In a descriptive study in midwifery nursing faculties of medical sciences universities (Tehran, Shahid Beheshti, Isfahan, Shahroud, and Mashhad), Reproductive Health PhD was assessed as a descriptive study based on CIPP (context, input, process, and product) model. This model is a comprehensive framework for regularly evaluating a program that ranges from input, implementation, and process to output. This study included students, graduates, managers of midwifery departments, and faculty members of midwifery and nursing schools. Based on this model, three aspects of education, research, and planning have been considered.

According to the results, the reproductive health PhD curriculum that is implemented in Iran was not suitable. The evaluation showed that from the student's point of view, "meeting the educational needs and students' expectations of the courses" was at the lowest level. In most countries, PhD students participate in the selection of their modules, thereby choosing their

dissertation. Therefore, in addition to increasing the motivation, efficiency, and effectiveness of the educational program, it leads to a greater variety of courses and more satisfaction, and consequently, graduates will have a more effective role in meeting the needs of society. Another weakness of the reproductive health PhD program based on the results was the concerns and unmet expectations of students from the courses; in other words, weakness in the field of research [17].

Topics related to society's main needs, such as pregnancy, childbirth, postpartum, adolescents, menopause, etc. and studies based on intervention design or the best intervention program, especially based on the latest evidence, will receive the highest score of social accountability. In other words, when educational and research activities are based on the priorities of society and educational and research planning is developed around it, social accountability will also improve [18]. In this regard, the studies of D'Souza et al. [19], Niles et al. [20], and Rawas et al. [21] have shown that needs assessment and community priorities are mandatory for medical sciences research to meet the needs of society. Therefore, it is recommended that titles be selected based on the needs of society and intervention for the doctoral dissertations, and these interventions are according to the latest available evidence. Eventually, a suitable model and theoretical framework for the responsiveness of research activities in the universities can be compiled to facilitate and encourage the compilation of student dissertations seeking social responsiveness.

Moreover, this framework must incorporate feedback cycles indicating how society's problems are solved through responsive studies. On the other hand, direct and comprehensive confrontation with the problems in society to solve them is among the ways to increase research social responsiveness. In this regard, it appears necessary to conduct survey research to identify the needs and priorities of public health. Integrating responsiveness as a criterion in the process of accrediting universities of medical sciences can also be an effective strategy. Nowadays, accreditation institutes contribute significantly to the responsiveness of research and education institutes by developing evaluation indices and conducting external evaluations. These institutions can provide good incentives to research and education institutes in this regard by defining suitable indices in the field of social responsiveness. Reflecting the results of successful studies in terms of social responsiveness and attracting the attention of health policy planners to such studies, and maintaining and allocating more budget to such studies can prove useful.

Table1. Social accountability evaluation checklist

Level of Conflicts			Index tittle	Description of index	Description of index	Relevant score	Maximum score
Responsibility	Responsiveness	Accountability	Needs assessment and prioritization of them	Community based need assessment	Problem load assessment	10	20
					Consideration of demand		
					Expectations		
					Quantification distribution and coverage of services or products		
					Check the appropriateness and quality of services or products		
					Check the satisfaction of products or services		
			Program goals or intervention	Check the orientation of policies and requirements of upstream institutions	3		
				Use of scientific approach in needs assessment		3	
				existence of needs			
				Assessment system			
				continuous environmental monitoring			
				Prioritization of services and programs based on needs assessment			4
		Execution / intervention steps	Develop clear, objective, measurable and achievable goals	5	10		
			Align the goals with its needs and priorities	5			
			Description of the developed program or intervention	Community-related planning		5	10
				Involve the community in the planning process		5	
				Execution of the program in the heart of society		5	
			Output	Involve the community in the implementation of the program		Involve the community in the implementation of the program	5
		Performance integrated with other health subsystems			5		
		Production of outputs (products and services) related to the community according to the set goals			5		
		Outcome		Training responsive manpower	Generate community-related knowledge	5	15
					Provide effective service to the community	5	
					Providing quality and appropriate services	5	
				Dissemination, absorption and application of qualitative and related knowledge	5	15	
Reduce the burden of community health problems	5						
Improving the health of the community	5						
Increasing community satisfaction	5			15			
	Improving the state of justice in society				5		
	Meet the needs						
Total score						100	100

Table 2. Average subject score of dissertations in reproductive health (n=235)

Dissertation topic (No.)	Accountability		Responsiveness		Responsibility	
	Score Obtained	Score Range	Score Obtained	Score Range	Score Obtained	Score Range
Pregnancy, childbirth, and postpartum (n=51)	34.7		63.2	55-70	92.9	70-100
Midwifery and reproductive health services (n=6)	35		66.7	60-70	90.8	80-100
Obstetrics and reproductive health education (n=6)	35		64.2	55-70	84.2	65-100
Children and adolescents (n=24)	35.6		65.8	60-70	90.8	70-100
Menopause (n=9)	35.5		65	55-70	91.7	70-100
Breast and genital cancers (n=10)	35.5		63.5	60-70	90.5	70-100
Infertility (n=14)	32.2	30-40	64.2	60-70	87.5	70-100
Sexually transmitted diseases (n=9)	36.7		66.7	60-70	95	90-100
Reproductive and sexual health (n=31)	34.7		64.7	55-70	92.4	70-100
Rural-marginalized abused women (n=11)	38.2		65.4	60-70	85	80-100
Parenting (n=6)	33.3		62.5	60-70	87.5	70-100
Childbearing (n=9)	32.2		61.7	50-70	84.4	70-100
Polycystic ovary (n=8)	37.5		66.2	60-70	92.5	70-100
Marriage (n=9)	32.2		61.1	50-70	84.4	70-100
Male participation (n=3)	38.3	35-40	66.7	60-70	90	75-100
Reproductive health services management (n=2)	37.5	35-40	59.7	55-60	82.5	70-90
Abortion, fetal and neonatal death (n=6)	34.2		65.8	60-70	87.5	80-95
Other items (n=21)	32.8	30-40	63.6	60-70	89.8	75-100
Total dissertations (n=235)	34.5		63.8	50-70	90	70-100

According to the points mentioned above, the challenges resulting from the incompatibility of doctoral dissertations' titles and social accountability can be due to factors such as material problems resulting from the lack of continuity of dissertations despite their successful results, negligence of reproductive health policymakers, not distributing the successful results of these research in professional environments, and ignoring the effective results of accountable research by authorities. So, it is crucial to take appropriate measures to abolish these.

The findings showed that many studies related to doctoral reproductive health dissertations had an average score of social accountabilities. As a result, it seems necessary to carry out research priorities according to the needs and challenges in community

health and financial support for these research projects. Therefore, in addition to the managerial, planning, and policy-making roles in the field of reproductive health for graduates of this field in line with its purpose, it is necessary to emphasize the role of professional sociology. Fulfilling this objective is possible by training capable forces to meet current needs, promoting the satisfaction of the purpose community, and improving the community's health.

Ethical Considerations

Compliance with ethical guidelines

The Research Council of the [Shahid Beheshti University of Medical Sciences](#) approved the study proposal (IR.SBMU.PHARMACY.REC.1399.327).

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Authors' contributions

Study concept and design: Sepideh Hajian; Review the literature and draft the manuscript: Marzieh Bagherinia and Sepideh Hajian; Quality assessment and final approval: Marzieh Bagherinia and Fereshteh Yazdani; Read and approved the final version of the manuscript: All authors.

Conflict of interest

The authors declared no conflict of interest.

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