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Areas of Corruption and Its Typology in Health Care System: A Scoping Review

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ABSTRACT
Corruption in health systems not only threatens the organizational performance, with considerable negative effects on patient and social outcomes, but also undermines public trust. Awareness of the areas of corruption and its types can be a guide for timely identification and appropriate actions. Following a scoping review design, this study aimed to identify areas of corruption and its types in 2020. Electronic databases (n=6) were searched to identify relevant studies from the time of their inception to September 3, 2020. The reference list of identified articles was also hand-searched. Qualitative data analysis was administered using MAXQDA-10. Ten areas of corruption in healthcare were identified: governance in health care, monitoring and auditing, construction and renovation of providers, procurement, storage, distribution of equipment, drugs, and medical supplies, service delivery, research and development, marketing, quality assessment and accreditation, service recipients, and human resources, comprising 54 types of corruption. Evidence support corruption in various institutional-operational areas of the health system, indicating the need to develop a comprehensive, evidence-based corruption plan.

Keywords: Corruption, health care system, scoping review.

Introduction

A health system is comprised of organizations, people, and actions that primarily intend to promote, restore, or maintain health [1]. Health care systems have been promoted from the primary forms to the present advanced status. While emphasizing ensuring people's health, a major purpose of health systems is to facilitate social life and structuralize related mechanisms. Since health is a fundamental right, governments are obliged to act as a sovereign duty to ensure it. This mission is achieved by allocating public resources, specialized human resources, and advanced equipment [2]. Organizations use structure and resources to fulfill their mission in a soft context, including programs and executive approaches [3, 4].

Numerous characteristics are necessary for the organization to be successful in the process of achieving goals. The most important of these characteristics can be explained in the form of organizational health, indicating a situation of lack of corruption in various institutional-operational areas [5, 6]. Transparency International defines *corruption* as the abuse of delegated power for personal gain that can divert the organization from achieving its goals [7]. Corruption is a highly complex phenomenon, which roots in the multidimensionality of contributing factors, including social, cultural, economic, political, moral, and value systems of different individuals, communities, cultures, and countries [8].

While several national/international programs have been developed to combat corruption, prior studies' definitions of corruption are mostly context-tailored [9]. In line with promoting good health, several international anti-corruption guidelines have been introduced, including the one by the United Nations, commonly known as anti-corruption programs [10].

In Iran, in conjunction with the international measures, the "Law on Promoting the Health of the Administrative System and Combating Corruption" was approved by the Social Commission (6.5.2008 meeting), followed by a pilot plan for 3 years. Then, it was sent to the Expediency Council for final approval, and approved with amendments on 29.10.2011, and submitted to the President for notification [11].
Several factors are reported to pave the way for corruption in health systems, including demand uncertainty (time, type, and volume of services), the multiplicity of stakeholders, conflict of interest, and information asymmetry [12]. The European Healthcare Fraud and Corruption Network (EHFCN) defines corruption as "illegally obtaining a benefit of any nature by abuse of power with third party involvement" [13].
Slot et al. (2017) identified six types of corruption in the health sector, including bribery and informal payments, corruption in logistics and support, non-transparent and corrupted marketing relationships, abuse of higher-level opportunities, a claim of unrealistic repayment, and fraud [14]. In Iran, Mardali et al. (2017) introduced six categories of corruption, including financial, communication-interactive, manpower training, supervisory apparatus, documents and records, and work culture [12]. Despite the passage of relevant laws and decades-long contributions, the corruption perception index (CPI) of the country was equal to 27, 29, 30, and 28 (out of 100) scores in Iran between 2015 and 2018, respectively [15].
Corruption exerts negative effects on economic growth and brings negative consequences to service delivery, accessibility, purchasing power, efficiency, and health justice [16, 17]. Hence, health systems should develop necessary measures to address the negative consequences of corruption. To achieve this purpose, the first step is to accurately identify the current situation in terms of areas with the potential for corruption, as well as the different types of corruption to use that context to provide evidence-based decision-making. This study intended to extract the areas of corruption and its types in health systems. As several studies investigated corruption and its typology in different areas of the health system, the aggregation and summarization of the evidence obtained so far are useful in the form of a scoping review.

Method
Following a scoping review design, this study was conducted in 2020. As a relatively new approach to combining existing evidence, the primary purpose of this approach is to identify and configure the available evidence about a largely broad and general issue [18]. In addition, it can be applied to identify the types of evidence in a field, explain the dimensions and definitions of a topic, provide a methodological review of research, determine the characteristics and factors related to a concept provide a prelude to systematic review, and determine and analyze knowledge gaps. [19-21].
One of the most comprehensive approaches to scoping review is the five-step model introduced by Arskey and O`Malley that includes determining the research question, identifying relevant documents, selecting documents, tabulating data, and aggregating, summarizing, and reporting results [19].
The model developed by Arskey and O`Malley was applied in this study. In this regard, two research questions emerged: "What are the areas of corruption in health systems?" and "What are the types of corruption in health systems?"
Data necessary to answer the research goal were collected by searching electronic national and international databases. We searched PubMed, Web of Science (ISI), and Scopus and national databases of SID, MagIran, and IranMedex to identify relevant studies from the time of inception of these databases to September 3, 2020 using various combinations of "corruption", "health system", "healthcare system", and "hospital", and their Persian equivalents.Google Scholar was also mined to increase the chance of finding potentially relevant studies related to the topic under scrutiny. A manual search was also performed. An example of a search strategy in the PubMed database is shown in Table 1.

Table 1: Search strategy in the PubMed database

Search	Query
#1	((((((corruption[Title/Abstract]) AND (hospital[Title/Abstract]) OR healthcare[Title/Abstract]) OR "health system"[Title/Abstract]) OR "health sector"[Title/Abstract]) OR Hospitals[MeSH Terms])

As mentioned before, there was no limitation considering the period of search strategy (i.e., until September 3, 2020), and only studies published in Persian and English languages were included. Studies that did not mention areas and types of corruption were excluded. The fourth phase intended to classify the key sections of eligible articles, which were selected following title and abstract screening and based on the type of documentation received [19]. Afterward, the findings of various studies were summarized. Since the nature of the findings (i.e., areas and types of corruption) was qualitative, the findings were reported qualitatively and descriptively.
The thematic analysis approach was used in the six stages of familiarity with primary data, code identification, search for themes, review of themes, definition of themes, and final report for qualitative data analysis [22].

Data analysis was administered using MAXQDA10. Ethical considerations such as non-bias in the process of document selection, data extraction and analysis, and other ethical requirements related to review studies were also taken into account.

Results

The initial search yielded 596 articles and reports, of which 118 were removed due to duplication. In addition, 77 were removed after the title and abstract screening. Hence, the full-text of 401 documents was reviewed, of which 359 were excluded from further studies due to not mentioning the areas of corruption and its types in health care organizations. Finally, 42 documents were found eligible (Figure 1).

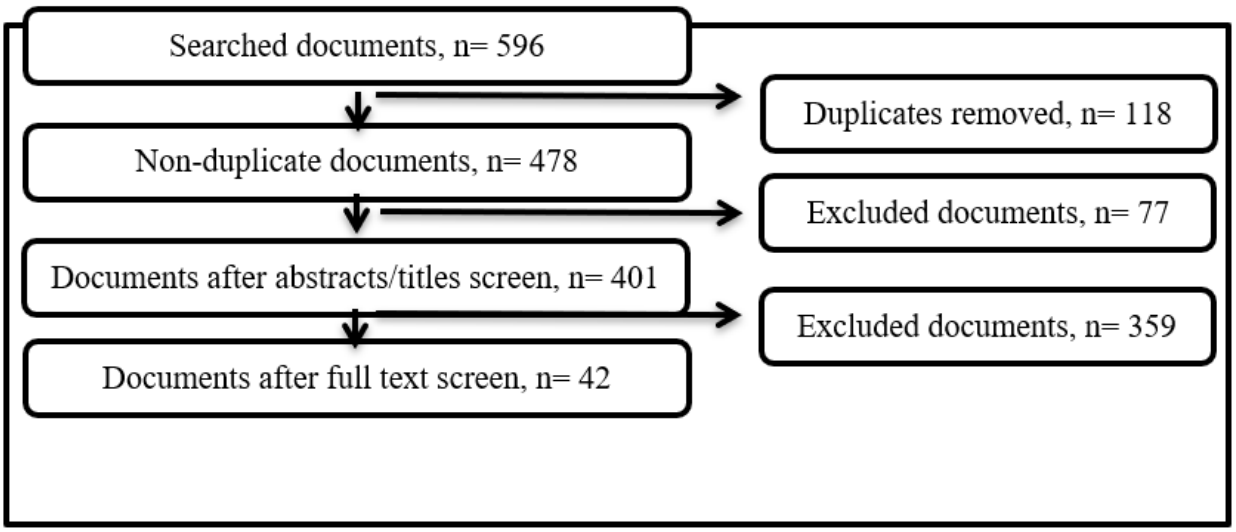

Table 2: Characteristics of the included studies

No. in references list	Study	Title	Method/ document type
8	Chattopadhyay, 2013.	Corruption in healthcare and medicine: why should physicians and bioethicists care and what should they	Document review and analysis/ article
9	Koller et al., 2020	Promoting anti-corruption, transparency and accountability to achieve universal health coverage	Document review and analysis/ article
10	United Nation, 2020	Corruption and human rights	Document review and analysis/ report
11	Salihu&Jafari, 2020	Corruption and anti-corruption strategies in Iran : An overview of the preventive, detective and punitive measures	Document review and analysis/ article
12	Mardali et al., 2018	Model of corruption measurement for Islamic Republic of Iran's Healthcare System.	Mixed method (qualitative and quantitative research)/ article

14	General Directorate of Immigration and Home Affairs of the European Union, 2017	Updated study on corruption in the healthcare sector	Document review and analysis/ report
16	Lewis, 2007	Informal payments and the financing of health care in developing and transition countries	Document review and analysis/ article
23	Sforza et al., 2020	A review of the literature on corruption in healthcare organizations	Document review and analysis/ article
24	Rispel et al., 2016	Exploring corruption in the South African health sector	Qualitative research/ article
25	Cohen & Montoya, 2001	Using Technology to Fight Corruption in Pharmaceutical Purchasing : Lessons Learned from the Chilean Experience	Document review and analysis/ article
26	Leahy, 2013	Leahy ME. Corruption in Healthcare: Analyzing the Impact of Governance on Medical Corruption in the United States and Germany.	Document review and analysis/ thesis
27	U.S. Department of Health and Human Services, 2020	Health care fraud and abuse control program report	Document review and analysis/ report
28	World Health Organization, 2018	Integrating a focus on anti-corruption, transparency and accountability in health systems assessments	Document review and analysis/ report
29	World Health Organization, 2020	Potential corruption risks in health financing arrangements: Report of a rapid review of the literature	Document review and analysis/ report
30	U.S. Department of Justice, 2016.	Health care fraud and abuse control program annual report for fiscal year 2016	Document review and analysis/ report
31	United Nations Development Programme, 2015	Fighting corruption in the health sector	Document review and analysis/ report
32	Huss et al., 2011	Good governance and corruption in the health sector: lessons from the Karnataka experience	Mixed method (qualitative and quantitative research)/ article
33	Sommersguter-Reichmann &Stepan, 2017	Hospital physician payment mechanisms in Austria: do they provide gateways to institutional corruption?	Document review and analysis/ article
34	Mostert et al., 2015	Corruption in health-care systems and its effect on cancer care in Africa	Document review and analysis/ article
35	Bouchard et al., 2012	Corruption in the health care sector: A barrier to access of orthopedics care and medical devices in Uganda	Qualitative research/ article

36	Garcia, 2019	Corruption in global health: the open secret	Document review and analysis/ article
37	Sommersguter-Reichmann et al., 2018	Individual and institutional corruption in European and US healthcare: Overview and link of various corruption typologies	Document review and analysis/ article
38	Vian et al., 2012	Confronting corruption in the health sector in Vietnam: patterns and prospects	Document review and analysis/ article
39	Naher et al., 2020	The influence of corruption and governance in the delivery of frontline health care services in the public sector: a scoping review of current and future prospects in low and middle-income countries of south and south east Asia	Document review and analysis/ article
40	Transparency International, 2019	The ignored pandemic: how corruption in healthcare service delivery threatens Universal Health Coverage	Document review and analysis/ report
41	Ngata, 2016.	Perceived effect of corruption on the quality of public health services in Mbeya Urban District, Tanzania (Doctoral dissertation, Sokoine University of Agriculture).	Quantitative research/ article
42	Hope, 2015	Contextualizing corruption in the health sector in developing countries: reflections on policy to manage the risks	Document review and analysis/ article
43	Kohler et al., 2016	Corruption in the pharmaceutical sector: diagnosing the challenges.	Mixed method (document review & qualitative research (interview))/ report
44	General Directorate of Immigration and Home Affairs of the European Union, 2013	Study on Corruption in the Healthcare Sector	Document review and analysis/ report
45	Aoun et al., 2020	Curbing Financial Corruption in Lebanese Healthcare Sector.	Document review and analysis/ article
46	Transparency International, 2016	Diagnosing corruption in healthcare	Document review and analysis/ report
48	Mackey et al., 2018	The sustainable development goals as a framework to combat health-sector corruption	Document review and analysis/ article
49	Hoffmann & Patel, 2017	Collective action on corruption in Nigeria: A social norms approach to connecting society and institutions.	Document review and analysis/ article
50	Mackey & Liang, 2012	Combating healthcare corruption and fraud with improved global health governance	Document review and analysis/ article

51	Agbenorku, 2012	Corruption in Ghanaian Healthcare System: The consequences	Qualitative research/ article
52	Akokuwebe&Adekanbi, 2017	Corruption in the health sector and implications for service delivery in Oyo State public hospitals	Quantitative research/ article
53	Aregbeshola, 2016	Institutional corruption, health-sector reforms, and health status in Nigeria	Document review and analysis/ article
56	Vian, 2008	Review of corruption in the health sector: theory, methods, and	Document review and analysis/ article
57	Vian, 2020	Anti-corruption, transparency, and accountability in health: concepts, frameworks, and approaches	Document review and analysis/ article
59	Gaitonde et al., 2016	Interventions to reduce corruption in the health sector	Document review and analysis/ article
60	Hussmann, 2011	Addressing corruption in the health sector: securing equitable access to health care for everyone.	Document review and analysis/ article
61	Kohler &Dimancesco, 2020	The risk of corruption in public pharmaceutical procurement: how anti-corruption, transparency and accountability measures may reduce this risk	Document review and analysis/ article

A total of 30 (71.4%) articles, 11 (26.2%) reports, and one (2.4%) dissertation were selected. The reports were developed by the United Nations, the General Directorate of Immigration and Home Affairs of the European Union, the U.S. Department of Health and Human Services, the World Health Organization (WHO), the US Department of Justice, the United Nations Development Programme, and the Transparency International. The status of the selected documents in terms of methodology and type is provided in Figure 2.

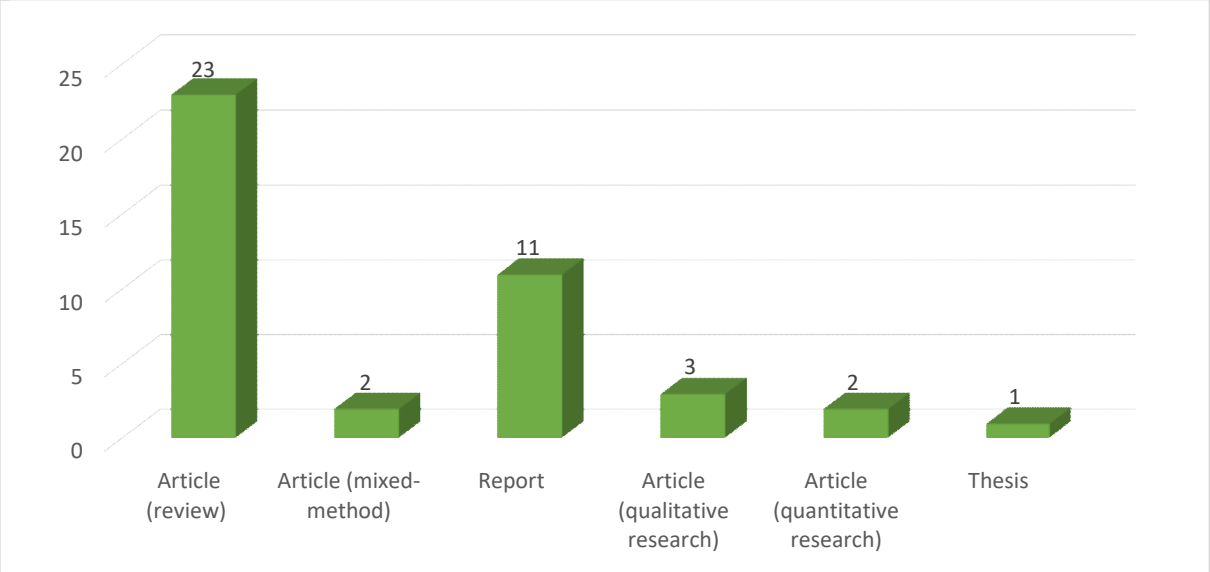

Figure 2: Frequency of selected documents based on the type of study

The research environment of selected documents, separated by the target continent, is provided in Figure 3. For those reviews with unclear search environment, the organizational affiliation of the authors was used. The total number of environments was 52. The selected documents were from 23 countries and 7 organizations. The research environment of reports published by international organizations, as separated by the continent, is

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provided in Figure 3. Most of the reports are published in North America (United Nations, Department of Health and Human Services, and Department of Justice, USA, and Canada) (34.6%), followed by Europe (WHO, General Directorate of Immigration and Home Affairs of the European Union, Germany, Austria, England, Italy, Sweden, and Switzerland) (30.8%), Asia (Iran, Lebanon, Indonesia, Bangladesh, Vietnam, and India) (15.4%), Africa (South Africa, Ghana, Tanzania, Uganda, Kenya, and Nigeria) (15.4%), and South America (Chile and Peru) (3.8%).

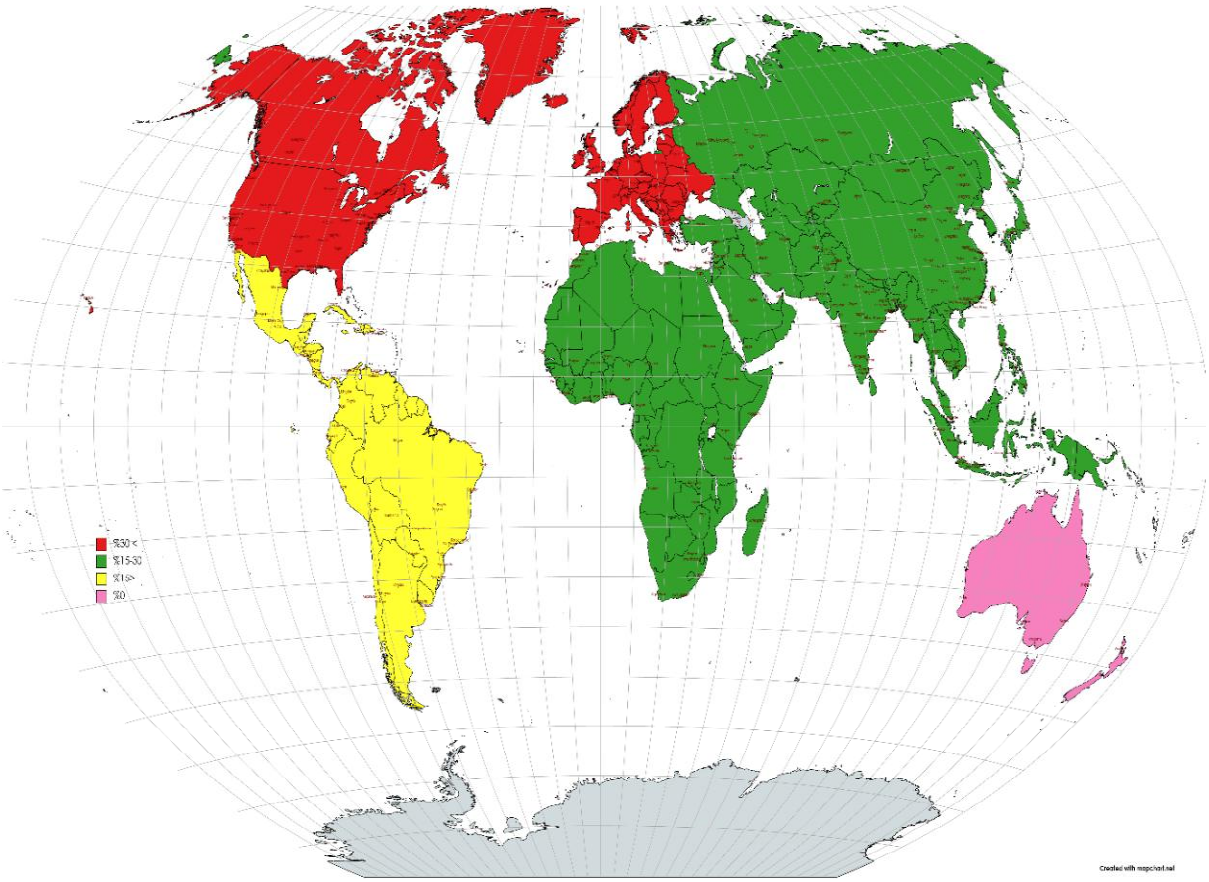

Figure 3: Frequency distribution of selected documents, separated by research environment (or authors' affiliation)

The distribution of the selected documents separated by year of publication is shown in Figure 4. The eligible documents were published from 2001 to 2020, of which 2020 and 2016 contained the highest (n=10; 23.8%) and lowest (n=7; 16.7%) number of published documents, respectively.

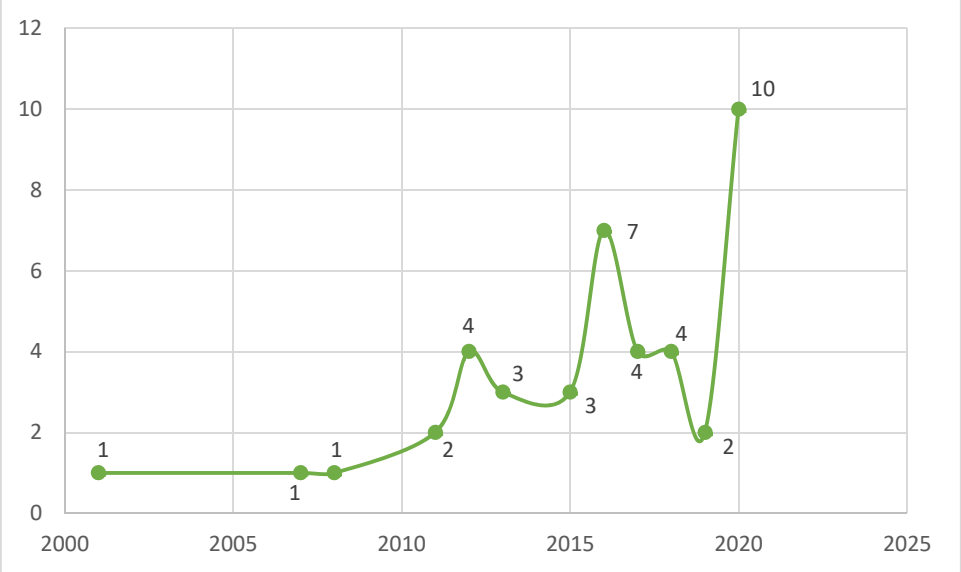

Figure 4: Frequency distribution of selected documents, separated by year of publication

Areas of corruption and their types are presented in Table 3. The findings of this section are categorized into 10 areas or possible processes of corruption, including governance in health, monitoring and auditing, construction and renovation of health centers, procurement, storage, distribution and consumption of equipment, drugs and supplies, service delivery, research and development, marketing, quality assessment and accreditation, service recipients, and human resources, comprising 54 types of corruption.

Table 3: Classification of areas (process) of corruption and its types in health systems

Domain or process	Type of Corruption
Health governance	Unconstructive lobbying, macro-policy bias, and conflict of interest between key actors.
Monitoring and auditing	Forging documents for auditing, creating lobbies to approve requirements, and manipulating reports.
Construction and renovation of healthcare centers	Bribery and political consideration, non-compliance with the provisions of the contract, failure to pay attention to quality standards, fraud and documentation.
Procurement, storage, distribution and consumption of equipment, medicine and supplies	Bribery and collusion, fraud in offers, influence on the choice of drug type, not choosing cheap and quality products, fraud and conspiracy in purchase, concluding non-transparent contracts, theft or illegal sale, unethical advertising of drugs, sale of drugs and subsidy requirements, buying counterfeit and non-standard drugs, and cheating on outdated drugs.
Service delivery	Misuse of public resources, unnecessary referrals, providing unnecessary services, documenting to receive insurance, documenting to receive from the patient, bias and discrimination in service delivery.
Research and Development	Faking in clinical trials, fraud and forging, conflict of interest of researchers and pharmaceutical companies, abuse of informed consent, breach of publication, and non-observance of ethical considerations, biased research.
Marketing	Gifts or any payments to providers, illegal marketing practices, informal and untraceable advertising, and incentives to refer patients to the private sector.
Quality assurance and accreditation	Bribery and collusion to verify quality, bribery to affect inspection and supervision, improper implementation of health instructions, and unauthorized use of licenses.
Human resources	Bribery and fraud for admission, bribery and prioritization of relationships in recruitment and promotion, discrimination in recruitment and promotion, theft of drugs and supplies, absenteeism, dual employment, referral to the private sector and personal facilities, issuance of unrealistic certificates, and informal payments.
Recipients of service	Misuse of health insurance and its benefits, bribes and relationships to change waiting times, non-payment of medical expenses, and requesting and receiving unrealistic certificates.

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The frequency distribution of corruption in the ten identified areas is shown in Figure 5. Accordingly, the highest rate of corruption (20.4%) was related to procurement, storage, distribution and consumption of equipment, and drugs and supplies, followed by human resources (16.7%).

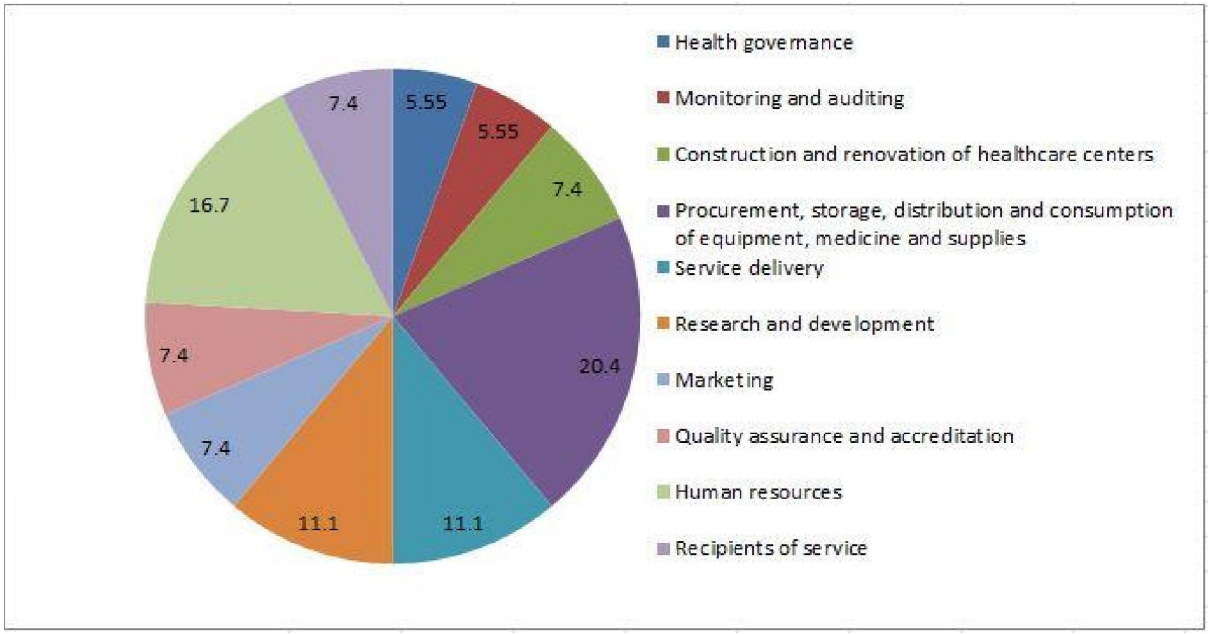

Figure 5: Percentage distribution of corruption separated by identified theme

Discussion

The purpose of this scoping review was to extract the areas of corruption and its types. Overall, ten areas of corruption were identified, including governance in health, monitoring and auditing, construction and renovation of healthcare centers, procurement, storage, distribution and consumption of equipment, drugs and supplies, service delivery, research and development, marketing, quality determination and accreditation, recipients of services, and human resources, comprising 54 types of corruption.

Corruption in health systems remains a challenge at varying degrees, with several negative consequences. At a glance, the Office of the United Nations High Commissioner for Human Rights noted corruption as the main cause of unrealized human rights worldwide, particularly in developing and less developed countries [47]. Corruption negatively affects health governance, translating into severe barriers to realizing macro goals, which is a severe threat to sustainable development [10, 48].

Several factors are mentioned to contribute to corruption. In this regard, lack of transparency in legislation and law enforcement, legal vacuum, weak social participation and oversight, complex structures and bureaucratic administrative mechanisms, informal payments, lack of full insurance coverage, lack of transparency in insurance laws, lack of structures and mechanisms for follow-up of patients' rights, lack of resources, and lack of health care staff are noteworthy [48-58].

Healthcare governance and monitoring and inspection are the potential areas to prevent corruption in healthcare organizations. There are various types of corruption, including unconstructive lobbying, macro-policy bias, stakeholders' conflict of interest, forgery of documents for auditing, lobbying to enforce requirements, and manipulation of reports. Corruption, especially in governance and oversight, also has a major effect on financial outcomes of healthcare organizations. For instance, surveys of regulatory agencies in the United States reported that 3 to 10% of the Medicare and Medicaid programs budget is unobservable and their cost is unexplained [59]. Regarding corruption in governance and oversight, an examination of evidence in Cambodia in 2005 showed that 5 to 10% of the budget disappears before being allocated to the Ministry of Health [60]. In the same vein, the evidence indicate that 7.29% of the global health budget is scammed annually, equal to nearly US$ 415 billion annually [61]. Hence, corruption is a threat to the availability of health resources, leading to severe consequences such as the inability to compensate human resources or affording medical supplies and infrastructure. In addition, it may cause wider consequences, including unmotivated personnel, poor quality services, and declined accessibility [62].

Human resources are most vulnerable to corruption, with work absenteeism, dual employment, receiving informal sums, and theft and fraud as the most common causes of corruption [50, 56, 57, 63-65]. Work absenteeism is one of the most common types of corruption, characterized by the absence of employees, mostly

in government-affiliated institutions, to pursue personal interests and affairs, particularly among those working in the private sector (e.g., private diagnostic facilities) [50, 66]. Dual employment is another common type of corruption. In most European countries, physicians working in the private sector can also hold a salaried job in the public sector. For instance, this issue is prevalent in Austria and Ireland. Even nearly 60% of UK physicians are dual-employed [67, 68].

Dual employment is not illegal if it is done with a license. On the other hand, in some countries, physicians with a salaried job in the public sector are prohibited from working in the private sector; i.e. dual employment is a type of corruption. Also, dual employment paves the way for corruption in authorized countries as it provides incentives for unnecessary referral of patients[57]. In this regard, a study on 30,273 Iranian specialists working in 858 hospitals reported a prevalence of 47.7% for dual employment. Besides, specialists were more prone to dual practice, than other healthcare professionals, by 65% [69].

Informal payment is another common type of corruption. A systematic review (2017) reported that the rate of informal payments varies from 2 to 80% in different countries. Moreover, it is estimated at 4 to 40% in 33 African countries and 16 to 49% in Central and Eastern Europe. In Iran, informal payment is also widely known as "under the table payment". A study on 2,696 hospitalized patients reported a prevalence of 14% in Iran [63, 70]. Prior studies indicate cultural, legal, and quality-related components' contribution to requesting informal payments. Low medical tariffs, access to high-quality services, and incentive to individual merit are factors that increase providers' inclination towards receiving informal payments [71].

Conclusion

Corruption is a pervasive problem in the health sector. The findings supported the existence of corruption in various institutional-operational areas of the health system. In this study, data were extracted from published articles as well as credible reports of international organizations and other citationable sources with no limitation regarding the year of publication. Hence, a wide spectrum of documents was identified, covering various aspects of corruption in health systems. Identified areas of corruption cover a broad range of corruption in different parts of the health care system. Noteworthy, corruption is not limited to providers, and patients are also prone to corruption, with extensive consequences on the overall health system in an interactive and interconnected system. The present study's findings, in combination with prior research, allow policymakers to map and identify the current situation, which provides a basis for better and more efficient decisions and actions.

Application in health policy-making decisions

The findings demonstrated a comprehensive set of areas and types of corruption. The first and most essential step in combating corruption and promoting administrative health includes determining the current situation and extending awareness regarding corruption in the health system. While this study provided a basis for accurate, objective assessment of the current situation, the findings can be provided to policymakers to guide their decisions. Proper insight into a documented and reasoned assessment of the current situation can pave the way for careful decision-making and planning to combat corruption, leading to improved performance of the health system and ultimately, which in turn translates into increased community satisfaction.

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