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Assessing Medical Translation Competence and Needs: A Case Study of Medical Students at Sebha University

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تقييم كفاءة واحتياجات الترجمة الطبية: دراسة حالة لطلاب الطب في جامعة سبها

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Abstract:
In Arabic-speaking medical contexts, the reliance on English-language literature creates a critical need for accurate English-to-Arabic translation skills. However, undergraduate medical curricula in Libya often lack formal translation training, potentially compromising patient safety and academic comprehension. This study attempts to examine medical translation challenges among medical students studying with English.
A cross-sectional descriptive study was conducted among 44 (22 females and 22 males) medical students at Sebha University using a stratified random sampling method. Data were collected via a self-administered online questionnaire assessing demographics, translation frequency, perceived competencies, and challenges.
While 47.7% of participants possessed native-level Arabic proficiency, 59.1% reported only intermediate English proficiency, with none achieving native-like fluency. Translation demands were high, with 40.9% of students translating materials daily, primarily textbooks and journal articles (40.9%) for personal understanding. The primary challenge identified was locating accurate Arabic equivalents for medical terminology (moderate to high difficulty for 61.4%). The most significant fear regarding inaccurate translation was potential patient harm (50%). Medical students at Sebha University engage frequently in translation but lack the necessary linguistic proficiency and resources to do so with high accuracy. There is a pressing need to integrate specialized medical translation courses into the curriculum and develop standardized bilingual medical resources.

Keywords: Medical translation, Medical students, English as a medium of instruction, Medical terminology, Patient safety, Curricula, Libya, Sebha University, Language proficiency, Bilingual resources.

الملخص
في السياقات الطبية الناطقة بالعربية، يُشكّل الاعتماد على الأدبيات الإنجليزية حاجةً ملحّة إلى مهارات دقيقة في الترجمة من الإنجليزية إلى العربية. إلا أنّ المناهج الطبية الجامعية في ليبيا تفتقر غالباً إلى التدريب الرسمي في الترجمة، مما قد يعرّض سلامة المرضى والفهم الأكاديمي للخطر. تحاول هذه الدراسة استقصاء تحديات الترجمة الطبية لدى طلاب الطب الذين يدرسون باللغة الإنجليزية.
أُجريت دراسة وصفية مقطعية على 44 طالباً وطالبة من كلية الطب بجامعة سبها (22 أنثى و22 ذكراً) باستخدام طريقة العينة العشوائية. جُمعت البيانات عبر استبيان إلكتروني ذاتي التعبئة يقيس التكرارات، والكفاءات المدرَكة، والتحديات في الترجمة.
في حين أظهر 47.7% من المشاركين إتقاناً للعربية في المستوى الأصلي، أفاد 59.1% منهم بإتقان متوسط للغة الإنجليزية فقط، ولم يصل أي منهم إلى مستوى الطلاقة المشابهة للناطقين بها. كانت متطلبات الترجمة عالية، إذ يترجم 40.9% من

الطلاب المواد بشكل يومي، وبشكل أساسي الكتب الدراسية والمقالات العلمية (بنسبة 40.9%) لأغراض الفهم الشخصي. تمثل التحدي الأساسي في صعوبة إيجاد مرادفات عربية دقيقة للمصطلحات الطبية (صعوبة متوسطة إلى عالية لدى 61.4% من العينة). كان الخوف الأكبر من الترجمة غير الدقيقة هو احتمال إلحاق الضرر بالمريض (بنسبة 50%).
يُقبل طلاب الطب بجامعة سبها على الترجمة بشكل متكرر، لكنهم يفتقرون إلى الكفاءة اللغوية والموارد اللازمة للقيام بذلك بدقة عالية. هناك حاجة ماسة لإدماج مقررات متخصصة في الترجمة الطبية ضمن المنهج الدراسي، وتطوير مصادر طبية ثنائية اللغة موحّدة..

الكلمات المفتاحية: الترجمة الطبية، طلاب الطب، اللغة الإنجليزية كلغة تدريس، المصطلحات الطبية، سلامة المرضى، المناهج الدراسية، ليبيا، جامعة سبها، الكفاءة اللغوية، الموارد ثنائية اللغة.

1. Introduction

Language serves as the primary vehicle for medical education and clinical practice. In many non-English speaking countries, specifically in the Middle East and North Africa, a debate persists regarding the language of instruction: English (the global language of science) versus the native tongue (Hamad and Amer 2024). As medical education internationalizes, the ability to bridge the gap between English resources and Arabic-speaking patients becomes paramount (Pan 2025; Al-Jarf 2025).

Despite this reliance on English, medical students in Libya are frequently required to explain diagnoses, translate research, and communicate with patients in their native language, Arabic. At Sebha University, as in many institutions in the region, structured training in medical translation is rarely integrated into the medical curriculum. Consequently, medical

students may rely on informal strategies or machine translation, risking misinterpretation and compromising patient safety (Abdelaal and Alazzawie 2020; Dew et al. 2018).

This study aims to assess the current level of English-to-Arabic medical translation skills among medical students at Sebha University, identify specific linguistic and terminological challenges, and evaluate the perceived need for formal training.

1.2. Problem Statement

In many Arabic native countries, English is used as a medium of instruction in medical institutions. It is the language of medical research articles, clinical guidelines and drug information leaflets. Medical students frequently encounter English language materials, but are often required to communicate health information, explain diagnosis, and translate medical texts into Arabic for patients and sometimes for institutional use.

Despite this obvious need, structured training in medical translation (English–Arabic) is rarely integrated into undergraduate medical curricula in medical institutions in Libya. As a result, students may rely on informal strategies, general language skills, or online tools that do not account for

technical accuracy, cultural nuances, or patient comprehension levels. This gap can contribute to misinterpretation of medical information, reduced patient understanding, and potential risks to patient safety.

At Sebha University, there is a limited empirical data regarding medical students' current abilities, and specific training needs in English -Arabic medical translation.

Therefore, there is a need to assess the current level of medical translation skills among medical students at Sebha University, identifying the areas in which students experience the greatest difficulties, and determine the priorities regarding training in this domain. This need assessment will provide evidence-based guidance for potential curriculum development.

1.3 Research Questions

This study aims to answer the following questions:

1.What is the current level of English-to-Arabic medical translation skills among medical students at Sebha University?

2.What specific linguistic, terminological, and contextual challenges do medical students face when translating medical texts from English into Arabic?

3.To what extent do medical students perceive a need for formal training in medical translation (English–Arabic)?

1.4 Objectives of Research

The primary aim of this study is to conduct a needs assessment for medical translation skills from English to Arabic among medical faculties students, focusing on identifying their current proficiency levels, perceived gaps, and training requirements.

1.5 Research Hypothesis

1. Medical students at the University exhibit insufficient English-to-Arabic medical translation skills to meet the demands of clinical communication and academic study.
2. There are significant challenges related to specialized medical terminology and patient-friendly wording when students translate medical texts from English into Arabic.
3. Medical students report a high perceived need for structured training in medical translation from English into Arabic as part of their medical education.

1.6 Significance of the Study

The study is significant on several levels. First, it informs curriculum development by offering concrete evidence on whether and how medical translation skills particularly from English into Arabic should be systematically incorporated into the medical program through specialized courses, workshops, or embedded modules. Second, by uncovering gaps in students' ability to translate medical information accurately, it pinpoints weaknesses that could affect patient–physician communication, informed consent, medication use, and health education, with implications for improving overall patient safety. Third, the study supports the professional development of future physicians who will operate in linguistically diverse settings, helping universities better equip graduates to connect English-language medical knowledge with the needs of Arabic-speaking patients. Forth, it contributes to the relatively sparse literature on English–Arabic medical translation in the region, enriching work in medical education, health communication, and applied linguistics by documenting local needs and challenges. Finally, the findings offer a starting point for future interventions and research, providing baseline data that can be used to design, test, and evaluate targeted training programs over time, thereby supporting ongoing quality improvement in medical education.

2. Literature Review

The Critical Role of Medical Translation

The globalization of healthcare has created a surge in demand for translating medical research, drug information, and patient education materials. Inaccurate translation can lead to severe consequences, including medication errors and misdiagnosis (Forray et al. 2024; Tafari 2025). For Arabic-speaking populations, accessing high-quality medical care is often contingent upon the availability of accurate translations from English sources (Taibi et al. 2025).

2.1. The Unique Challenges of Medical Translation

Medical translation is a specialized branch of technical translation that requires more than bilingualism. Key challenges identified in the literature include:

Terminological Precision: Medical terminology is precise and context-dependent. Translators must navigate complex Latin and Greek roots, eponyms (e.g., Crohn's disease), and acronyms (e.g., COPD(**Chronic Obstructive Pulmonary Disease)** finding accurate equivalents in Arabic, which may not always have standardized terms (Almahasees and Husienat 2024; Alanazi 2023).

Cultural and Pragmatic Adaptation: Concepts must be adapted for the target culture. For instance, explaining "informed consent" or certain public health measures requires sensitivity to cultural and religious norms in the Arab world (Ballout 2024; Ali and Sule 2024).

Text-Type Conventions: Different medical texts (e.g., research papers, patient leaflets, clinical trial protocols) have distinct stylistic and structural conventions that must be preserved in the translation (Pilegaard 2011; Ismayilli 2024).

2.2 Challenges in Medical Translation

Medical translation requires more than bilingualism; it requires specialized knowledge of complex terminology rooted in Latin and Greek, as well as the ability to navigate cultural nuances (Almahasees and Husienat 2024). Key challenges include the lack of standardized Arabic equivalents for certain eponyms and acronyms, as well as the need to adapt culturally sensitive concepts like "informed consent" for Arab patients (Ballout 2024; Alanazi 2023).

2.3 The Training Gap

While medical students possess domain-specific knowledge that aids in understanding medical texts, they often lack the methodological rigor required for professional translation (Montalt and Gonzalez-Davies 2014). Existing

literature focuses largely on professional translators or machine translation post-editing, leaving a gap regarding the specific needs of medical students who act as ad-hoc translators in clinical and academic settings (Grimshaw et al. 2012).

3. Methodology

3.1 Study Design

A descriptive cross-sectional design is employed to capture the perceptions and practices of medical students at a single point in time.The main instrument for data collection is a questionnaire .

3.2 Study Population and Sampling

The target population consisted of medical students from the Faculties of Medicine, Pharmacy, Nursing, Medical Technology, and Dentistry at Sebha University. A stratified random sample of 44 participants (22 females and 22 males) was selected to ensure representation from both pre-clinical and clinical years.

3.3 Data Collection

Data were collected using a self-administered electronic questionnaire distributed via social media over a six-week period. The instrument was divided into four sections: demographics, translation behaviors (frequency and types of materials), perceived challenges (assessed via a 5-point Likert scale), and training needs. Ethical approval and informed consent were obtained electronically.

3.4 Data Analysis

Descriptive statistics, including frequencies and percentages, were calculated to summarize the data.

4.Results and Discussion

4.1Demographics and Language Proficiency

The study included 44 participants aged 20–29. Regarding language proficiency, 59.1% (n=25) reported intermediate English proficiency, while none achieved native-like fluency. Conversely, 47.7% reported native-level proficiency in Arabic.

Figure 1 shows the data collected on the demographic characteristics of 44 participants. The age of the students who participated in the study was between 20 and 29 years.

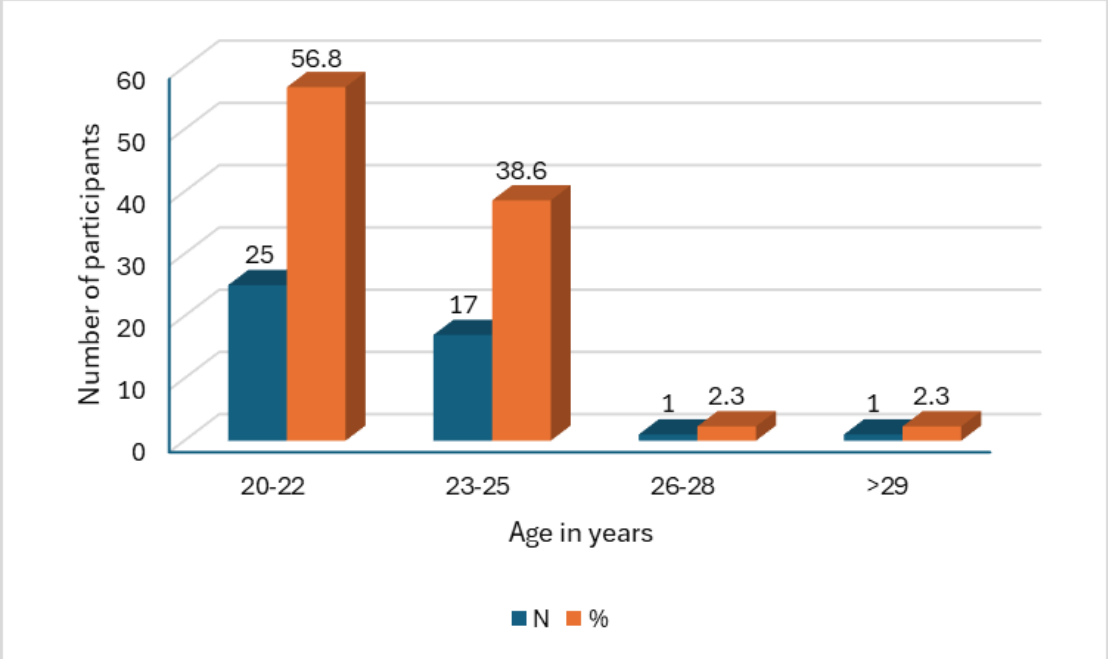

Figure 1: Participants in age and number

Figure 2 shows that the most frequently translated materials are medical textbooks and journal articles, primarily for personal understanding, with 18 (40.9%) instances. This is closely followed by the translation of lecture notes and presentation slides, which were needed 15 (34.9%). Medical reports, such as discharge summaries and lab reports, were also a common requirement, appearing 8 (18.2%). The translation of Online medical resources, including websites and apps, was noted 9 (20.5%). Other categories were less frequent, with patient information

leaflets/informed consent forms. Abstracts for conferences or publications each being required only once. An "Other" category accounted for 6 (13.6%) instances.

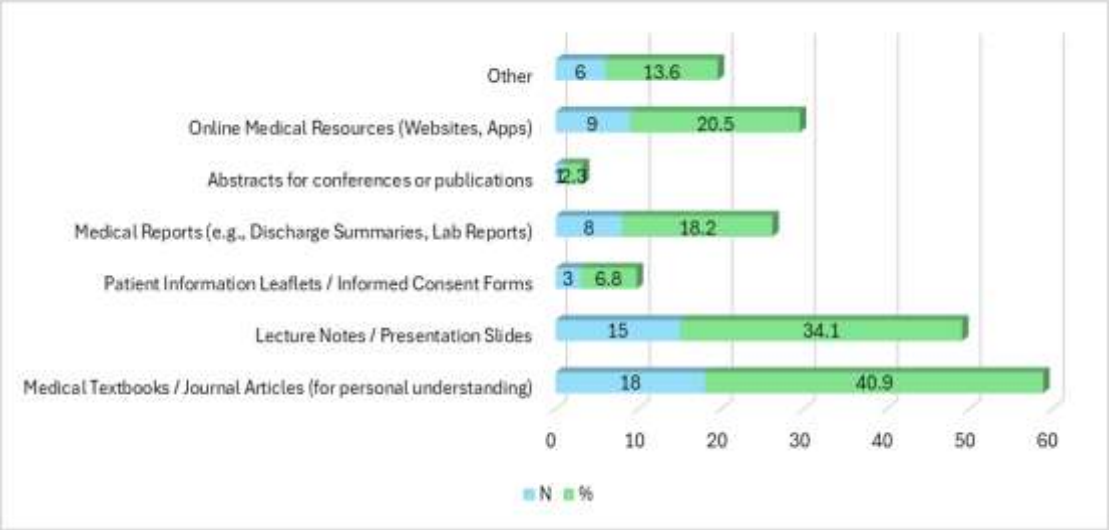

Figure *2*: Participants' responses regarding the types of materials that most frequently need to translate

Translation Practices

Translation demands were substantial, with 40.9% of respondents translating medical materials daily and 25% doing so several times a week. The most frequently translated materials were medical textbooks and journal articles (40.9%), followed by lecture notes and presentation slides.(%34.9)

Interestingly, the primary audience for these translations was the students themselves (33 responses), indicating that translation is used primarily as a learning strategy to enhance personal understanding. Translation for colleagues (6.8%) and patients (4.5%) was less frequent but present.

Challenges and Barriers

Terminology: The most significant challenge was finding accurate Arabic equivalents for English medical terms. While 43.2% rated this as a moderate difficulty (Level 3), nearly one-fifth (18.2%) reported it as considerably or extremely difficult (Levels 4-5).

Grammar and Structure: Translating complex sentence structures was rated as moderately difficult (Level 3) by 40.9% of participants.

Abbreviations: Medical abbreviations (e.g., COPD, MI) presented a moderate challenge for 34.1% of participants, likely due to the lack of standardized Arabic equivalents.

Figure 3 showed that 44 participants assessed the difficulty of translating medical abbreviations such as COPD(**Chronic Obstructive Pulmonary Disease**) and MI(**Myocardial Infarction**) from English into Arabic on a scale of 1 to 5.

34.1% of participants rated the difficulty as 3, indicating that translating and adapting the medical abbreviations was challenging. This was followed by 22.7% who rated it as 2, indicating feasibility. Meanwhile, 15.9% chose the lowest difficulty level, 1, considering the abbreviation easy to translate.

At the higher end of the difficulty scale, 13.6% rated the difficulty as 4 or 5, indicating that more than a quarter of participants struggled with the medical abbreviations. This suggests that while many participants can translate these terms with moderate effort, a significant proportion face considerable challenges, possibly due to the lack of standard Arabic equivalents for many medical abbreviations in English, and the necessary decisions regarding phonetic transcription, translation, or preserving the original form.

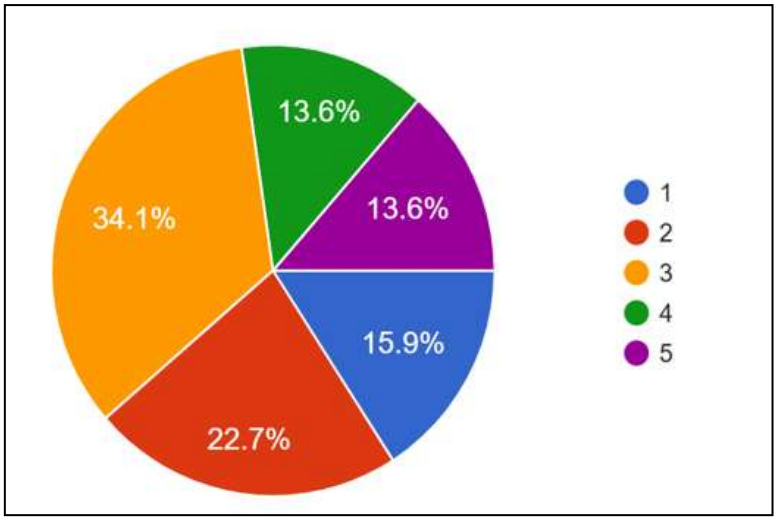

Figure *3*: Participants' responses regarding dealing with abbreviations and acronyms

Resources: A majority of participants (36.4%) viewed the lack of reliable resources (dictionaries, glossaries) as a moderate challenge, with over 25% rating it as a serious or critical problem.

Figure 4 presents the results of participants regarding the lack of reliable resources such as dictionaries, glossaries, and software. The responses reveal a spectrum of concern levels, with the majority of participants indicating moderate to significant issues. The most common response was level 3, selected by 36.4% of participants, suggesting that many view this as a moderate challenge. Level 2 was chosen by 20.5% of participants, while 15.9% selected level 1, indicating relatively lower concern. On the higher end of the scale, 18.2% of respondents selected level 4, and 9.1% chose level 5, together representing over a quarter of participants who view the lack of reliable resources as a serious or critical problem. Overall, the finding suggests that while opinions vary, a substantial portion of participants experience difficulties due to insufficient access to reliable linguistic and technical resources.

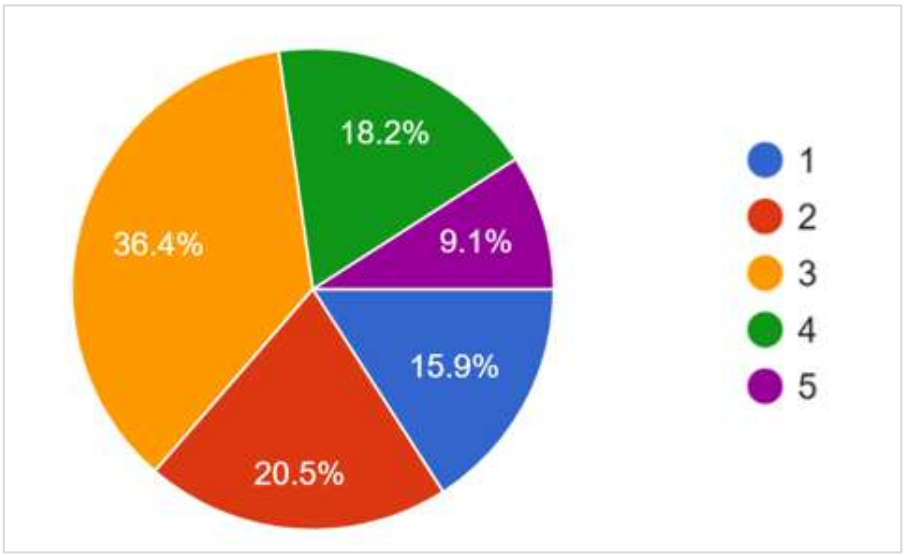

Figure *4*: Participants' responses regarding lack of reliable resources (dictionaries, glossaries, software).

Perceptions of Risk

When asked about the biggest fear associated with inaccurate translation, 50% cited potential harm to patients (e.g., incorrect medication doses), while 20% feared hindering scientific understanding.

Figure 5 displays the fear of using inaccurate medical translation. Survey responses highlight the primary fear related to inaccurate medical translation: potential harm to patients or safety concerns, such as incorrect medication doses or misdiagnoses, cited by 22(50%) participants. A smaller group of 9(20%) expressed worries that translation errors could hinder scientific understanding and research progress. Legal and professional risks were noted by 5 (11.4%) participants, who were concerned about liability or malpractice, while 3 (6.8%)

highlighted potential damage to their professional credibility. Miscommunication among healthcare professionals affecting patient care was noted by 2 participants. Additionally, 3 (6.8%) respondents indicated miscellaneous concerns, suggesting there are other nuanced risks involved .

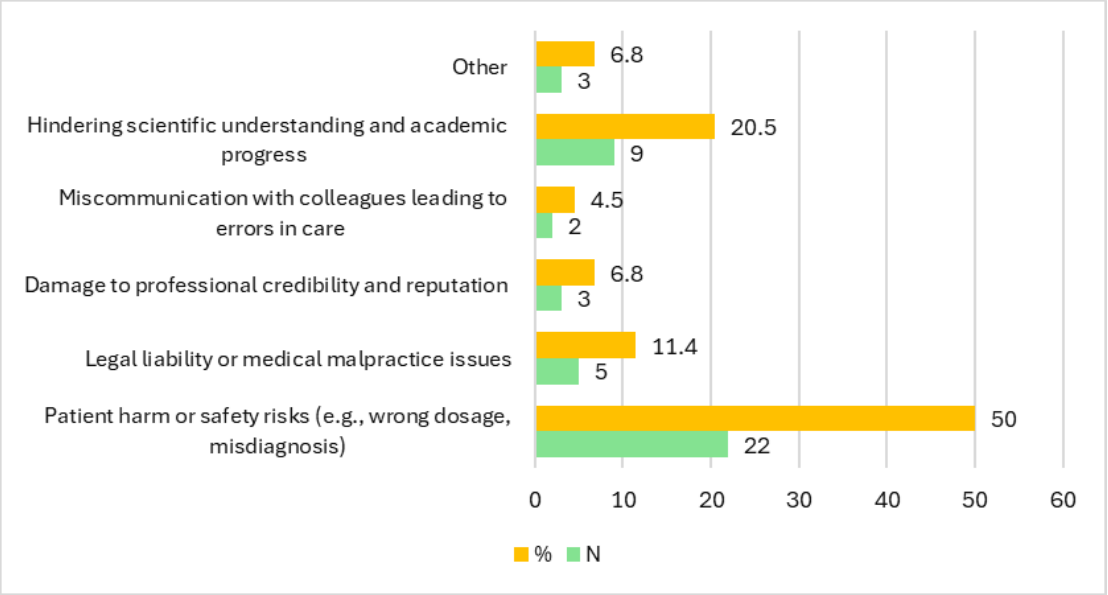

Figure 5: The fear of using inaccurate medical translation

4. Discussion

The findings reveal a paradox: medical students are frequently translating complex medical materials despite lacking advanced English proficiency and specialized training. The heavy reliance on translation for personal understanding suggests that language barriers may be hindering direct comprehension of English textbooks, forcing students to engage in cognitive labor to bridge the gap (Delfani et al. 2024).

The identification of terminology as the primary barrier aligns with existing literature on the inconsistency of scientific translation in Arabic (Almahasees and Husienat 2024). The difficulty in translating abbreviations and complex grammar highlights the structural differences between English and Arabic, necessitating targeted training beyond general language courses.

Despite the fact that medical students at Sebha University primarily translate for themselves, the high level of concern regarding patient harm (50%) suggests an acute awareness of the potential clinical consequences of translation errors. This awareness underscores the ethical imperative to equip students with better skills before they enter clinical practice.

5. Conclusion

This study confirms that medical students at Sebha University engage in high-frequency translation activities but face significant hurdles regarding terminology, resources, and structural differences between English and Arabic.Therefore, there is a significant demand for English-to-Arabic medical translation among healthcare specialists and medical students, driven by personal understanding needs rather than patient communication. Despite high proficiency in Arabic among participants, the absence of native -like English fluency creates barriers to accurate translation. The reliance on translating academic materials such as medical textbooks and lecture notes indicates that language barriers may impede access to current medical knowledge.

6.Recommendations and Limitations

6.1 Recommendations

1. Curriculum Integration: Medical faculties at Sebha University should introduce specialized training courses in English-to-Arabic medical translation focusing on terminology and syntax.

2. Resource Development: There is an urgent need for institutions to develop standardized, research-based bilingual medical dictionaries and glossaries.

3. Support Units: Universities in Libya should establish translation support units or provide access to Computer-Assisted Translation (CAT) tools designed for medical contexts to reduce the burden on students.

6.2. Limitations

The study is limited by a small sample size (n=44) and the restriction to a single university setting. Additionally, the reliance on self-reported proficiency may introduce bias. Future research should include larger sample sizes and objective assessments of translation competence.

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