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Validity and Reliability of the Questionnaire Assessing the Healthcare Delivery Status in Iran's Prisons

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Abstract

Considering the prisoners' statistical population in Iran and the illness-prone environment of the prisons, which necessitates the delivery of appropriate healthcare, a tool should be developed to assess the status of healthcare delivery to these prisoners. The current study has been conducted with the aim of assessing the validity and reliability of the developed questionnaire for assessing the healthcare delivery status in Iran's prisons. This research is a descriptive-analytical study. The developed questionnaire was given to the experts' panel to be assessed for content validity. Content Validity Index (CVI) and Content Validity Ratio (CVR) were calculated using the collected opinions. To assess the validity of this questionnaire, 25 people including physicians and prison authorities were asked to fill the questionnaire for another time after 15 days. Test and retest reliability were calculated using the Intraclass Correlation Coefficient (ICC) and Kappa's agreement coefficient. Data were analyzed by SPSS.26 and Excel.2019 softwares. The content validity experts verified the questionnaire based on its appropriateness, clarity, necessity, and congruity between its words and the relating culture. CVR index was higher than the least standard value (0.62) in every item. Also, all variables of the questionnaire had a CVI of higher than 0.70. Kappa's agreement coefficients of all items ranged from 0.61 to 1.00. ICC values for all items except "Time for system's admissions process" ranged from 0.71 to 1.00 in two times that tests were done. This indicates that reliability of the test and retest of the questionnaire was acceptable. The final version of the questionnaire can be used as a tool for assessment of the healthcare delivery status in prisons and planning programs to enhance that.

Keywords*: *Prison, Healthcare, Validity, Reliability

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Introduction

Prisoners' access to appropriate healthcare should be guaranteed [1]. Prisoners often come from vulnerable groups of society and are affected by most of the contagious and non-contagious diseases [2]. Public health authorities have lately paid more attention to healthcare

delivery in prisons. Higher prevalence of psychological disorders, drug abuse, infectious diseases, stress-related heart diseases, immobility, and isolation leaves no doubt that it's important to understand the existing patterns in healthcare delivery to prisoners [3]. Muller et al. 2009 believe that healthy prisons should not only be used for punishment but to protect society from felonies such as alcohol abuse and violent actions. Prisons can also prevent diseases from imposing evitable costs on society [4].

Nowadays, there is a growing belief that enhancing healthcare delivery to prisons is equal to the enhancement of public healthcare. Prison inmates have equal healthcare privileges, like other people. Prison governors should ensure that prisoners receive appropriate healthcare. The prison staff should consider inmates as patients and not prisoners. Policies enhancing prisoners' health should be included in public health policies and the healthcare managers should work in a close relationship with desmoteric medicine delivery personnel [2].

Suitable healthcare delivery to prisoners should be a top priority for authorities of every country. Because the prison itself poses serious risks for the health of prisoners. According to the international bills of rights and regulations, the determined sentence should only be limited to the prisoner's freedom. Prison sentences should not include physical harm or health care limitations for the prisoners. Also, the sentence should not subject prisoners to death or dangerous diseases due to difficulty in accessing proper healthcare. Negligence and mismanagement, resulting in absence of proper healthcare delivery, will lead to social, physiological, and physical consequences [3,5-7].

Cornfor, Sibbald et al.2007 used the prison primary health care survey questionnaire to describe the organization of health care delivery and services for the management of chronic disease in prisons and to describe systems of information transfer between organizations and types of staff to compare data between different types of prisons [8].

Campbell, Hann et al. 2001 used previously the main part of the general practice assessment survey questionnaire at the National Primary Care Research and Development Centre in a observational study to investigate variations in the quality of care across general practices in England and they measured the inter rater reliability for all items and rejected those for which the k value was < 0.6 [9].

Considering prisoners' number in Iran and the illness-prone environment of the prisons, which necessitates the delivery of appropriate healthcare, quality and quantity of these measures should be assessed. An accurate, objective, and standard assessment requires a proper tool. Therefore, authors of the current study developed this questionnaire, by examining international questionnaires and tools.

Methods

This research is a descriptive, analytical, and practical study that took place in 2019 with the aim of assessing the validity and reliability of the developed questionnaire for healthcare delivery in prisons. Reviewing the previous studies (searching the scientific databases, journals, and publications) and collecting the opinions of related experts, a questionnaire was developed. It was titled "assessing the healthcare delivery status in Iran's prisons" and was made pooling the relating questionnaires. After some modifications in wording, suggested by the experts, a few essential questions were added to the questionnaire. These measures verified the apparent validity of questions. The final questionnaire included the following subjects: Organizational structure of healthcare delivery, variety of delivered services, public services, mental healthcare, chronic diseases, drug abuse, handling of the chronic diseases, information transfer between health care facilities, staff, etc. 10 experts were asked to verify the content validity of the questionnaire based on its appropriateness, clarity, necessity, and congruity between its words and the relating culture. These experts included healthcare managers, general practitioners, a clinical specialist, an epidemiologist, and a prison nurse. Members of experts' panel were selected from expert and informed people, based on their scientific qualifications. The final list included 10 people (Table 1).

Table 1: Properties of experts' panel members

	Expertise	Education	Work experience (Year)	Quantity
1	Healthcare management	PhD	8-20	5
2	Prison general practitioner	MD	10-15	2
3	Clinical specialist	PhD	19	1
4	Epidemiology	PhD	13	1
5	Prison nurse	PhD	20	1

In this study, in order to assess the content validity by the Lawshe method, CVR and CVI coefficients were used. In order to calculate CVR, at first, the questionnaire was given to members of the experts' panel. They were asked to assess every item for its necessity on a 4 point Likert scale (necessary, necessary but needs some changes, beneficial but unnecessary, and unnecessary). After receiving the answers of the members, relating data of each member was entered into Excel software and was analyzed using mathematical and statistical formulas as Formula 1.

$$CVR = \frac{n_e - \frac{N}{2}}{\frac{N}{2}} \quad (1)$$

n_e = Number of experts approving the assessed item
N = Total number of experts
Lawshe Table is used to determine if the obtained value for CVR is proper.

The numerical value of content validity ratio is determined using the Lawshe Table. For instance, in this study that there are 10 people in the experts' panel, if CVR is bigger than 0.62, the validity of the examined topic will be significant [10]. In reports of the validity of questionnaires, the most extensive report is done by the content validity index [11-13].

Also, in order to assess CVI, criteria of appropriateness, clarity, and congruity between its words Persian culture were assessed by the members of the experts' panel on a 4 point Likert scale. Finally, CVI values for every criterion were calculated by dividing the total agreed points for every item which ranked 3rd and 4th by the total number of experts [14]. The acceptable value for CVI was considered 0.70. Obtained results for every variable of the questionnaire are shown in Table 2.

Table 2: Validity assessment of the questionnaire by CVR and CVI

	Variables of the questionnaire	CVR	CVI
1	General Medical Services	0.89	0.78
2	Pharmacy Services	0.86	0.74
3	In-patient Services	0.91	0.93
4	Specialist Services	0.92	0.79
5	Organization	0.68	0.73
6	Chronic Diseases	0.84	0.95
7	Anxiety/Depression	0.71	0.79
8	Information Transfer Between Health Care Facilities	0.69	0.75
9	Staff	0.89	0.79
10	About Prison	0.85	0.82
11	Time for system's admissions process	0.87	0.81
12	Infectious diseases	0.79	0.82
13	Health Concerns	0.84	0.89
14	Mental health screening	0.88	0.83

NOTE: CVR = Content Validity Ratio, CVI = Content Validity Index

Once the assessment of content validity was done, the reliability of the questionnaire was examined [15,16]. Reliability refers to accuracy, reproducibility, and internal consistency of the questionnaire. The reliability of this questionnaire was assessed by using the test-retest method. At first, the questionnaire was sent to 25 studied prisons and filled by the prison's authorities. After 15 days, to assess the test and retest reliability, 25 people who had filled the questionnaire were asked to do it again. Sampling was done using targeted and accessible sampling. Test and retest reliability were calculated using the Intraclass Correlation Coefficient (ICC) for quantitative variables and the Kappa's agreement coefficient for qualitative variables by SPSS.26 software. The results of reliability assessment for this questionnaire are shown in Tables 3 and 4.

Table 3: Values of agreement between nominal variables

Variables	Extent of agreement	Kappa value
-	Slight	0-0.20
-	Fair	0.21- 0.40
-	Moderate	0.41- 0.60
booking interval, out of hours care, Pharmacy Services, having formal mental health training sessions, using the care program approach, mother and baby unit, drug misuse, mental health, entering clinical information directly on to computer, having GP registrars and trainee nurses, having a lead for clinical governance, carry out a patient/prisoner satisfaction survey, formal link with the NHS complaints system, having formal meetings to discuss critical incidents, having a register of patients with chronic disease, having written guidelines for the management of patients with chronic disease, having a recall system for chronic disease, carried out a chronic disease audit in the last 2 years, a lead practitioner for diabetes in the prison, providing sessions held by a specialist nurse trained in chronic disease care, information transfer	Substantial	0.61- 0.80
have an in-patient unit on site, special chronic disease clinic, talk therapies, self-help material, type of prison, Hepatitis A, Hepatitis B, Hepatitis C, Gonorrhea, Chlamydia, Syphilis, Tuberculosis (PPD), Elevated lipids, High blood pressure, Mental health problems (excluding suicide risk), Suicide risk, Traumatic brain injury	Almost perfect	0.81- 1.00

Table 4: Values of agreement between quantitative variables

Variables	ICC
-	0- 0.60
Time for system's admissions process	0.61- 0.70
patients with IHD, patients with asthma, patients with hepatitis, patients with TB, patients with HIV, number of nurse practitioner, number of nurses – general, about the prison	0.71- 0.80
afternoon surgeries each week, evenings surgeries each week, beds, patients have registered with diabetes, number of general practitioners, number of psychiatrist – adult, number of clinical psychologists	0.81- 1

NOTE: ICC = Intraclass Correlation Coefficient

Results of content validity assessment showed that the CVR index value for every item is higher than the least standard value (0.62). The highest value for the CVR index was 0.92 that was related to "specialist services" variable and the least value was 0.68 pertaining to "organization" variable. Also, all the obtained values for the CVI index were higher than the least acceptable value (0.70). CVI value for "In-patient Services" and "Chronic Diseases" variables were 0.93 and 0.95, respectively which are the highest among others. The least value belongs to the "Organization" variable which was 0.73 (Table 2) Kappa's agreement coefficients of all items ranged from 0.61 to 1.00 which shows substantial reliability (0.61-0.80) for most of the variables and almost perfect reliability (0.81-1.00) for the remaining variables of the questionnaire as shown in Table 3 [17]. ICC values for all items except "Time for system's admissions process" ranged from 0.71 and 1.00 in the two times that tests were taken, which is higher than 0.70 (least acceptable value) and indicates acceptable reliability for test and retest of the questionnaire (Table 3, 4).

Discussion

Prisoners are among the most vulnerable groups of societies throughout the world. The least standards of healthcare that are accepted by the governments should be passed for the prisoners by the legislation bodies [18]. Prison inmates are in need of complicated medical and social care. This complexity results from a combination of infectious risk factors, drug abuse, addiction, psychological issues and detention problems [19].

Cornfor, Sibbald et al.2007 concluded that prisoners with chronic diseases are obtaining a poorer level of care compared to patients outside prison. In order to deliver an equivalent level of care for patients with chronic diseases in prisons, significant improvements in IT will need to be made and the problems concerning the recruitment and retention of general nurses will need to be addressed [8].

Barry et al.2010 assessed the basic healthcare delivery in prisons of Ireland, using semi-structured questionnaire and reviews which also involved physicians. Results showed that there was a considerable difference in standards of medical infrastructure and facilities among different prisons. In general, healthcare delivery status was not appropriate in prisons. Also, there was a vast inequality in medical care between prisons and other parts of the community, especially in the number of physicians. Most doctors mentioned that there is little political and governmental support. Also, they believed that prisoners' healthcare is not supported adequately and there is a tangible shortage in psychiatric care [20]. Prisoners' healthcare enhancement plays a crucial role in the improvement of public healthcare. Prisons' authorities should ensure that there is constant and quick access to basic medical care for every prisoner. Important components of this care include physical examination, medical consultation, enough

space with adequate equipment for desmoteric medicine, emergency care, basic and necessary medications, facilities for psychotherapy and rehabilitation, the possibility of following prescribed diets, proper hygiene, and similar items. Improvements in healthcare delivery can't be achieved without a proper tool to identify the strengths and weaknesses of desmoteric medicine. It's deduced from the results of foreign studies that cultural, social, economic, and even geographic factors affect the prevalence and incidence of diseases occurring in communities and prisons. Thus, the least expected standards of international institutions such as WHO should be considered in developing the desmoteric medicine delivery regulations [2,5-7]. The numbers of questions for each part of questionnaire are shown below in Table 5.

Table 5: Number of questions for each part of questionnaire

Number of questions	Variables
4 questions	General Medical Services
1 question	Pharmacy Services
1 question	In-patient Services
3 questions	Specialist Services
7 questions	Organization
7 questions for each disease	Chronic Diseases (including diabetes, ischemic heart disease, asthma, hepatitis, HIV infections, and TB)
2 questions	Anxiety/Depression
3 questions	Information Transfer Between Health Care Facilities
2 questions	Staff
2 questions	About Prison (type and sex of prisoners)
1 question	Time for system's admissions process
7 question	Infectious diseases
3 questions	Health Concerns
3 questions	Mental health screening of the new prisoners

Conclusion

This questionnaire, given its proper validity, reliability, and full coverage of related information on healthcare delivery in prisons, can be utilized as an efficient tool to identify the strengths and weaknesses of desmoteric medicine. It can also be used for planning programs that will enhance healthcare delivery to prisoners.

Conflicts of Interest – Nil

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