Chapter

Nurse Prescribing

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Abstract

Nurses, as the most numerous human resources in the field of health, have many roles and responsibilities. The number of countries where nurse prescribing is common is increasing. Also, the legal, educational, and organizational conditions in which a nurse prescribes medication vary greatly from country to country, ranging from the fact that the nurse can only prescribe from a limited list and under the supervision of a physician to the case where the nurse is authorized to prescribe without any restrictions. In many countries, health policymakers have responded to increasing demand for care due to aging populations and the increasing prevalence of chronic disease, physician shortages, and budget constraints, through strategies such as modernizing roles and combining health professions, including the role development of nurses. Prescribing by nurses has been a historic move for the nursing profession and an important part of the health system solution in leading countries to improve access and reduce the waiting time for patients to receive medication. Other potential benefits of nurse prescribing are increased continuity of patient care and better access to medication, efficiency in drug delivery and patient comfort, and reduced patient waiting time.

Keywords: authority, cost effective, health service, nurse, prescription

1. Introduction

Nurses have different roles in the health system and these roles can be changed or revised according to the needs of the society and increasing the ability of nurses [1]. Nurse prescribing is considered as the one of the new roles in the world, the implementation of which requires knowledge, skill, and clinical experience in nurses [2]. Written or oral prescribing requires complex and challenging skills. According to the Oregon Nurse Practice Act, nurse prescribing refers to the process in which a nurse recommends medication or dispenses medicines for patients [3].

Although nurse prescribing was first done in 1986 in the UK, in recent years, evidence of a significant development in the role of nurse prescribing has been seen in various countries, for example, in countries such as South Africa, Ireland, Canada, Norway, Netherlands, Sweden, Spain, and USA, nurses have the legal right to prescribe [4]. The legal, educational, and organizational conditions in which a nurse prescribes medication vary greatly from country to country. A nurse may only be allowed to prescribe from a limited list of medications under the supervision of a physician to being authorized to prescribe without any restrictions [5]. Nurses' ability to prescribe has been a historic development for the profession and an important part

of the solution in many health systems in leading countries to improve access and reduce the waiting time for patients to receive medication [6].

In England, for the first time in 1986, the nurse prescription was proposed by the British Health Department, in such a way that nurses assessed the patients and after diagnosing the problem, they waited for the physician to confirm and stamp the diagnosis and prescription taken by the nurse. In 1989, in the first report of the Crown, the prescription of nurses within a specific pharmaceutical range was supported, and in 1998, the nurse prescription from the list of drugs (Nurse prescribers formulary) was approved nationally in the United Kingdom, and based on the opinion of the government, in 2000, nurse prescription was developed and the drug list with more scope became official with the title (Extend nurse prescribers formulary) [7]. And finally in 2006 the independent prescription of drugs from the British national formulary became official and the registered nurses who had at least 3 years of work experience were allowed to participate in prescription training courses. According to the drug list of 2002, nurse prescribers in the United Kingdom prescribed 180 drugs for about 80 clinical conditions, which reached 240 drugs for 110 different clinical situations in 2005, and since 2006, nurse prescribers could prescribe all authorized drugs except for some restricted drugs including special narcotics [8].

In some countries, prescription laws are exclusive and include physicians and nurse practitioners. The United States of America is one of these countries, and in some states, optometrists, psychologists, and nurses with special clinical experience can also prescribe within the specified limits. Nurse Practitioners were able to obtain a prescription license for the first time in 1969 in the United States, and in 2004, they started prescribing drugs in about 40 American states [7]. It should be noted that in some countries, nurse prescription is being implemented in clinical areas such as chronic diseases, cystic fibrosis, diabetes, cardiovascular disease, general surgery and pain control, renal failure, and substance abuse [9].

There are many reasons for endorsing prescribing rights to nurses including the following: improving the quality of medical care delivery, reducing treatment time and expense, increasing nurses' job independence, and helping nurses to make better use of their professional skills [2]. The right to prescribe can enhance nurses' sense of independence, usefulness, and professionalism [10]. The purpose of prescribing in nursing is not to turn a nurse into a physician, but to increase health in the community, especially in basic and primary care, which can enable the level of access and cheaper services. Nurse prescribing can bring the following advantages: timely, rapid, and convenient access of patients to medication, treatment, and care (especially in chronic diseases), reduced patients waiting time, improved efficiency of care and medical services, constant and extensive prescriber-patient communication, optimal use of nurses, patients, and physicians' time, engagement of nurses in non-repetitive and non-routine tasks, better control of disease symptoms, reducing the number of admissions and length of stay, and reduced health costs [2, 11]. Since cost containment is one of the main policies of health systems in countries, the government officials consider changing duties and roles and assigning some tasks from physicians to nurses as one of the important ways. In addition, the nursing profession has developed strategies to increase the advancement of the nursing profession, increasing autonomy with introduction of specialized roles that include nurses having prescribing rights [4].

In specialist wards, such as the Intensive Care Unit (ICU) and the Cardiac Care Unit (CCU), due to the nature of the ward and the acuity of the patients, nurses have more scientific and practical capabilities that lead to clinically competent nursing staff. Also, due to the critical condition of the patient, it is sometimes necessary for

nurses to make quick and sudden decisions to save the patient's life, among which one of these decisions may be prescribing medication or other life-saving care measures that ultimately improve patient outcomes [12].

The World Health Organization (WHO) discussed the role of nurses and their performance in prescribing in different countries in the consultative panel of the Eastern Mediterranean Region Nursing Forum in 2001 and considered them ready to prescribe medicine. However, the prescription by the nurse, like the prescription by the physicians, can include drug side effects, wrong diagnosis, or incorrect prescription [13].

Nurse prescribing in some countries for example in Iran is in its infancy, because there have only been discussions in this regard and no executive action has been taken so far, and it is clear that giving this duty to nurses in these countries requires providing the necessary conditions such as creating preparation and increasing the authority of nurses [10]. Darvishpour [14] conducted a qualitative study entitled nurse prescribing in Iran and abroad. She reported that, despite the public assumption that nurse prescribing is not practiced in Iran, it is carried out in most wards, especially in emergency departments and intensive care units. In addition, like other countries, there are independent and dependent prescribing practices, but the quality and manner of prescribing is greatly different in Iran because nurse prescribing is carried out illegally and, in some cases, secretly [14]. In the study by Babaie et al. [15] that aimed to determine the attitude and readiness of Iranian nurses toward nurse prescribing, the results showed that nurses had a good preparation and attitude toward nurse prescribing [15].

2. Nurse prescribing challenges

Worldwide, there are challenges to nurse prescribing, which include the following:

1. **The critical view of the health care team** due to the lack of trust between nurses and physicians and the opposition of physicians to the approval and legalization of nurse prescriptions [16].

2. **The lack of support for nurses** from the authorities, leaving daily medical tasks to nurses, and hierarchical norms and strict control of nurses by physicians contrary to legal regulations [16].

3. **Failure to pay attention to the assessment of professional competence** due to the limitations of scientific and specialized knowledge of nurses and their lack of pharmacology knowledge [17]. Of course, these problems can be solved by continuously evaluating and monitoring the clinical competence of nurses, increasing the level of pharmacology knowledge, holding specialized courses, and having at least 3 years of work experience and participating in training courses [18].

4. **The legal restrictions** of prescribing by nurses [19].

5. **The public's lack of awareness** of the role of nurse prescribers [20].

In the beginning, some countries, including Britain, had a negative view of prescription other than physicians, and the passage of time and the favorable performance of nurses have been effective in modulating this view [21]. Today, nurse

prescription policies are different in countries; for example, in US, several years after the legalization of the role of nurse prescription, it is still associated with the opposition of physicians, which has led to a lack of trust between nurses and physicians [16]. Some physicians, regardless of the positive aspect of nurse prescription and full knowledge, consider this role to be the handing over of routine medical work to nursing and are against increasing the authority of nurses in prescribing and believe that the expansion of this role is based on hierarchical norms or the same view. From top to bottom, it undermines that the physician is always at the top of decision making and the nurses are the ones who execute their orders, which has resulted in unfair strictures in nursing prescriptions [22].

Carey and colleagues [23] consider the lack of cooperation and support of the health care team in clinical management programs to be the problem of supplementary prescribing by nurses [23]. Other problems in the field of nurse prescription include the lack of government support in terms of finances and budget allocation, the lack of cooperation of insurances with nursing prescriptions and neglect of the training of prescribing nurses, as well as the lack of support of nurses from each other and the limited number of training courses [8]. Increasing the knowledge and expertise of nurses, increasing teamwork, supporting each other's colleagues, clinical supervision by the supervisor and continuous professional development, and increasing the support of officials are mentioned as suitable ways to reduce and solve this challenge [24].

Failure to pay attention to the evaluation of the professional qualifications of nurses will cause irreparable damage to health care system. According to Afseth and Paterson's study [25], it is very important to pay attention to the way of practice in the examination of professional competence, and the clarification of professional qualifications should be done in nurse prescription before designing and prescribing permission to nurses through the participation of stakeholders [25]. Qualification criteria for nurses are important in relation to pharmacology knowledge and drug calculations, which is one of the most important qualifications required for independent nursing prescription, having at least 3 years of clinical work experience and participating in specialized training courses [18].

According to Ax's study [26], weakness in drug calculations and inaccuracy in determining the appropriate drug dosage are one of the obstacles to obtaining a legal license in nursing prescription. Careful training of nurses solves the problem to a large extent. Many pharmaceutical companies have solved the problem of complex pharmaceutical calculation in new pharmaceutical products [26]. In all the countries where there is a nursing prescription, nurses need to pass a special training course for a drug prescription in order to be allowed to prescribe medicine [27]. In the UK, there is no specific course required to prescribe a Patient Group Guide (PGD). The training course and the conditions and qualifications required for prescribing nursing are different in different countries; for example in Australia, US, Canada, and New Zealand, nurses are required to be allowed to prescribe medicine independently before completing advanced nursing education, while in Ireland and England this condition is not required and nurses in the United Kingdom have the right to prescribe widely [28]. Also, the criteria for entering the drug prescribing period by nurses in different countries are different, so in England it is at least 3 years of work experience, in New Zealand 4 years, and in Australia 5 years [28].

Competencies and nursing training courses in England include a 39-day period, which lasts 3 to 6 months. This course includes 27 days of theory and 12 days of

internship, which is done under the supervision of a mentor. The theory part can be presented remotely and in its own way. The things that are studied in the nursing training program are as follows: (1) psychological and therapeutic effects of the nurse prescribing, (2) counseling, decision making, treatment, and referral, (3) prescribing within a team context, (4) clinical pharmacology and complications, (5) evidence-based care, (6) legal and ethical aspects of prescribing, (7) professional responsibility and accountability, and (8) prescribing in the public health. The practical part and internship, which is done very strictly and accurately, includes the OSCE functional test and the final exam of pharmacology and its use in practice [29].

In many countries, nurse prescribing is associated with legal restrictions, and usually, nurses are allowed to prescribe drugs that are OTC or are allowed to prescribe from a specified list of drugs [21]. The opposition of physicians to the approval of this role, the lack of familiarity of policymakers with non-medical prescription, and fear of making mistakes in the opinion of nurses are mentioned as the reasons for legal restriction [16]. However, according to the study by Carberry et al. [30] an audit in the prescriptions of nurse practitioners (Advanced Nurse Practitioners in Critical Care) was done. And out of 388 drugs prescribed by nurses only 2 errors (0.6%) were found, while, in relation to physicians out of 984 drugs 32 errors (3.4%) were found. Based on the results of this audit, the error score was significantly different between groups, and the highest error score was related to physicians [30].

From the past, nursing has had the appearance of being dependent on physician as an executor of physician's orders, and this issue has been very confusing for nurses and has weakened social identity and public trust. By increasing the professional independence of nurses, it is hoped that these pressures will be reduced. According to Grad et al.'s study [20], due to a lack of knowledge about the nurse prescribing, despite being satisfied with the consultation with the nurses, patients are more willing to continue the examination and consultation with the physician, and even some patients can refer to the physician [20]. In some studies, the clinical outcome of patients who were prescribed medication by nurses was similar to medication administered by physicians [31].

Various factors may prevent the implementation of nurse prescribing in some countries, for example, in Iran, including patients, physicians, and officials' distrust of nurses' prescriptions, low awareness of the benefits of nurse prescribing, low self-confidence of nurses, medical staff's critical view on this issue, nurses' fear of responsibility and legal issues, and ignoring the experiences of other countries in this regard [32]. The recent master nursing curriculum alterations in Iran, which indicates the specialization of nursing and the further development of the role to include nurse prescribing, is considered a set in the right direction to enhance the nursing profession. In Iran, master nursing students are required to pass 1–2 units of pharmacology, which can help them in taking on the role of prescribing [1]. Also, in Iran, unlike some countries including the United States, there is no DNP (Doctor of Nursing Practice) degree, and the only doctoral degree is in the form of a Ph.D. During this 4–5-year period, 45 units of study are offered to students, and nursing doctoral students have no pharmacology unit. However, after graduating from nursing schools, as academic staff, they are required to teach theoretical and clinical units that require knowledge of pharmacology [33]. Despite the changes that have occurred in Iran's graduate nursing education curriculum, it seems that these changes are not enough for Iranian nurses to benefit from the prescribing role, and more measures are needed in this regard.

3. Nurse prescribing in Iran

Similar to the UK, in Iran especially in critical care situations, nurses assess the patients and after diagnosing the problem, they wait for the physician to confirm and stamp the diagnosis and prescription taken by the nurse. Therefore, in future possible scenarios for nursing prescription are the works in the UK that have been done. In other words, countries such as Iran (which is in the infancy period) could use the UK experiences to develop their nursing prescription ability. In primary care, which can enable the level of access and cheaper services, or in the clinical areas such as chronic diseases (diabetes, cardiovascular disease, cerebrovascular accidents ...) nurse prescriptions can be started from the list of drugs. And after some time, the independent prescription of drugs will become official from the national formulary, and registered nurses who have at least 3 years of work experience will be allowed to participate in prescription training courses.

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