
| RESEARCH ARTICLE**Translation of Arabic Folk Medical Terms with Om and Abu by AI: A Comparison of Microsoft Copilot and DeepSeek****Prof. Reima Al-Jarf***King Saud University, Riyadh, Saudi Arabia***Corresponding Author:** Prof. Reima Al-Jarf, **E-mail:** reima.aljarf@gmail.com

| ABSTRACT

Although "أم om" and "أبو abu" in Arabic literally mean "mother" and "father", they have several meanings, usages, and are used in numerous contexts. They are used in some surnames, technical expressions, metonyms, general collocations, and idioms. They are used in names of people, cities, monuments, birds, insects, fish, animals, plants, brands, names of medicines (أبو نمر Tiger balm), body organs (أم التلايف many plies), and disease names and medical conditions (أبو دغيم mumps) where they are used as a prefix and do not mean "mother". Due to their extensive use in folk medical terms, this study investigates the translation of Arabic folk medical terms containing Om and Abu by Microsoft Copilot (MC) and DeepSeek (DS) in terms of accuracy, the translation strategies they use, the causes of translation errors and whether translation students can depend on AI in translating such terms. Analysis of a sample of 205 Arabic folk medical terms containing Om- and Abu by MC and DS showed that 46% of the terms were correctly translated by MC and 66% by DS (أم الدم الأوتية primary aneurysm, أم الدم البطنية abdominal aneurysm). MC rendered more literal word-for word translations than DS (16% and 11% respectively). Here أم Om and أبو Abu were literally translated as "mother" and "father" not as a prefix. أبو الركب was translated as "father of the knees" instead of "dengue", أم التلايف "mother of folds" instead of omasum psalterium. MC and DS rendered lexical variants (synonyms) as cerebral aneurysm for أم الدم الدماغية instead of brain aneurysm. Both MC and DS rendered equivalents with a different word order from the dictionary definition (cavernous carotid aneurysm for أم الدم السباتية الكهفية instead of caroticocavernous aneurysm). AI translated folk medical terms containing أم Om & أبو Abu with lower accuracy than modern medical terms but higher accuracy rate than expressions of impossibility, Gaza-Israel war terminology, grammatical terms used metaphorically, and zero expressions which are current and commonly used by Arabic speakers. Comparisons with human translation of Om and Abu expressions, strategies used, causes of mistranslations and why DS outperformed MC in translating were made. Users need to understand how to prompt and guide AI models by specifying the context, intent, and audience and should interpret AI outputs critically.

| KEYWORDS

Folk medical terms, Om & Abu terms, AI translation, Copilot, DeepSeek, Human translation, literal translation, word-for word translation.

| ARTICLE INFORMATION**ACCEPTED:** 02 August 2025**PUBLISHED:** 20 September 2025**DOI:** 10.32996/jmhs.2025.6.4.8

1. Introduction

According to Al-Jarf (2017) and Al-Jarf (2023a), kinship terms are names or terms that a language or culture uses to describe familial or social relationships between people as father, mother, son, daughter, brother, sister, uncle, aunt and others. Specifically, kinship terms in Arabic have many denotative and connotative meanings and are used in general and specialized contexts. For example, "Om" and "Abu" literally mean "mother" and "father". In Arabic culture, parents are addressed by the name of their first/oldest child (أم سامي *Om Sami* & أبو سامي *Abu Sami*). A grandparent, a foster parent or an old person can be called أم يوسف *Om Yousef* or أبو يوسف *Abu Yousef*, out of respect. A young man who is a bachelor can be called Abu~ after his father out of respect or jokingly (أبو صالح *Abu Saleh*, أبو راشد *Abu Rashed*). Along with its lexical variants *Abi*, *Bu*, *Baa*, and *Ab*, it

is used in some surnames (أبو دياب Abu-Diab, أبي صعب Abi Saab, بايزيد Ba Yazeed, باداود Ba Dawood, بوعلام Bu Allam, أباحسين Aba Hussain), each of which is used in a different Arab country. Om and Abu are also used in proper nouns referring to people's first name (أبو هريرة Abu Huraira, أبو جهل Abu Jahl, أبو لهب Abu Lahab, أم كلثوم Om Kulthoum, أم السعد Om As-saad); and in nicknames (أبو الأيد Eyad; أم النول Om An-noal for Nawal; أم الزوز Om Ez-zouz).

Additionally, Om and Abu can mean a prototype or best example (*mother of democracies* أم الديمقراطية), origin or founder of (*father of history* أبو التاريخ, *father of medicine* أبو الطب, *mother of invention* أم الاختراع, *mother colony* مستعمرة أم), the biggest or most significant example of its kind (*the mother of all battles* أم المعارك); extraordinary in size, or intensity as in (*galaxy* أم النجوم); a person who serves or is thought of as a protector (*father of Egyptians* أبو المصريين, *the mother of all parties* أم الإمارات, *mother of all parties* أم السهرات والحفلات); and innate or native as in (*mother language* أم اللغة).

Moreover, "Om" and "Abu" appear in names of cities, places and monuments (أم قصر Om Qasr, a city in Iraq; أم درمان Om Dorman named after a woman; أم الطيور Om at-tyour, town in Syria; أبو ظبي Abu Dhabi; أبو الهول Sphinx; أبو سمبل Abu Simbel Temple in Egypt). In Colloquial Arabic, Om and Abu mean "having, possessing". For example, Om Kulthoum means a woman with chubby cheeks. They are also used to identify an unknown person by describing his/her physical appearance (أم فستان lady in black dress, أبو نظارة man wearing sunglasses).

Connotatively, Om and Abu have metonymous and figurative meanings referring to some animals (أبو زلومة "salt"; أبو صابر "elephant with a trunk", and أم عامر hyena). They are used in collocations and idioms (بأم عيني "with my own eyes"; يا رسول الله "hit him on the back of his head"; يا أبي أنت وأمي "I sacrifice my father and mother for the Prophet's sake"); to describe bad demeanor (أبو الكبر arrogant person) or good demeanor of a person (أبو الكرم a man of generosity).

Furthermore, Om and Abu are used in specialized contexts as in brand names (أبو بنت Abu Bint/Abu Walad/ Abu Kas rice). In biology, they are used in animal, plant, insect, bird, and fish names to describe a certain color, shape or characteristic (أبو robin, أبو خديج stork; أبو جلمبو crab, أبو منجل bald ibis, أبو سيف sword fish, أبو أربعة وأربعين centipede; أبو شوشة chestnut; أبو فرة naval orange; أبو صرة leek/shallots, أم علي Om Ali, أم علي Earwigs, أم الخبائث Satan; أم مرة Surat Al-Fatiha, أم الكتاب alcohol); in astronomy (أم النجوم Milky Way/the galaxy); in business (أم نهائية ultimate parent company; أم مصرف parent bank). They are extensively used in medicine, pathology, and anatomy (أم خلية metrocyte, أم الأم pia mater, أبو دغيم & أبو كعب mumps; أم التلافيف omasum) and names of medicines and ointments used in Colloquial Arabic (أبو فاس Axe brand; أبو نمر Tiger balm). When used in medical terms, أم Om & أبو Abu do not mean mother and father, rather they are used as prefixes to express the origin, or anatomical location.

Due to the multiple uses of kinship terms in general and specialized contexts, numerous studies in the literature investigated naming and kinship terms in Arabic including Om, Abu, Bint and Ibn such as kinship terms in Syrian and Palestinian Arabic (Davies, 1949); kinship terms in Kuwaiti Arabic (Yassin, 1977); meaning and usage of Arabic status and kinship terms used by common people in daily interactions (Khuri, 1981); semantic differences between "parents" and "mother and father" and their occurrence, denotative and connotative meanings in the Holy Quran (Shahrour, 1991); fictive kinship names in Jordanian Arabic (Abu-Abbas, Jarbou, Al-Kadi, Badarneh & Migdadi, 2010); Beni Khalid kinship terminology and family organisation as an example of Bedouin kinship relations in Jordan (Al-Sekhaneh, 2016); kinship terms of Tabaq in Nuba Mountains (Ismail, 2015); Arabic kinship terms revisited (Naciri-Azzouz, 2019); and kinship terms as a tool for structuring social relationships among Arabic speakers in Berlin (Panossian, 2023).

Another group of studies focused on cross-cultural comparisons of twenty kinship terms in seventeen languages, cultures and communities including Arabic, Japanese, Chinese, American English, German, French, Spanish, Russian, Hindi, Swahili, Thai, Korean, Hebrew, Italian, Turkish, Vietnamese, and Filipino (Tzeng & Others, 1975); lexical diversity in kinship across languages and dialects including Gulf, Egyptian Arabic, Levantine Arabic, Algerian, and Maghrebi Arabic and Javanese, Sundanese and Balinese in Indonesia (Khalilia, Bella, Freihat, Darma, & Giunchiglia, 2023); kinship terms vs. first names as a reflection of cognition and culture amongst American and Syrian acquaintances (Khalil, 2022); kinship terms as indicators of identity and social reality in Syrian Arabic and Hindi (Neelakshi & Amr, 2021); ethnosemantic, pragmatic, and textual aspects of kinship terms in Arabic and English discourse (Nakhilawi, 2016); the ethno-cultural aspects of Arabic, Chechen proverbs with a component showing kinship relations (Ramazanov, & Khamzatov, 2022); a contrastive analysis of kinship terms between Arabic and Indonesian Languages (Kholisin, Maulidya, Alfanz Fauzi, 2022); a contrastive study of kinship terms in English and Arabic (Al-Sahlany & Al-Husseini, 2010); and treatment of kinship terms in English and Arabic dictionaries (Al-Badawi, Al-Tarawneh, & Abu Hatab, 2024).

Further studies focused on the translation of kinship terms in the Qur'an (Thawabteh, 2012); basic-level translations of kinship terms from Standard Arabic to English (Al Saleem, 2013); the translation of family and kinship terms in Arabic societies (Mohammed, Mohammed & Qassim, 2024); and translation students' difficulties in translating Arabic Om (mother) and Abu (father), and Ibn (son) and Bint (daughter) fixed expressions to English (Al-Jarf, 2017; Al-Jarf, 2023a).

The literature review showed a dearth of studies that focus on the translation of kinship terms in general, Abu, Om and Bint expressions used in specialized domain as economics, biology, botany, zoology, astronomy, administration, banking, medicine, fish, birds, insects, animals, food, transport, and brand names, names of cities and monuments, metonyms and idioms. Therefore, this study aims to investigate translation of Arabic folk medical terms containing Om and Abu that early Arab doctors and common people used in spoken Arabic by Artificial Intelligence (AI). It aims to compare Microsoft Copilot (MC) and DeepSeek (DS) in terms of accuracy of equivalents given, whether MC and DS can identify the denotative, connotative, metonymous, figurative, idiomatic, contextual, and cultural meanings of this specific category of Arabic folk medical terms, the translation strategies they use, the causes of translation errors and whether translation students can depend on AI such as MC, DS, Gemini and other AI tools/assistants in translating folk medical terms.

The word أم Om in the folk medical terms collected and analyzed in the current study does not carry the literal meaning of "mother." Instead, it is used as a prefix to express the concept of a center, origin, or the main thing from which something else branches out. For example, the term الأم الجافية *dura mater* refers to the thick outer membrane that covers the brain and spinal cord. It is considered the "mother" or the foundational layer that protects the nerves.

Although folk medical terms were common in the past, they are now considered colloquial or historical and are not used in official medical reports or scientific research. The use of modern and precise terminology is currently preferred, such as تمدد أم الدم *aneurysm* instead of أم الدم *aneurysm*; أم الجافية *dura mater* is still used in some academic circles but it is less common in daily clinical reports; السحايا التهاب *meningitis* instead of أم الدماغ - a historical term. The use of modern scientific terminology ensures the accuracy of information and facilitates communication between doctors and researchers around the world. However, despite their antiquity and lack of practical use in modern medicine, the study of folk medical terms is significant for historical, cultural, linguistic, and educational reasons which are explained below.

First, folk medical terms represent an important stage in the development of medical science, that relied on the prevalent metaphorical and figurative descriptions. Studying these terms allows us to trace how ancient physicians (such as Ibn Sina, Al-Razi, and others) understood the human body and diseases. A term such as أم الدم *"aneurysm"* is a literal translation of the Latin *"Mater Sanguinis."* This sheds light on how medical knowledge was transmitted between civilizations (Greek, Roman, and Arabic) and how Arab scholars dealt with the translation and Arabization of terms.

Secondly, many terms containing أم Om reflect the rhetorical and figurative approach of ancient medical nomenclature, such as أم الدم (an aneurysm) and أم الطفر *matris unguis*, أم التلافيف *omasum psalterium*. Documenting these terms contributes to preserving the terminological memory of Arabic medicine and reveals the patterns of translation and Arabization that prevailed in different eras. Additionally, some terms, such as أم الدم *"(aneurysm of blood)"* are still in use, while others, such as "أم التلافيف" *(an aneurysm or "umm الطفر,"* may be inaccurate or metaphorical translations. Studying these terms helps distinguish accurate scientific translations from those that need revision or replacement.

Thirdly, this research article has a linguistic value. It shows folk medical term formation and highlights how folk medical terms containing "أم mother" are not used literally, but rather express origin, or anatomical location. In all the medical terms containing أم om in the current study, أم om is used as a prefix, not the noun "mother". This unique linguistic phenomenon shows how everyday words (such as "father," "mother," and "son") are employed to create technical terms. This is part of terminology. This linguistic phenomenon in Arabic paves the way for teaching the relationship between language and medical function with precision and awareness. Similarly, this study shows that ancient Arabic medical terms are full of metaphors. أم الدم borrows the concept of "mother" as the source, origin, or incubator of something (*blood* in this case). Studying these metaphors reveals cultural perceptions of the body and disease.

Fourth, this study has cultural and anthropological interest. Some of the folk medical terms reported in the current study, are still alive in everyday popular discourse. Understanding their origins helps bridge the gap between modern medical knowledge and popular thinking. It can help healthcare professionals better understand how patients perceive and communicate with medical conditions.

Moreover, this study is documenting and cataloguing a piece of Arabic linguistic and scientific heritage that may be lost over time. It could feed into a project to update medical dictionaries, categorizing terms into those currently in use, old, metaphorical or inaccurate. Since the terms herein were taken from Al-Maany English-Arabic Medical Dictionary, this study can contribute to the development of modern Arabic medical dictionaries and whether it is feasible to depend on AI translation of folk medical terminology.

In terms of medical education and communication, this study will help improve communication between physicians and patients. Many patients, especially the elderly or those in rural areas, may know the term أبو دغيم instead of *mumps*, and أبو عضلات instead of *Radian massage cream*, so a physician's familiarity with these popular synonyms would help them understand the patient's complaint accurately and which medications they are using. They would be able to explain the condition to the patient using familiar terms first, then gradually transitioning them to the correct scientific term, which enhances confidence and understanding.

Furthermore, results of the current study can be transformed into educational tools, such as comparison tables between Arabic and Latin terms, cases of mistranslation and their clinical impact, and examples of medical nomenclature, enhancing terminological awareness among students and researchers.

Finally, this study will build a framework that will help users understand what AI can and cannot do. Students will learn how to prompt, interpret, and critique AI outputs and researchers will see where linguistic nuance breaks down in automated translation.

2. Definition of Terms

2.1 Microsoft Copilot

Copilot¹ is an AI-powered assistant developed by Microsoft, built on large language model (LLM) technology and enhanced by the Prometheus framework. It was originally launched as Bing Chat on February 7, 2023. Since then it has evolved into Microsoft Copilot, expanding across platforms including Edge, and mobile. It serves as Microsoft's primary successor to Cortana, offering a more advanced and versatile interface that resembles tools like ChatGPT, but with deeper integration into Microsoft's ecosystem. It is a general-purpose conversational AI designed to assist users with writing, research, translation, image analysis, and workflow optimization and allows users to analyze and interpret images and documents, generate creative visuals and engage in spoken dialogue and visual analysis. Today, Copilot is embedded in Windows 11 and Microsoft 365, where it assists with tasks such as summarizing, drafting documents, and analyzing spreadsheets.

2.2 DeepSeek

DeepSeek² (DS) is a Chinese AI research company that was founded in 2023 and has since released several AI models, including DeepSeek-V3 and R1, which are available for users for free. DS provides open-source LLMs that operate using advanced neural networks and machine learning algorithms to power its language processing capabilities. Its open-weight philosophy, cost-efficiency, and rapid innovation have positioned DeepSeek as a disruptive force in the global AI landscape, challenging dominant players like OpenAI and Meta. DS algorithms enable its models to adapt, process, and generate text with high accuracy and efficiency. Its neural systems are designed to enhance text understanding, generation, real-time processing and decision-making, making DeepSeek's systems offer a scalable and high-performance alternative that appeals to businesses and developers and researchers.

3. Data Collection and Analysis

A sample of 205 Arabic folk medical compound terms containing أم Om and أبو Abu was collected from Almaany Bilingual Medical Dictionary and Alwaseet Online Dictionary, in addition to the author's own collection. Folk medical terms with أم الدم together (aneurism) constituted 47% of the sample, 45.5% are compounds with أم Om (literally mother), those with أبو Abu (literally father) constituted 6%, and 1.5% contained بنت/بنات *bint/banat* (literally daughter/daughters).

To be included in the sample, all the terms have to be compounds as in: الأم الجافية (*Dura mater*), الأم الحنون (*Pia mater*), أم الدم الأبهريّة (*intrathecal*), داخل الأم الحنون (*epidural*), فوق الأم الجافية (*subdural*), تحت الأم الجافية (*Arachnoid mater*), العنكبوتية (*aortic aneurysm*), أم الدم العنقودية الشكل (*pseudoaneurysm*), أم الدم الكاذبة (*cerebral aneurysm*), أم الدم الدماغية (*arteriovenous aneurysm*), أم الدم الوريدية الشريانية (*dissecting aneurysm*), أم الدم التسلخية (*aneurysm repair*), رأب أم الدم (*aneurysm repair*), استئصال أم الدم (*myeloblast*). Explanations or descriptions of medical conditions in which أم Om is not used as a prefix but means "mother" as

¹ <https://copilot.microsoft.com>

² [DeepSeek AI](#)

الأم مشكلات صحة *maternal health conditions*, الحالات الطبية لدى الأم *maternal-fetal medicine specialist*, اختصاصي طب الأم والجنين *maternal health problems*, مَوْرُوْثٌ مِنَ الْأُمِّ *matriclinous*, نَسْلٌ مِّنْ سُلْبِ الْأُمِّ *matrilineal*, تَنَسُّلٌ عَلَى الْأُمِّ *metaxenia*, تَصْنُوِيْزُ رَأْسِ الْجَنِيْنِ وَخَوْضُ الْأُمِّ *mother to child transmission*, النقل من الأم إلى الطفل *mother- baby package*, مَضْمُوْمَةُ الْأُمِّ وَالْطِّفْلِ *pelvicephalography*, قَبَاسُ رَأْسِ الْجَنِيْنِ وَخَوْضُ الْأُمِّ *pelvicephalometry*, من الجنين إلى الأم *retroinfection* were not included. Similarly, long stretches of medical discourse in which أم means “mother” and is not used as a prefix were excluded as in: رعاية *care of woman and her child during normal pregnancy child birth and puerperium*; رعاية الأم أثناء الحمل غير الطبيعي والتوليد *care of woman during abnormal pregnancy childbirth and ouerperium*; رعاية fetus and الجنين والوليد بمضاعفات الحمل فى الأم *family-centered maternity newborn care*; والوليد المرتكزة على العائلة *newborn affected by maternal complications of pregnancy*.

The word أم contained in the folk medical terms in the sample is used as a prefix, and does not mean mother. It refers to a balloon-like bulge that occurs in the wall of an artery due to a weakness in the wall, which can lead to a rupture and dangerous bleeding. For example, the term “أم الدم” is a literal translation of the ancient Latin term “*mater sanguinis*.” This term is used in some Arabic medical contexts, but it is not considered part of modern, official medical terminology. In formal Arabic, this condition is known as تمدد الأوعية الدموية or “aneurysm.”

Most medical terms containing “أم” in the sample, except for a few anatomical terms like الأم الجافية, are now considered folk or colloquial terms that originated from historical or archaic medical language. Their usage has shifted from the professional sphere to the public one. For example, Arabic speakers, especially uneducated individuals and those who live in the countryside, still use أبو كعب *axe brand*, أبو فاس *radian massage cream*, أبو عضلات *jaundice*, أبو صفار *mumps*, أبو دغيم *croup*, أبو خانوق *dengue*, أبو الزَّكَب *mumps*, أبو كعب *mumps*, أبو نمر *tiger balm*, بنت الأذن *tonsils*, أبو الطب العربي الرازي *father of arabic medicine*, أبو الطب أبوقراط *father of medicine* are still used in Standard Arabic, but most of the terms in the sample are absent from modern medical textbooks, official diagnoses, and scientific research papers. A doctor would never write “أم الدم” on a patient's chart; they would write “تمدد الأوعية الدموية” or “أنوريِزم”. They often use metaphorical or literal, non-scientific language as أم الدم to describe a *bulging aneurysm*. They are not standardized. They are direct translations or carryovers from ancient medical traditions - Greek, Latin, Medieval Arabic medicine. While they were once part of the formal medical lexicon, they have been replaced by more precise, modern scientific terminology. Their use today is a relic of the past. While their origin is ancient, calling them “ancient medical terms” in a formal sense, might be slightly misleading. In their own time, within the context of Medieval Arabic medicine, a term like “أم الدماغ” might have been the standard term. However, in the context of *modern* medicine, they are considered outdated. These terms survive primarily in everyday spoken language, not in professional medical practice. They are used by people who may not know the technical term, often to describe a condition in a way that is vivid and memorable within the culture.

All the medical folk terms in the sample were translated by MC and DS and were marked by the author. To be marked correct, each Om and Abu term had to be translated either by a correct English equivalent term or by an explanation if equivalents are absent. To find out the strategies that MC and DS used in translating folk medical terms in the sample, mistranslations were compiled and subjected to further analysis. The percentage of terms translated correctly, those for which MC and DS gave literal translations, transliterated equivalent, an explanation, different wording, a synonym (a variant lexical item), and a faulty derived form were calculated for MC and DS separately.

Inter-scorer reliability was calculated by having a colleague who taught translation mark a sample of responses given by MC and DS and by comparing both analyses. There was a 95% agreement between the two scorers. Disagreements were solved by discussion. Correct translation equivalents rendered by both MC and DS are reported quantitatively and qualitatively.

4. Results

4.1 Percentage of Correct Translation

Data analysis showed that 46% of the folk medical terms in the sample were correctly translate by MC compared to 66% by DS. Examples of folk medical terms correctly translated by both MC and DS are: إبرة أم الدم *aneurysm needle*, أبو الطب العربي الرازي *father of Arabic medicine: al Razi*, “أبوقراط أبو الطب: *father of medicine: Hippocrates*”, استئصال أم الدم *aneurysmectomy (surgical removal of an aneurysm)*, الأم الجافية *dura mater*, الأم الجافية *spinal dura mater*, الأم الخنوق *spinal pia mater*, الأم الخنوق *cranial pia mater*, الأم الخنوق *pia mater*, الأم الخنوق *axillary aneurysm*, الأم الخنوق *aortic aneurysm*, الأم الخنوق *abdominal aneurysm*, الأم الخنوق *primary aneurysm*, الأم الخنوق *tubular aneurysm*, الأم الخنوق *ventricular aneurysm*, الأم الخنوق *atherosclerotic aneurysm*, الأم الخنوق *spontaneous aneurysm*, الأم الخنوق *serpentine aneurysm*, الأم الخنوق *lateral aneurysm*, الأم الخنوق *acute aneurysm*, الأم الخنوق *orbital aneurysm*, الأم الخنوق *true aneurysm*, الأم الخنوق *pelvic aneurysm*, الأم الخنوق *miliary aneurysm*.

أم الدم الشريانية الوريدية *syphilitic aneurysm* أم الدم الزهرية *traumatic aneurysm* أم الدم الرضحية *varicose aneurysm* الدوالي
 أم الدم العنكبوتية المنشأ *embolic origin* أم الدم الصمغية المنشأ *thoracic aneurysm* أم الدم الصدرية *silent aneurysm* أم الدم الصامتة *arteriovenous aneurysm*
 أم الدم القلبية *cardiac aneurysm* أم الدم الغشائية *mycotic aneurysm* (أم الدم العدوائية) أم الدم الفطرية الشكل *aneurysm*
 أم الدم المحيطية *non surgical aneurysm* أم الدم الجراحية *renal aneurysm* أم الدم الكلوية *pseudoaneurysm* (أم الدم الكاذبة)
 أم الدم المغزلية *fusiform aneurysm* أم الدم المختلطة *mixed aneurysm* أم الدم المتخلطة *peripheral aneurysm*
 أم الدم تحت التائي *rasmussen aneurysm* أم الدم بخشب راسموسين *bött aneurysm* أم الدم بخشب بوت *venous aneurysm* أم الدم الوريدية
 أم الدم فوق *intracranial aneurysm* أم الدم القحف *intrathoracic aneurysm* أم الدم داخل الصدر *subclinoide aneurysm* أم الدم السريبي
 أم دم بيرى *abdominal aortic aneurysm* أم دم الأبر البطنى *arachnoid mater* أم الدم العنكبوتية *suprasellar aneurysm* أم الدم فوق
 أم الدم العنقودية *breast milk substitutes* بدائل لبن الأم *false aneurysm* أم دم كاذبة *aneurysm* أم الدم *arterial dilation* (أم الدم كيس)
 أم الدم كيس *aneurysmoplasty* (إصلاح جراحي لأم الدم)

Additional folk Arabic medical terms that were correctly translated by DS only but not MC were: *herniating aneurysm* أم الدم الإنفصالية
infectious aneurysm أم الدم العدوائية *berry aneurysm* أم الدم التوتية الشكل *aortic aneurysm wiring* إنسلاك أم الدم الأبرية
phantom aneurysm أم الدم الشبحية *mural aneurysm* أم الدم الجدارية *ectatic aneurysm* أم الدم التوسعية *cranial dura mater* الأم الجافية الدماغية
intra-cavernous aneurysm أم الدم داخل الكهف *venous aneurysm* أم الدم الوريدية *saccular aneurysm/cystic aneurysm* أم الدم الكيسية
leptomeningitis التهاب الأم الخنون *false aneurysm* أم دم كاذبة *nursing mother* الأم المرضعة *pia mater* الأم الرقيقة
stem cell أم خلية *mother cyst* كيسة أم *supra-pial* فوق الأم الخنون *endo-aneurys-morrhaphy* رفقو أم الدم من الداخل *breast milk*

4.2 Literal Translation & Explanation

MC gave literal word-for-word translations to 16% of the folk medical terms in the sample compared to 11% by DS, where أم Om was translated to "mother" and أبو Abu to "father", not as a suffix. Moreover, MC gave explanations to 18% of the terms in the sample as opposed to 10% by DS. Examples of literal word-for-word translations given by MC only are:

- daughter of the ear" instead of *tonsils*.
- daughters of the bellies instead of *intestines*.
- daughters of the viscera instead of *intestines*.
- mother cell of *microspores*.
- um al Laban (literally mother of Milk).

Further examples where MC gave a literal word-for-word equivalent (surface meaning) and an explanation that shows failure to understand the underlying meaning and faulty identification of the context in which the terms are used are:

- father of the knees" (colloquial name for rheumatism or **joint pain**) instead of "dengue".
- father of choking" (colloquial name for diphtheria or **throat infection**) instead of "croup".
- father of diarrhea" (colloquial term for **gastrointestinal** upset) instead of "chicken pox".
- father of muscles" (nickname for someone muscular or a **muscle** related condition) instead of "Radian massage cream."
- father of the axe" (colloquial name for **headache**, especially **migraine**) instead of "Axe brand ointment".
- father of the heel" (folk term for **heel** pain or inflammation) instead of *mumps*.
- father of the ankle" (likely a folk term for ankle related pain or **swelling**) instead of "mumps".
- father of tiger (could be a nickname for camouflage patterned ointments or a strong person; not a medical term per se) instead of "Tiger balm".
- mother of folds (general term, possibly anatomical or textile metaphor). Here MC failed inferred the wrong context in which the term is used.
- mother of folds, cotton like convoluted or layered (possibly describing rumen texture) which shows failure to identify the context in which it is used.
- agricultural wet nurse (possibly metaphorical or veterinary context) rather than foster mother. Here MC associated the medical term with the underlying meaning.
- mother braid = aster (possibly a primary or central braid in textile or anatomical metaphor). MC associated the term with the wrong context.

By contrast, DS gave correct English medical equivalents followed the literal meaning of the folk medical terms containing "mother":

- sporoblast (mother cell of small spores)
- arachnoid mater (lit. the spider mother)
- pia mater (lit. the tender mother)

- بنات البطن a term for various internal organs or the intestines (lit. **daughters** of the bellies)
- بنات الحشا the bowels, the intestines (lit. **daughters** of the belly/abdomen)

In few examples, MC gave a literal word-for-word equivalent (surface meaning) and an explanation that shows a correct understanding of the underlying meaning as in:

- أبو دغيم **"father of Dugheim"** (colloquial name for **mumps**) which is a correct underlying meaning.
- أبو صفار **"father of yellowing"** (colloquial name for **jaundice**).
- أم الرأس **"mother of the head"** (the **brain**). Here MC gave a correct inference.
- الأم القاسية **tough mother** (literal), likely dura mater in poetic or metaphorical phrasing. Although it gave the correct equivalent 'dura matter', it failed to connect it with the medical context.

In another set of folk medical terms, MC gave correct English medical equivalents followed by a correct explanation of the term:

- أبو الطب العربي father of Arabic medicine – al razi" (honorific title for Al Razi, a pioneering Persian physician and philosopher).
- أبو الطب: أبقراط father of medicine: Hippocrates" (refers to Hippocrates, the ancient Greek physician considered the founder of western medicine).
- أم الدم الأمبولية السَّكُل sacular (embolic shaped) aneurysm (aneurysm with a sac-like shape, often associated with embolic events).
- أم الدم البَطْنِيَّة (في الأَهر البطني) abdominal aneurysm (in the abdominal aorta) (clarifies the location of the aneurysm within the abdominal aorta).
- أم الدم الحادَّة acute aneurysm (a rapidly developing or symptomatic aneurysm requiring urgent care).
- أم الدم الأَهر البَطْنِي abdominal aortic aneurysm (a bulging or dilation in the abdominal section of the aorta).
- أم الدم لَغَطْ aneurysmal murmur (a vascular murmur or bruit heard over an aneurysm site, often during auscultation).
- إبرة أم الدم aneurysm needle (likely refers to a needle used in procedures involving aneurysm treatment or diagnosis).

Similarly, DS gave correct English medical equivalents followed by a correct explanation of the roots and suffixes in the English medical terms as in the following:

- أم التلافيف omasum (third stomach of ruminants)
- أم التلافيف / قطنة ذات التلافيف omasum (the many-plied/pileated stomach)
- أم الدم الدَّوَالِيَّة الشَّكْل = أم الدم العُنُقُودِيَّة الشَّكْل racemose aneurysm (cluster-shaped aneurysm)
- أم الدم الشَّيْزَان اللَّامَسَمَى / أم دم الجذع العَضْدِي الرَّأْسِي aneurysm of the innominate artery (brachiocephalic trunk aneurysm)
- أم مُرَضِع زراعية foster mother (wet nurse)
- أم الخنون الَّتِيهَاب الأم الخنون leptomeningitis (inflammation of the pia mater)
- شريان الأم the main artery (often refers to a major supplying vessel)
- فوق الأم الخنون suprapial (above the pia mater)
- فيروس أ أم فيروس influenza a virus (common context for أ فيروس).

4.3 Lexical Variants

Use of lexical variants (synonyms) to the equivalents used in the dictionary were used in 18% of the folk medical terms by MC and 10% by DS such as *cerebral* instead of *brain*, *osseous* instead of *osteo*, *saccular* for *cirroid*, *penile* for *phall*, *primary spermatogonium* for *primary spermatocyte*. Identical lexical variants given by both MC and DS are shown in Table 1. Lexical variants given by MC only but not DS are given in Table 2, and Lexical variants given by DS only are given in Table 3.

Table 1: Identical Lexical variants by both MC and DS

Lexical Variants Given by MC	DS Lexical variants Given by DS	Dictionary Equivalent
أم الدم الدِّمَاغِيَّة cerebral aneurysm	أم الدم الدِّمَاغِيَّة cerebral aneurysm	brain aneurysm
أم الدم العَظْمِيَّة osseous aneurysm (bone related aneurysm)	أم الدم العَظْمِيَّة osseous aneurysm (aneurysm within bone)	osteoaneurysm
أم الدم العُنُقُودِيَّة، دَالِيَّة كَرَزِيَّة sacular aneurysm, cherry like varix	أم الدم العُنُقُودِيَّة / دَالِيَّة كَرَزِيَّة sacular aneurysm / cherry dilator	cirroid varix (racemose aneurysm)
أم الدم الفُضِيْبِيَّة penile aneurysm	أم الدم الفُضِيْبِيَّة penile aneurysm	phallaneurysm
أم الدم المَوجِبِيَّة الخَلْقِيَّة congenital brain	أم الدم المَوجِبِيَّة الخَلْقِيَّة congenital cerebral	congenital cerebral aneurysm

aneurysm	aneurysm	
جُيُوبُ الأَمِّ الجَافِيَّةُ dural sinuses	جُيُوبُ الأَمِّ الجَافِيَّةُ dural sinuses	sinus dura matris; sinus durae matris

Table 2: Lexical variants (Synonyms) with same meaning as the dictionary equivalent by MC only

MC Lexical Variants	Dictionary Equivalent
• الأَمُّ الجَافِيَّةُ الدِّمَاغِيَّةُ cranial dura mater	dura mater encephali; dura mater of brain
• الأَمُّ الدِّمُ التَّوسُّعِيَّةُ expansive aneurysm	ectatic aneurysm
• الأَمُّ الدِّمُ الجِدَارِيَّةُ parietal aneurysm	mural aneurysm
• الأَمُّ الدِّمُ الشَّجِيَّةُ ghost aneurysm	phantom aneurysm
• الأَمُّ الدِّمُ العُنُقُودِيَّةُ الشَّكْلُ saccular (berry shaped) aneurysm	racemose aneurysm
• الأَمُّ الدِّمُ الكَيْسِيَّةُ cystic aneurysm / encysted aneurysm	saccular aneurysm sacculated aneurysm
• الأَمُّ الدِّمُ الْوَرِيدِيَّةُ venous aneurysm	phlebangioma / venous aneurysm
• الأَمُّ الدِّمُ دَاخِلَ الْكَهْفِ cavernous aneurysm	intracavernous aneurysm
• الأَمُّ الرَّقِيقَةُ arachnoid mater (the delicate middle meningeal layer)	pia mater
• الأَمُّ الْمَرْضِعَةُ nursing mother	lactating mother
• الأَمُّ دَمٌ كَاذِبَةٌ false aneurysm (pseudoaneurysm)	pseudoaneurysm
• الأَمُّ التَّهَابُ الأَمِّ الْخَنُونُ pia mater inflammation (pachymeningitis or leptomeningitis depending on context)	piitis
• حَلِيبُ الأَمِّ breast milk	human milk; mother's milk
• رَقْفُ أَمِّ الدِّمِ مِنَ الدَّاخلِ endovascular aneurysm repair	endoaneurysmorrhaphy ancursymoplasty
• قَوْقُ الأَمِّ الْخَنُونُ above the pia mater	epipial
• فَيْرُوسُ أُمِّ maternal virus (possibly referring to a virus transmitted from mother to child)	mamavirus
• مُسْتَعْمَرَةُ أُمِّ parent colony	mother colony

Table 3: Lexical Variants (Synonyms) Given by DS only

DS Lexical Variants	Dictionary Equivalent
أَمٌّ جَدِيلَةٌ mother coil	mother wreath
أَمٌّ هَرِيرٌ aneurysmal murmur/hum	aneurysmal thrill

4.4 AI Equivalents with a Different Word Order from the Dictionary Equivalents

MC and DS rendered equivalents with a different word order from the dictionary equivalent (11% & 3.5% respectively) as in cavernous carotid rather than carotocavernous, pulmonary arteriovenous rather than arteriovenous pulmonary (See Table 4).

Table 4: Use of Different Word Order/Wording by MC & DS

MC Wording	DS Wording	Dictionary Equivalent
أَمُّ الدِّمِ السُّبَابِيَّةُ الْكَهْمِيَّةُ cavernous carotid aneurysm	أَمُّ الدِّمِ السُّبَابِيَّةُ الْكَهْمِيَّةُ - cavernous carotid aneurysm	carotocavernous aneurysm
أَمُّ الدِّمِ السُّبَابِيَّةُ الْوَرِيدِيَّةُ الرِّئَوِيَّةُ arteriovenous pulmonary aneurysm	أَمُّ الدِّمِ السُّبَابِيَّةُ الْوَرِيدِيَّةُ الرِّئَوِيَّةُ - arteriovenous pulmonary aneurysm	arteriovenous pulmonary aneurysm
أَمُّ الدِّمِ السُّبَابِيَّةُ الصَّغِيرَةُ mother cell of microspores	أَمُّ الدِّمِ السُّبَابِيَّةُ الصَّغِيرَةُ sporoblast (mother cell of small spores)	microspore mother cell megaspore mother cell
أَمُّ الدِّمِ السُّبَابِيَّةُ الْخَنُونُ spinal dura mater and thecal sac	أَمُّ الدِّمِ السُّبَابِيَّةُ الْخَنُونُ / الْقَرَابُ الْخَنُونُ spinal dura mater / the dural sheath of the spinal cord	theca medullare spinalis (dura mater of the spinal cord)
أَمُّ الدِّمِ السُّبَابِيَّةُ حَاضِيَةٌ stem cell, nurturing cell	أَمُّ الدِّمِ السُّبَابِيَّةُ حَاضِيَةٌ / خَلِيَّةٌ خَاضِيَةٌ stem cell / progenitor cell	brood cell (mother cell)
أَمُّ الدِّمِ السُّبَابِيَّةُ رَقْفٌ aneurysm suturing or patching	أَمُّ الدِّمِ السُّبَابِيَّةُ رَقْفٌ - aneurysm suture	aneurysmorrhaphy
أَمُّ الدِّمِ السُّبَابِيَّةُ دَمٌ جَيْبُ الْأَنْهَرِ aneurysm of the aortic sinus	أَمُّ الدِّمِ السُّبَابِيَّةُ دَمٌ جَيْبُ الْأَنْهَرِ - aneurysm of the aortic sinus	aortic sinusal aneurysm
أَمُّ الدِّمِ السُّبَابِيَّةُ لَغَطٌ aneurysmal murmur	أَمُّ الدِّمِ السُّبَابِيَّةُ لَغَطٌ - aneurysmal bruit/murmur	aneurysmal bruit
أَمُّ الدِّمِ السُّبَابِيَّةُ الْبَاقِيَّةُ bacterial origin aneurysm	أَمُّ الدِّمِ السُّبَابِيَّةُ الْبَاقِيَّةُ - mycotic aneurysm (bacterial-origin aneurysm)	bacterial aneurysm mycotic aneurysm
أَمُّ الدِّمِ السُّبَابِيَّةُ السُّبَابِيَّةُ pia mater of the spinal	---	spinal pia mater

cord		
أم الدم المِجْهَرِيَّةُ السَّكَّرِيَّةُ microscopic diabetic aneurysm	---	diabetic microaneurysm
أم الدم المَحْيِيَّةُ brain aneurysm	---	cerebral aneurysm
أم الدم المَزْكِبَةُ complex aneurysm	---	compound aneurysm
أم الدم النَّاجِئَةُ عَنِ الْجَرِّ traction induced aneurysm	---	traction aneurysm
أم الدم بَضْعُ aneurysm incision	---	aneurysmotomy
أم الدم تَصَوِيرُ aneurysm imaging	---	aneurysmography
أم الدم الأَمْبُولِيَّةُ الشَّكْلُ ampullary aneurysm	---	ampullary aneurysm
أم الدم دَالِيَّةُ varix of the aneurysm (possibly describing a dilated vein associated with an aneurysm)	---	aneurysmal varix (aneurysmoid varix)
أم الدم نَفْحَةُ aneurysmal bruit	---	aneurysmal murmur

5.4 Faulty Derivative

MC and DS gave faulty derivative as in using *herniated* by MC and *herniating* by DS instead of *hernial* in the medical dictionary; *infectious* by both instead of *infected*; and *vermicular* by DS instead of *verminous* by in medical dictionary (See Table 5).

Table 5: Examples of Faulty Derivatives Used by MC and DS

MC	DS	Dictionary Equivalent
أم الدم الإِنْفِثَائِيَّةُ herniated aneurysm	أم الدم الإِنْفِثَائِيَّةُ herniating aneurysm	hernial aneurysm
أم الدم العَدَوَائِيَّةُ infectious aneurysm	أم الدم العَدَوَائِيَّةُ infectious aneurysm	infected aneurysm
أم الدم الِدِيدَانِيَّةُ worm aneurysm	أم الدم الِدِيدَانِيَّةُ vermicular aneurysm	verminous aneurysm (worm aneurysm)

6.4 Use of Variant Transliteration

In few examples, MC and DS transliterated أم into Um al Laban by MC; *Quénu Muret* was transliterated *Keen Murray* by MC and *Keen-Moynihan* by DS; *Collis* instead of *Colles* by MC (See Table 6).

Table 6: Variant Transliterations Given by MC and DS

Arabic Folk Medical Terms	Dictionary Equivalent	MC	DS
أم اللبن	Wolf's milk	أم اللبن Um al Laban (literally "mother of Milk")	---
عَلَامَةُ كِينُو موريه في أم الدم	Quénu Muret sign	في أم الدم (عَلَامَةُ كِينُو موريه) Keen Murray sign (in aneurysm)	عَلَامَةُ كِينُو - موريه (في أم الدم) - Keen-Moynihan sign (in aneurysm)
أم كُولِيْس	Colles' mother	أم كُولِيْس Collis aneurysm (possibly a named variant; context needed)	أم كُولِيْس - Anopheles mosquito (genus <i>Anopheles</i>)

7. Discussion

7.1 Comparison of AI and Human Translation of Om and Abu Expressions

Findings of the current study revealed that MC gave correct responses to 46% & DS gave correct responded to 66% of the folk medical expressions in the data. Compared to human translators, MC and DS performed better in translating medical expressions with Om and Abu than translation students. In prior studies by the author (Al-Jarf, 2017, Al-Jarf, 2023a), student translators could translate less than 20% of the أم Om & أبو Abu expressions on the test correctly. They left many items blank, and literal translation was the most common strategy. Arabic and English expressions that are similar such as "*Mother of invention*", "*father of medicine*" were easy to translate by the students. But those where there is no on-to-one correspondence between Arabic expressions and their English equivalents were difficult to translated. Regarding ابن *son* and بنت *daughter* expressions, student-translators translated fewer than 13% of the Arabic test items and 12% of the English test items correctly and left 75% blank. *Son* and *daughter* expressions similar in both languages were easy to translate (*like mother like daughter*), whereas opaque ones (بنت الشفة), culture-specific ones (بنت أبيها) and those requiring a specialized

background knowledge were difficult for the students to translate (*daughter board*). Extraneous translation, paraphrase, literal translation, use of synonyms, transliteration of Arabic words, partial translation, and giving the same translation for different expressions were the most common strategies used by students. The students had semantic and syntactic difficulties. MC and DS did not leave any items blank. Like students, the most common translation strategy used by AI was literal word-for-word translation. Both MC and DS understood the meaning of most folk medical terms containing Om, Abu and Bint/Banat in the sample, but in some cases, they failed to match the Arabic source term with its corresponding English equivalent.

Likewise, student translators were poor and had difficulties in translating other types of metaphorical expressions as numeral-based formulaic expressions (Al-Jarf, 2023b); time metaphors (Al-Jarf, 2023c); dar (house) and bayt (home) expressions (Al-Jarf, 2022a); polysemes (Al-Jarf, 2022b); common names of chemical compounds (Al-Jarf, 2022d); word + preposition collocations (Al-Jarf, 2022lb); color-based metaphorical expressions (Al-Jarf, 2019); binomials (Al-Jarf, 2016b); English neologisms (Al-Jarf, 2010); and word+particle collocations (Al-Jarf, 2009). In all of those studies, the students left many items blank, and resorted to literal word-for-word translation as a major translation strategy.

7.2 Comparison of AI Translation of Folk Medical Terms and Other Metaphorical Expressions

Although most folk medical terms containing أم Om & أبو Abu are somewhat obsolete, MC and DS translated them with higher accuracy than expressions of impossibility, Gaza-Israel war terminology, grammatical terms used metaphorically, and zero expressions which are currently and commonly used by Arabic speakers and which are prevalent in the media because of how AI models are trained, what they prioritize, and where they falter. Additionally, folk medical terms involving أم and أبو have relatively fixed meanings across dialects and time. For example: أبو صفار almost always refers to *jaundice* & أم الظفر consistently maps to the *nail matrix*. These terms appear in medical glossaries, folk medicine archives, and parallel corpora used to train AI models. Their meanings are less context-dependent, making them easier for AI to match with high confidence (Al-Jarf, 2025a; Al-Jarf, 2025b; Al-Jarf, 2025c; Al-Jarf, 2025d; Al-Jarf, 2025e; Al-Jarf, 2025f; Al-Jarf, 2024a; Al-Jarf, 2024b; Al-Jarf, 2021a; Al-Jarf, 2016a).

In addition, medical terminology - whether folk or formal - is often included in bilingual medical dictionaries, WHO and ICD glossaries & health education materials. These sources are part of the training data for many AI models, including MC and DS's. In contrast, idioms like صفر اليدين or war metaphors like كسر الحصار may appear in news articles, social media, or opinion pieces, which are less structured and harder to align semantically.

As in the case of human translators, idioms and metaphors, including medical ones, are harder to translate because context sensitive expressions like صفر اليدين (empty-handed), حتى يدخل الجمل في سم الخياط (an expression of impossibility), الحصار كسر (breaking the siege) require pragmatic reasoning and discourse-level understanding. Their meaning shifts depending on emotional tone, cultural register and political framing. AI models often struggle to disambiguate these unless the prompt is extremely clear. Unlike medical terms, many idioms have no one-to-one English equivalent. Without explicit annotation or context, AI may default to literal translation or miss the idiomatic meaning of بنات البطون & أبو فاس entirely.

In translating folk medical terms by AI, accuracy is not just about language – it is about domain, context, and corpus design. AI performs better when terms are stable, well-documented, and semantically anchored. Current idioms and media expressions expose the limits of AI's contextual reasoning. The terms (بنت الاذن - أبو دغيم - ابو خانوق) have a metaphorical meaning, not literal. Although MC gave a literal translation with *father* and *mother*, the explanation it gave shows that MC knows what they refer to but cannot match the common name with the correct English equivalent. It seems that the core dilemma in AI translation is that recognizing metaphor is not the same as resolving it. AI often identifies the metaphorical structure - like "أبو صفار" as "father of yellowing", and explains its clinical meaning (jaundice), but it does not always match it directly to the common English name unless prompted with enough context or specificity. That's not a failure of comprehension - it's a reflection of how AI models are trained to preserve semantic transparency before committing to equivalence.

Common medical metaphors used in colloquial Arabic, especially those involving "أم" and "أبو", are often underrepresented in parallel corpora, absent from formal medical glossaries and highly regional or brand-specific. So while MC can explain the metaphor, it may not always retrieve the exact English equivalent unless it's widely documented or explicitly linked in training data. For instance, MC can detect that "أبو فاس" is metaphorical, and it may even know it refers to a *headache remedy*, but unless MC is trained on brand associations or folk usage patterns, it might not immediately map it to *Axe Brand Universal Oil* without additional cues.

7.3 Do DeepSeek and MC Use the Same Resources and Knowledge Base

MC and DS are built on different architectures and training corpora. DS leans heavily on open-source multilingual datasets. It relies on a combination of specialized bilingual medical dictionaries as *ArabMed*, *Al-Mawrid Medical Dictionary*, *Stedman's Medical Dictionary* (Arabic-English editions); standardized terminologies from WHO's ICD-11 (International Classification of Diseases), MeSH (Medical Subject Headings), and SNOMED CT; peer-reviewed medical literature journals and textbooks in both Arabic and English to ensure contextual accuracy and linguistic and translation corpora & databases of verified translations used

in medical education and practice. On the other hand, MC synthesizes information from multiple sources, including Microsoft's medical knowledge graph, MeSH, SNOMED, ICD mappings and Contextual adaptation to the user's scholarly workflow; Arabic-English medical dictionaries (e.g., Al-Mawrid, Qamus al-Tibb); ICD and MeSH mappings for standardized terminology; ERIC and academic studies on metaphor translation in biomedical texts; and theses and papers like this doctoral study on biomedical metaphor translation and this analysis of metaphor challenges. As a result, DS may prioritize semantic precision, whereas MC aims to give layered, reproducible translations.

7.4 MC and DS Translation Approaches

DS recognizes the term type, i.e., is it anatomical, pathological, diagnostic, or procedural. It decodes the metaphor (if applicable). Arabic often uses vivid anatomical metaphors (الأم الرقيقة *pia mater*; literally: *the tender mother*). It matches them to equivalent English terminology: Preference is given to clinically accepted terms (e.g., أم الدم الأبهرية > Aortic aneurysm). It provides context when useful. For educational purposes, DS sometimes includes literal meanings or notes (e.g., "lit. mother of blood") to help clarify the semantic origin. It verifies consistency by cross-referencing multiple sources to ensure the translation is current and widely accepted. For example, DS breaks down the phrase: أم الدم الكلوية into Literal: "*mother of blood of the kidney*", correct translation: *renal aneurysm*. Why? Because أم الدم is a fixed term for "aneurysm," and "كلوية" specifies the renal location. Regarding MC, it does not rely on a fixed corpus in the traditional sense. Instead, it draws from thousands of parallel texts across medical literature, dictionaries, glossaries, and annotated corpora; semantic pattern recognition from clinical, folkloric, and anatomical domains and comparative linguistic models that map metaphorical structures across languages. This allows MC to recognize that "أم الظفر" is not just "*mother of the nail*" but the *nail matrix*, and that "أبو صفار" is not "*father of yellowing*" but *jaundice* - while still preserving the metaphor for archival or pedagogical use.

7.5 Why Are DS Translations More Accurate?

DS avoids literal translations by prioritizing domain-specific accuracy. For example, DS translates أم الدم as "aneurysm" instead of a literal "*mother of blood*". Its training involved multilingual data, allowing it to handle nuanced language pairs (e.g., Arabic to English) with a focus on technical correctness. It incorporates context-aware reasoning, which helps it understand idiomatic and culturally nuanced expressions better than many other AI systems. DS is a distinct AI model with strengths in logical reasoning, translation accuracy, and efficiency. If you have more questions or need further comparisons, feel free to ask. By saying أبو صفار *jaundice* (lit. father of yellowness), DeepSeek does two things: (i) it provides the clinical equivalent which is "jaundice" is the medically accurate term. (ii) it preserves the metaphor parenthetically: "father of yellowness" to give the cultural and linguistic context without confusing the reader. This dual-layered approach is ideal for medical students who need clarity first, nuance second, for translators who want to preserve semantic lineage and for readers who are unfamiliar with Arabic folk taxonomy.

7.6 Are MC and DS Design the Same

DS is not the same AI as MC. DeepSeek-V3 is an advanced AI model with a design, capabilities, and underlying technology that differ significantly from other AI models as MC. DS is different in architecture and training. It uses a mixture of experts (MoE) architecture, which allows it to efficiently specialize in different tasks by activating only relevant parts of its model for each query. This makes DS computationally efficient while maintaining high performance. DS was trained with reinforcement learning and chain-of-thought reasoning, enabling it to break down complex problems step-by-step for more accurate and logical responses. Unlike some AI models that may provide overly literal translations (e.g., "father of the knee" for أبو الركبة), DS prioritizes medically accurate and context-aware translations. For instance, DS translated أم التلافيف / قطنة ذات التلافيف as *Omasum (the many-plicated/pileated stomach)*. It leverages high-quality training data and contextual understanding to ensure translations are natural and technically precise.

7.7 Why MC Gives Literal Word-For Word Translations

MC's default translation strategy is literal first, then functional. It tends to start with literal translation because it preserves semantic structure for analysis; exposes metaphorical architecture (especially in Arabic, where metaphor is often grammaticalized); and supports the researcher's workflow, which values layered meaning, reproducibility, and error analysis. For example: صفر اليدين > *zero of the hands* > then explained as *having nothing* or *being empty-handed*; أبو صفار > *father of yellowing* > then clarified as *jaundice*; أم اللبن > *mother of milk* > then explained as *Pergularia tomentosa* or *Euphorbia* depending on context. This layered approach allows users to compare how different models handle metaphor, teach students to recognize semantic drift, and archives both literal and functional meanings for future reference.

This means that, whether in translating grammatical terms used metaphorically, expressions of impossibility (e.g., حتى يدخل الجمل (في سم الخياط), conflict terminology as Gaza-Israel war idioms or medical idioms (أم الدم), MC defaults to literal translation first across domains because these expressions often carry layered cultural, rhetorical, and historical meaning, a direct functional translation risks flattening nuance. Literal translations of صفر اليدين, أبو صفار, أم اللبن are linguistically transparent but semantically opaque to English speakers, especially clinicians, translators, or students who are unfamiliar with Arabic metaphors. Literal translation preserves the surface structure but fail to communicate the underlying or metonymical meaning. MC gives

literal translations not because it is the best standalone rendering, but because it reveals the metaphorical structure for scholarly comparison, it allows a researcher to trace semantic drift across AI systems, it supports error analysis and prompt refinement in a researcher's mentoring workflow. These are not usable translations for clinical or pedagogical clarity unless they are paired with functional equivalents. For native English speakers or domain specialists, AI translation should prioritize meaning over surface structure as in *صفر اليدين* *empty-handed* which is an idiomatic expression for having nothing; *أبو صفار* *jaundice* which is a metaphorical folk medical term; *أم اللبن* *pergularia tomentosa* or *euphorbia* which metonymical for milk-producing wolf

To conclude, literal translation alone is insufficient. AI models must be guided by context, intent, and audience. Users need to understand how to prompt and interpret AI outputs critically.

8. Recommendations and Conclusion

Science is not only about what we use today, but also about understanding the path we took to get here. Studying terms like "*aneurysm of blood*" is a study of the history of Arab scientific and medical thought. It is not merely an academic curiosity; it has real-world applications in understanding culture, improving medical communication, and preserving a rich heritage worthy of study and analysis.

This study has dual linguistic and medical significance, as it addresses Arabic medical terms that include the word "mother." These terms range from precise anatomical terms such as "*dura mater*" and "*aneurysm of blood*" to metaphorical or obsolete ones such as "ام الطفر" and "ام التلايف." The importance of this approach lies in the following points: (i) Archiving heritage medical terminology. This study documents terms that appeared at various stages of the Arabization of medical sciences and reveals rhetorical and figurative naming patterns prevalent in the Arabic medical heritage, contributing to the preservation of terminological memory and the history of medical translation. (ii) Analyzing the accuracy of medical translation and classifying these terms provides an opportunity to assess their scientific accuracy and distinguish functional translations from metaphorical ones. This helps build educational models that guide students toward accurate translation and avoid terminological confusion. (iii) Updating Arabic medical dictionaries. This study feeds into efforts to develop modern medical dictionaries by classifying terms as used, obsolete, figurative, or inaccurate, and proposing standard alternatives for terms that need revision or standardization. (iv) The research results herein can be transformed into educational tools, such as comparison tables between Arabic and Latin terms, cases of mistranslation and their clinical impact, and examples of medical nomenclature, enhancing terminological awareness among students and researchers. (v) Enhancing linguistic understanding in the medical context by highlighting how some terms containing "*mother*" are not used literally, but rather express origin, or anatomical location, opening the way for teaching the relationship between language and medical function with precision and awareness.

Based on findings of the current study, future research may classify medical terms according to usage (modern, obsolete; metaphorical), analyze translation patterns (derivation, metaphor, literal translation), propose standard alternatives for inaccurate terms, create educational models for students, comparison tables between Arabic and Latin terminology, cases of mistranslation and their impact on clinical understanding and examples of Arabic medical nomenclature.

Conflicts of Interest: The author declares no conflict of interest.

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References

- [1] Al-Jarf, R. (2025a). AI translation of full-text Arabic research articles: The case of educational polysemes. *Journal of Computer Science and Technology Studies*, 7(1), 311-325. <https://doi.org/10.32996/jcsts.2025.7.1.23>. [Google Scholar](#)
- [2] Al-Jarf, R. (2025b). Arabic transliteration of borrowed English nouns with/g/ by Artificial Intelligence (AI). *Journal of Computer Science and Technology Studies*, 7(9), 245-252. [Google Scholar](#)
- [3] Al-Jarf, R. (2025c). AI translation of the Gaza-Israel war terminology. *International Journal of Linguistics, Literature and Translation*, 8(2), 139-152. <https://doi.org/10.32996/ijllt.2025.8.2.17>. [Google Scholar](#)
- [4] Al-Jarf, R. (2025d). DeepSeek, Google Translate and Copilot's translation of Arabic grammatical terms used metaphorically. *Journal of Computer Science and Technology Studies*, 7(3), 46-57. [Google Scholar](#)
- [5] Al-Jarf, R. (2025e). Translation of Arabic expressions of impossibility by AI and student-translators: A comparative Study. *Journal of Computer Science and Technology Studies*, 7(8), 288-299. <https://doi.org/10.32996/jcsts.2025.7.8.33>. [Google Scholar](#)

- [6] Al-Jarf, R. (2025f). Translation of zero-expressions by Microsoft Copilot and Google Translate. *Journal of Computer Science and Technology Studies (JCSTS)*, 7(2), 203-216. <https://doi.org/10.32996/jcsts.2025.7.2.20>. [Google Scholar](#)
- [7] Al-Jarf, R. (2024a). Expressions of impossibility in Arabic and English: unveiling students' translation difficulties. *International Journal of Linguistics, Literature and Translation*, 7(5), 68-76. <https://doi.org/10.32996/ijllt.2024.7.5.9>. [Google Scholar](#)
- [8] Al-Jarf, R. (2024b). Translation of medical terms by AI: A comparative linguistic study of Microsoft Copilot and Google Translate. I2COMSAPP'2024 Conference, 23-25 April 2024, Nouakchott, Mauritania. [Google Scholar](#)
- [9] Al-Jarf, R. (2023a). Equivalence problems in translating ibn (son) and bint (daughter) fixed expressions to Arabic and English. *International Journal of Translation and Interpretation Studies*, 3(2), 1-15. DOI: 10.32996/ijtis.2023.3.2.1. ERIC ED628181 [Google Scholar](#)
- [10] Al-Jarf, R. (2023b). Numeral-based English and Arabic Formulaic Expressions: Cultural, Linguistic and Translation Issues. *British Journal of Applied Linguistics*, 3(1), 25-34. <https://doi.org/10.32996/bjal.2023.3.1.2>. ERIC ED628151. [Google Scholar](#)
- [11] Al-Jarf, R. (2023c). Time metaphors in English and Arabic: Translation challenges. *International Journal of Translation and Interpretation Studies (IJTIS)*, 3, 4, 68-81 <https://doi.org/10.32996/ijtis.2023.3.4.8>. [Google Scholar](#)
- [12] Al-Jarf, R. (2022a). Arabic and English dar (house) and bayt (home) expressions: Linguistic, translation and cultural issues. *Journal of Pragmatics and Discourse Analysis (JPDA)*, 1(1), 1-13. ERIC ED624367 [Google Scholar](#)
- [13] Al-Jarf, R. (2022b). Challenges that undergraduate student translators' face in translating polysemes from English to Arabic and Arabic to English. *International Journal of Linguistics, Literature and Translation (IJLLT)*, 5(7), 84-97. DOI: 10.32996/ijllt.2022.5.7.10. ERIC ED620804. [Google Scholar](#)
- [14] Al-Jarf, R. (2022d). *Issues in translating English and Arabic common names of chemical compounds by student-translators in Saudi Arabia*. In Kate Isaeva (Ed.). *Special Knowledge Mediation: Ontological & Metaphorical Modelling*. Springer. DOI: 10.1007/978-3-030-95104-7. [Google Scholar](#)
- [15] Al-Jarf, R. (2021a). An Investigation of Google's English-Arabic translation of technical terms. *Eurasian Arabic Studies*, 14, 16-37. [Google Scholar](#)
- [16] Al-Jarf, R. (2022lb). Undergraduate student-translators' difficulties in translating English word + preposition collocations to Arabic. *International Journal of Linguistics Studies (IJLS)*, 2(2), 60-75. DOI: 10.32996/ijls.2022.2.2.9. ERIC ED621368. [Google Scholar](#)
- [17] Al-Jarf, R. (2019). Translation students' difficulties with English and Arabic color-based metaphorical expressions. *Fachsprache*, 41 (Sp. Issue), 101-118. Doi: 10.24989/fs.v41iS1.1774. ERIC ED622935. [Google Scholar](#)
- [18] Al-Jarf, R. (2017). Issues in translating Arabic om- and abu-expressions. *ALATOO Academic Studies*, 3, 278-282. ERIC ED613247. [Google Scholar](#)
- [19] Al-Jarf, R. (2016a). Issues in translating English technical terms to Arabic by Google Translate. 3rd International Conference on Information and Communication Technologies for Education and Training (TICET 2016), pp. 17-31. Khartoum, Sudan, March 12-14. [Google Scholar](#)
- [20] Al-Jarf (2016b). *Translation of English and Arabic binomials by advanced and novice student translators*. In Larisa Ilynska and Marina Platonova (Eds) *Meaning in Translation: Illusion of Precision* (Pp. 281-298). Cambridge Scholars Publishing. ERIC ED639264. [Google Scholar](#)
- [21] Al-Jarf, R. (2010). Translation students' difficulties with English neologisms. *Analele Universității "Dunărea De Jos" Din Galați Fascicula XXIV ANUL III(2)*, 431-437. ERIC ED613253. [Google Scholar](#)
- [22] Al-Jarf, R. (2009). Word+particle *collocation* errors in English-Arabic translation. 40 Years of Particle Research. Bern, Switzerland. February 11.-13. [Google Scholar](#)
- [23] Abu-Abbas, K., Jarbou, S. O., Al-Kadi, T. T., Badarneh, M. A., & Migdadi, F. H. (2010). Fictive kinship names in Jordanian Arabic. *Onomasiology Online*, 11(5), 1-10.
- [24] Al Saleem, K. (2013). Basic-Level Translations of Kinship Terms from Standard Arabic to English. *Zrkadlá translatologie I: Preklad ako nástroj komunikácie*, 51.
- [25] Al-Badawi, M., Al-Tarawneh, A., & Abu Hatab, W. (2024). Kinship Terms Treatment in English and Arabic Dictionaries. In *Frontiers of Human Centricity in the Artificial Intelligence-Driven Society 5.0* (pp. 727-734). Cham: Springer Nature Switzerland.
- [26] Al-Sahlany, Q. & Al-Husseini, H. (2010). Kinship terms in English and Arabic: A contrastive study. *Majallah Universitas Babilonia*, 18(3), 709-726.
- [27] Al-Sekhaneh, W. (2016). Bedouin Kinship Relations in Jordan: An Examination of Beni Khalid Kinship Terminology and Family Organisation. *Parts and Wholes. Essays on Social Morphology, Cosmology, and Exchange in Honour of JDM Platenkamp*, edited by Laila Prager, Michael Prager, and Guido Sprenger, 87-104.
- [28] Davies, R. (1949). Syrian Arabic kinship terms. *Southwestern Journal of Anthropology*, 5(3), 244-252.
- [29] Ismail, K. (2015). Tabaq kinship terms. *Dotawo: A Journal of Nubian Studies*, 2, 231-243.

- [30] Khalil, A. (2022). Kinship terms vs. first names as a reflection of cognition and culture amongst American and Syrian acquaintances. In *Пражский лингвистический кружок и развитие лингвистики XX века (к 140-летию со дня рождения Вилема Матезиуса)* (pp. 148-163).
- [31] Khalilia, H., Bella, G., Freihat, A., Darma, S., & Giunchiglia, F. (2023). Lexical diversity in kinship across languages and dialects. *Frontiers in Psychology*, 14, 1229697.
- [32] Kholisin, K., Maulidya, R., Alfian, M., & Fauzi, M. (2022). Contrastive Analysis of Kinship Terms between Arabic and Indonesian Languages: Anthropological Study. *Izdihar: Journal of Arabic Language Teaching, Linguistics, and Literature*, 5(1), 1-16.
- [33] Khuri, F. (1981). Classification, meaning and usage of Arabic status and kinship terms. *International Journal of Sociology of the Family*, 11(2), 347-366.
- [34] Mohammed, Z., Mohammed, S. & Qassim, R. (2024). The Translation of Family and Kinship Terms in Arabic Societies. *Prospective Researches*, 24(2).
- [35] Naciri-Azzouz, A. (2019). Arabic kinship terms revisited. *Sociolinguistic Studies*, 12(2), 185-208.
- [36] Nakhilawi, H. (2016). Ethnosemantic, pragmatic, and textual analysis of kinship terms in Arabic and English discourse. *Unpublished Dissertation of Doctor of Philosophy, Universiti Sains Malaysia*.
- [37] Neelakshi, S., & Amr, K. (2021). Kinship terms as indicators of identity and social reality: A case study of Syrian Arabic and Hindi. *Russian Journal of Linguistics*, 25(1), 125-146.
- [38] Panossian, V. (2023). *Contextualizing the bros: Kinship terminology as a tool to structure social relations among Arabic speaker in Berlin* (Doctoral dissertation, Thesis).
- [39] Ramazanova, R. & Khamzatov, Z. (2022). Arabic, Chechen Proverbs With A Component Of Kinship Relations: Ethno-Cultural Aspect. *European Proceedings of Social and Behavioural Sciences*.
- [40] Shahrour, M. (1996). The parents, in M. Shahrour's *Islam and faith: The matrix of values*. 271-334. Damascus: al-Ahali Printing and Publishing (In Arabic).
- [41] Thawabteh, M. (2012). Translating Kinship Terms in the Qur'an. *Studii de gramatică contrastivă*, (18), 114-126.
- [42] Tzeng, O. & Others (1975). Idealized cultural differences in Kinship conceptions. *Linguistics*, 172, 51-77.
- [43] Yassin, M. (1977). Kinship Terms in Kuwaiti Arabic. *Anthropological Linguistics*, 19(3), 126-132.