

(Can the rights and admission criteria for studying pharmacy be reconciled for students with severe motor disabilities?)

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Abstract:

Background:

Many health profession colleges use technical standards for the admission and graduation of students, reflecting the physical and mental skills and abilities necessary to work efficiently as professionals in the health sector. Students with disabilities are often rejected on the grounds that they do not meet these standards; however, this is not always a justified reason for their exclusion, as they can be academically successful. International laws also stipulate their right to education, with or without accommodations.

Materials and Methods:

This research aims to study the possibility of reconciling the rights of persons with disabilities with the requirements of studying in the College of Pharmacy by analyzing the required standards, in light of the new tasks that pharmacy graduates may undertake. Additionally, the results of an evaluation of the performance of a student suffering from congenital absence of both upper limbs and one lower limb.

Results:

The study showed that some of the new tasks for pharmacists require only limited skills. This opens the door for individuals with disabilities to be accepted into the College of Pharmacy, provided they meet the academic standards.

Conclusion:

The colleges are advised to review their technical standards to ensure they are suitable for facilitating the admission of individuals with disabilities without changing the academic program, with a necessity for skills to be directly linked to the curriculum and future professional practice.

Key Word:

Reconciliation. Entitlement. Admission standards. Pharmacy studies. Disability. Congenital absence of upper limbs

I. Introduction

To achieve universal health coverage, countries need strong and effective health systems, which requires a sufficient number of qualified healthcare workers. Therefore, officials must ensure that educational and training programs meet the necessary technical standards to guarantee the graduation of competent specialists (Accreditation Council for Pharmacy Education, 2011). These standards are essential, but students with disabilities may face difficulties in meeting them, which can hinder their entry into health professions. According to a study from the Centers for Disease Control and Prevention, 53.3 million adults suffer from disabilities, necessitating the provision of care (Samuel R. Bagenstos, 2016).

Most countries pay special attention to individuals with special needs, striving to provide their rights to education and healthcare, which enhances their participation in society on an equal footing with others (Seventh, 2005). Since 1970, the United Nations has focused on the rights of persons with disabilities, emphasizing in the World Program of Action concerning Disabled Persons in 1980 the need to provide educational opportunities for them, asserting that their education is an integral part of the educational system (Abdel Moneim, 2023). However, colleges such as pharmacy schools face challenges in accommodating students with mobility disabilities due to the demands of study and practical training. There is a lack of information on how these colleges deal with students with disabilities, raising questions about how to balance their rights with the requirements of the profession

The research aims to study the admission standards required for pharmacy colleges and align them with the skills necessary for practicing the profession, focusing on the case of a student with severe mobility impairment at Aleppo University in the liberated areas. The evaluation will assess how she accomplishes practical training

and skills, as well as the impact of the accommodations provided to her on her ability to meet the technical standards.

II. Material And Methods

Study Design: Analytical study

Study Location: The study was conducted at the Faculty of Pharmacy, University of Aleppo, in the liberated areas of Syria, in the Department of Biochemistry.

Study Duration: The study was conducted during the period from July 1, 2023 to August 20, 2024.

Sample size: One participant (female student in the College of Pharmacy).

Subjects & selection method: This student was chosen because she has a very rare motor disability.

Inclusion criteria:

1. The student must have a motor disability. and second-year intervals.

III. Result

First - The Rights of Students with Disabilities to Study Pharmacy

Human rights encompass the development of human capacities and the enhancement of dignity, which includes empowering individuals with disabilities to access education and fully participate in society (Seventh, 2005). The states parties to the United Nations have committed to ensuring the rights of persons with disabilities without discrimination, as any discrimination based on disability is considered a violation of human rights (Seventh, 2005). Article 24 of the United Nations General Assembly report states the right of persons with disabilities to education, requiring educational institutions to provide reasonable accommodations to meet their needs (Seventh, 2005) (Smith & Allen, 2011). These accommodations include modifying the way training is implemented without changing the core objectives or standards of the program (ADA, 2002) .

In the field of health professions, medical colleges must adhere to providing these accommodations to ensure that students with disabilities are not discriminated against. Legislation indicates the necessity of taking appropriate steps to provide suitable accommodations that do not impose an unjustified burden, allowing students with disabilities to study the specialties they desire, provided they meet the required standards (Seventh, 2005) (Berry, 2011). Therefore, priority should be given to creating an inclusive educational environment that supports the rights of students with disabilities in the field of pharmacy.

Second - Admission Standards for Studying at the Faculty of Pharmacy

Students at medical colleges in Aleppo University in the liberated areas, including the Faculty of Pharmacy, are admitted based on their secondary school grades and a standardized entrance exam in subjects such as natural sciences, physics, chemistry, and a foreign language (English or French), with a minimum score of 50% in each. A health fitness certificate is also required in certain cases, where health conditions or disabilities are evaluated by a medical committee to determine their impact on the applicant's ability to practice the profession after graduation. This assessment is considered essential due to the negative social perception towards practitioners with health issues (Berry, 2011).

Pharmacy colleges and schools define the technical standards required for admission according to the standards of the Accreditation Council for Pharmacy Education (ACPE). Studies indicate that 82% of colleges provide these standards on their websites, but less than half had actually implemented them at the time of the study (Berry, 2011) .

The Association of American Medical Colleges (AAMC) recommended in 1979 that candidates possess specific skills, such as observation, communication, motor skills, intellectual abilities, and social behaviors, making these skills a requirement for admission in 1993 (Association of American Medical Colleges, 1993). Legal principles emphasize the freedom of programs to determine technical standards without the need for radical changes, meaning that students should identify reasonable accommodations based on their needs, thereby enhancing their ability to achieve academic and professional success (Berry, 2011)

Table 1. Qualitative Requirements and Common Language for Technical Standards in Colleges and Schools of Pharmacy (Berry, 2011).

Topics	Core Attributes	Common Language	Examples of Unique Requirements
- Observation	- Use of the sense of sight	Observing demonstrative experiences in basic sciences.	1 .Accurate reading of 6 points with a magnifying lens.

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		-Accurately observing the patient from a distance and up close within reach. -Observation requires the functional use of vision and other sensory methods	
- Communication	- Speaking, reading, and writing	-Communicating effectively and sensitively with patients in their language. -Communicating effectively and efficiently in verbal and written forms with all members of the healthcare team. -Communicating through speaking, reading, writing, and computer literacy.	2 .Participation in large and small group discussions. 3 .Interaction with patients both individually and within groups
- Movement	- Physical ability and coordination	-Sufficient motor function to perform the movements required to provide care. -Coordination required for both gross and fine motor movements, balance, and functional use of the senses of touch and vision.	4 .Ability to lift up to 50 pounds of weight. 5 .Physical activity requirements (standing, walking, reaching, endurance) for 67-100% of the workday. 6 .Administering vaccinations, performing CPR, placing IV lines, palpating pulses, auscultation, and percussion. 7 .Self-transport to cross-training exercises.
- Intellectual, conceptual, integrative, and quantitative abilities	- Problem-solving ability	Measuring, calculating, interpreting, analyzing, and synthesizing data. -Synthesizing and applying complex information. -Ability to integrate and process information quickly and accurately.	8 .Sufficient critical thinking ability for sound judgment. 9 .Ability to think quickly and accurately in an organized manner. 10 .Fully alert and vigilant at all times in clinical settings.
- Behavioral and social traits	- Emotional stability and resilience	-Possessing the emotional health necessary to fully utilize intellectual capabilities. -Withstanding physically, mentally, and emotionally taxing workloads and working effectively under pressure. -Demonstrating compassion and integrity, interpersonal skills, and a drive for excellence in pharmacy practice.	11 .Adaptability to changing environments and demonstrating flexibility to learn in the clinical setting. 12 .Submitting drug tests.

Challenges Faced by Students with Disabilities in Studying and Practicing Pharmacy

Students with disabilities face significant challenges when implementing practical training plans, especially in academic environments like the Faculty of Pharmacy, where these plans may be unfamiliar. Many faculty members lack the knowledge or training necessary to effectively support these students, negatively impacting their expectations (Gitlow L (2001) as cited in Volino L. R., 2021) (Kruse BG, 1998). Therefore, a supportive culture for accommodations is essential, where practical course instructors should be identified as key stakeholders in this context. It is also necessary to establish open lines of communication between students, instructors, and relevant resources to ensure that learning outcomes align with performance expectations.

However, limited resources and inadequate facilities may hinder the development of effective modification plans (Mellard N. K., 2006). Thus, modification plans should be continuously monitored and adapted, with students and coordinators having the ability to request adjustments as needed. It is crucial to focus on students' needs rather than their disabilities, contributing to better educational outcomes.

Third - Practicing the Pharmacy Profession and the New Pharmaceutical Role

The conditions for practicing the pharmacy profession vary significantly between countries and also among different sectors within the same country. There is an urgent need to educate the public and health professionals about the services that pharmacists can provide, especially concerning individuals with disabilities. Areas of pharmacy practice include community, hospital, industry, and administrative pharmacy, with most pharmacists in Syria working within these fields. As the profession has evolved, the World Health Organization introduced the concept of the "seven-star pharmacist," highlighting the expanded roles of pharmacists as providers of care, decision-makers, educators, and leaders (Virginia Aita, 2005). Subsequently, two new standards were added, resulting in the concept of the "nine-star pharmacist" (Lezley-Anne Hanna, 2016).

Although the pharmacy profession has evolved from a traditional focus on medications to an advanced focus on healthcare, many individuals in developing countries still hold misleading perceptions about pharmacists. It can be argued that the profession has seen significant improvement over the past fifty years, with a shift in focus from drug compounding to providing comprehensive pharmaceutical care (Kimberly C. McKeirnan, 2020).

This underscores the need for current technical standards to require coordinated efforts to train and prepare a sufficient number of well-trained pharmacists to meet new challenges (Hjørland, 2013). Pharmacists with mobility disabilities can contribute to bridging gaps in certain specialties. Therefore, technical standards should be developed to ensure a qualified workforce, as 41% of pharmacy colleges have not yet implemented these standards (Watson PG (1995) as cited in Berry).

Development of Pharmacy Education and the Role of Pharmacists

The working group on pharmacy education was developed by the World Health Organization, the United Nations Educational, Scientific and Cultural Organization, and the International Pharmaceutical Federation through the Education Action Plan for the period 2008-2010. This plan aims to train pharmacists and allied health professionals during their academic training through several key areas:

1. **Models of Pharmacy Practice:** These include various models such as the medication information practice model, self-care model, clinical pharmacy model, pharmaceutical care model, and distributive practice model. These models are applied based on local needs and pharmacist expertise.
2. **Rational Use of Medicines:** Pharmacists are responsible for promoting the rational use of medicines by advising patients and ensuring the appropriate medications are dispensed at the correct dosages (Caamaño, 2008) (Laing, 2013) (Laing, 2013) (Benjamin D. M (2003) as cited in Toklu, 2013)
3. **Pharmacy Ethics:** Pharmacists should focus on the potential negative outcomes of treatment, including monitoring medications and identifying harmful effects (Dessing, 2000).
4. **Pharmaceutical Care:** It is essential for pharmacists to work with the healthcare team to identify and resolve medication-related problems, which improves treatment outcomes compared to traditional pharmacy practices (Strand LM, 1990).
5. **Evidence-Based Practice:** This relies on making practical decisions based on research studies (Hjørland, 2013).
6. **Pharmacy Education Practice:** This includes designing educational programs to develop the workforce in various fields (Anderson, 2009).
7. **Improving Teaching in Pharmacy Colleges:** Enhancing teaching methods is required to meet the growing need for qualified pharmacy services.
8. **Pharmacy Education Action Plan:** This aims to promote the proper use of medicines and achieve better therapeutic outcomes, thereby enhancing the role of the pharmacist as a healthcare specialist rather than a drug seller. This field also provides opportunities for pharmacists with mobility disabilities, as these roles do not require fine motor skills.

Fifth - Skills of Students with Disabilities and Acceptable Facilitation Arrangements

Every student admitted to a pharmacy program must meet the "academic and technical standards" required, and institutions must provide reasonable accommodations to ensure equal opportunities for students with disabilities. This requires maintaining a balance between academic standards and providing the necessary support for students. When applying for admission, a team should be formed to support the student's needs in educational courses and laboratories, consisting of the student, faculty members, and representatives from the campus disability office.

Effective communication is essential for reviewing the student's needs and professional goals. Article 24 of the United Nations General Assembly report emphasizes the importance of empowering individuals with disabilities to participate in the general education system (Seventh, 2005). Guidelines have been provided regarding reasonable accommodations for advanced pharmacy practice experiences, highlighting the importance of allocating time and resources for trainers and faculty members. Stakeholders should be involved in learning environments from the beginning of the student's admission to ensure effective training.

Despite the challenges that may arise regarding the required accommodations, these can be overcome through perseverance and creativity. Accommodations should be determined based on an individual case analysis, considering the needs of students who use assistive devices. In colleges lacking clear policies, collaborating with experienced trainers to develop guidelines that support students, while focusing on accessibility and safety requirements in training environments, can be beneficial.

Student Competence with Disabilities in Meeting Required Standards When Providing Facilitation Arrangements

Implementing practical training plans for students with mobility disabilities can be challenging, especially in the absence of previous models. Therefore, attention to students with special needs in the educational process is vital for improving education. This requires providing a suitable learning environment, including designing training programs that incorporate diverse educational tools and offering hands-on learning experiences such as field trips, which contribute to enhancing the educational experience (Abdel Moneim, 2023).

Achieving success for students with special needs necessitates appropriate guidance as part of community efforts to achieve self-development. Reasonable accommodation relies on institutional design and accessibility standards that undoubtedly consider the needs of "normal" participants (Bagenstos, 2016).

Smith (1993) distinguished between two types of accommodations: adaptive accommodations that compensate for functional loss (such as prosthetics) and educational accommodations that enhance function (such as cognitive training programs). While adaptive accommodations may be effective in the short term, they can be costly and increase reliance on others, whereas educational interventions promote independence at lower costs (Mellard D. H., 1999).

It is crucial to consider context in evaluating disability, as the interaction between the student and their educational environment affects performance. Each student has unique circumstances and resources, requiring college administration to address each case individually, which can be a significant burden, especially given the diversity of needs (Dunn W, 2006).

Additionally, identifying the perceptions of students with disabilities regarding adaptation and its effects can help improve the support provided to them. Colleges that comply with laws ensure equal access, but this may not reflect the spirit of the law. Instead, colleges should invest in comprehensively understanding student needs, which enhances diversity and increases opportunities for effective participation of students with disabilities (Mellard N. K., 2006).

Case Study of Severe Disability in Pharmacy College (Absence of Upper Limbs and One Lower Limb)

The World Health Organization classifies "disability" into three categories (Üstün, 2010)

1. Impairment – A problem in bodily functions such as loss of a limb, memory loss, or loss of vision.
2. Activity Limitations – Difficulty in executing a task or action such as seeing, hearing, or walking.
3. Participation Restrictions – Problems participating in life situations, such as working and engaging in social and recreational activities.

Types of disabilities include Cabinet (2733) in Egypt - Decision.(٢٠١٨٤

1. **Mobility Disability:** Defined as a dysfunction in the locomotor system (neurological, muscular, or skeletal) affecting an individual's ability to perform gross or fine movements independently. A person with a mobility disability deserves services if they exhibit certain characteristics, such as:

- **Gross Motor Skills:**

- Difficulty walking without assistance.
- Inability to lift objects weighing 2 kg above head level.
- Inability to walk 250 meters at a reasonable pace.
- Difficulty moving inside or outside the home without a companion.
- Inability to ascend stairs at a reasonable pace.
- Difficulty using public transportation even with assistance.

- **Fine Motor Skills:**

- Severe loss of upper limb functions.
- Inability to grasp objects effectively.
- Difficulty handling daily tools.
- **Self-Care Activities:** Inability to perform daily activities such as personal hygiene and food preparation without assistance) Cabinet (2733) in Egypt - Decision.(٢٠١٨٤

Medical colleges aim to accept students who possess the knowledge and ability to learn the necessary skills for graduation as professional practitioners. The Bachelor of Pharmacy program at the University of Aleppo (Free) spans five years, divided into two years of foundational studies and three years of professional pharmacy. Students in the early years gain knowledge in biological and chemical sciences, while third and fourth-year students focus on pharmaceutical sciences and clinical training in community settings. In the fifth year, advanced courses are integrated to enhance competence in clinical pharmacy (Nkansah, 2010).

In the academic year 2021/2022, a student with Amelia, lacking both upper limbs and one lower limb, was admitted. Despite her disability, the student demonstrated good performance in high school, qualifying her for admission. She was accepted with the assurance that the curriculum would not be altered, but she could request reasonable accommodations according to the standards of the Accreditation Council for Pharmacy Education (ACPE) ((Bamshad et al. 1999) as cited in Sebastiano Bianca, 2009) (Hussain, 2020).

To assess her performance, assistance during practical training was considered. In subjects such as pharmaceuticals and biochemistry, she recorded results ranging from satisfactory to very good. The student received some limited assistance from her peers and teachers, such as bringing exam materials, while in some experiments, she was able to work independently. In certain cases, she required help with precise tasks like weighing and mixing, but her cognitive assessment results were good, indicating that she achieved the required goals for acceptance into pharmacy studies (ADA, 2002).

This experience contributes to building an inclusive culture that supports students with disabilities, providing them with equal opportunities in education and training.

Supporting Students with Disabilities in Pharmacy Programs

Pharmacy programs face challenges in supporting students with disabilities during laboratory and training assessments. To ensure that these students meet the required standards, colleges can take effective steps, such as:

- Educating Faculty: Faculty and staff should be made aware of the importance of planning accommodations in student development and addressing misconceptions related to disabilities.
- Providing Guidance: Faculty members should be prepared to offer guidance on reasonable facilitation arrangements.
- Identifying Suitable Centers: Administrators should identify centers and trainers capable of providing reasonable accommodations.

Reasonable accommodations may include adjusting the time required to obtain a degree, providing readers or interpreters, and modifying the time allowed for exams (Watson PG (1995) as cited in Berry). Managing training environments requires prior planning according to student needs, as inconsistent expectations may lead to student frustration. Individual needs assessments should be conducted during the training process to identify potential issues early. Effective planning must include ongoing collaboration among all stakeholders, including education and training teams and support offices. Open communication with students about their career aspirations contributes to effective training planning. Thus, accommodation plans require continuous monitoring to ensure their effectiveness, with the option for adjustments as needed. Student privacy must be maintained in all communications to ensure compliance with privacy laws (Watson PG (1995) as cited in Berry).

IV. Discussion

As the role of the pharmacist evolves, it becomes essential for pharmacy programs to be aware of students' choices for this profession, ensuring their accurate understanding of the nature of the work. This evolving role requires pharmacists to be part of a broader healthcare team, contributing to improved patient care and achieving developmental goals (Toklu, 2013). However, students with disabilities are often deprived of admission opportunities due to strict technical standards that require certain physical abilities. While these standards may seem necessary, they can be modified to include students with disabilities without compromising educational quality. Each college should be able to develop appropriate technical standards that comply with legal requirements, as having a specific disability does not necessarily mean a student cannot succeed academically (Klijs, 2014).

The strict application of these standards relies on an unrealistic assumption that all graduates must possess specific skills to perform all roles. In modern medical specialization, this assumption seems unreasonable, as students with disabilities can successfully train in many specialties (SR, 2016).

Undoubtedly, one possible reason for the underrepresentation of students with disabilities in higher education is the lack of effective facilitation arrangements, which diminishes the diversity of medical professions, contradicting the values of professional organizations (Crossley M (2015) as cited in Samuel R. Bagenstos, 2016). Additionally, the lack of exposure to colleagues with disabilities may negatively impact physicians' and pharmacists' abilities to provide effective medical care (Lisa I. Iezzoni, 2005).

Therefore, colleges must provide reasonable accommodations for students with disabilities, enabling them to achieve academic goals. This requires cultural changes in society, shifting from marginalization to empowerment, to ensure effective participation of individuals with disabilities in life activities (Abdel Moneim, 2023). Institutions must take steps to ensure that students with learning difficulties are treated fairly and provided with the necessary opportunities for success (SA, 2019).

Interest in the technical standards of pharmacy colleges and schools has increased due to changes instituted by the Accreditation Council for Pharmacy Education (ACPE). These standards are defined as the physical and mental requirements necessary to enable students to work efficiently as pharmacists after graduation. However, some medical specialties do not require all standards to be met when applying for admission, indicating that exclusionary criteria are not necessary in all cases and can be modified to accommodate students with disabilities.

Article 24 of the United Nations General Assembly report emphasizes the need for reasonable facilitation arrangements for persons with disabilities, such as using intermediaries to assist students in academic activities without fundamentally altering the curriculum. Pharmacy technicians play a vital role in supporting pharmacists with disabilities, performing various tasks such as reviewing prescriptions and preparing medications (Central Oregon Community College, 2023). The Association of Academic Practitioners (AAP) suggests that medical colleges adopt a flexible approach toward students with limited abilities, considering the acquisition of certain technical skills essential while providing accommodations as needed.

Recommendations for Training Students with Disabilities in Pharmacy Colleges

The recommendations from the AAMC Advisory Committee Report of 1979 were based on five areas of competency and skill, suggesting suitable training placements. For instance, if a candidate's observational ability is compromised, they should demonstrate alternative means of acquiring information (Watson PG (1995) as cited in Berry). It is also recommended to adapt workstations to meet students' needs, which may require them to use alternative methods to demonstrate competence, such as verbal explanations instead of direct motor performance.

Regarding motor skills, there is an emphasis on the importance of understanding methodologies rather than independent performance of activities, especially if these activities are not essential to their future specialization (Watson PG (1995) as cited in Berry). This requires the development of well-considered training plans that include mechanisms for monitoring effectiveness, with the possibility of adjustments as needed. All stakeholders should be involved in the development of training plans.

As the role of the pharmacist expands to include pharmaceutical care, pharmacists must reassess work models to meet new responsibilities (Hattingh, 2009). Pharmacists with mobility disabilities can perform effective roles in the community, as qualified pharmacy technicians can assist them with motor tasks.

Empowering students with disabilities and educating others about their issues are vital. These students can be powerful agents of change, as their awareness of their success can drive the necessary changes in universities and society. Therefore, aligning training plans ensures realistic expectations for all stakeholders, facilitating the transition of students from training environments to the real world after graduation (Gitlow L (2001) as cited in Volino L. R., 2021). Consequently, admission standards should be reviewed according to individual cases, allowing students with disabilities to demonstrate their excellence in new areas of the pharmacy profession.

V. Conclusion

Individuals with special needs should receive special care from non-governmental organizations, with empowerment programs that support their abilities and educational rights (Abdel Moneim, 2023). Disabilities are no longer viewed as a stigma; rather, individuals with special needs are seen as deserving of care and attention in their upbringing and education to empower them to adapt to life's demands.

Medical colleges must select students who possess the intelligence, integrity, and personal characteristics necessary for effective practice. Technical standards should be periodically reviewed to ensure their relevance in providing reasonable accommodations for students with disabilities, without altering programs or imposing unnecessary burdens on institutions (Berry, 2011). The skills required for admission should be directly related to those required for graduation, necessitating a comprehensive curriculum that prepares pharmacy students to work as competent practitioners in diverse fields, while allowing opportunities for creativity and excellence for each student.

VI. Recommendations

Faculty members in each college should establish standards and procedures for selecting students, and colleges are advised to periodically review their technical standards to ensure that the standards are applicable and suitable for considering reasonable accommodations for students with disabilities, keeping in mind that

accommodations should not alter the program or impose unnecessary burdens on the institution or potential rotation sites.

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