

Translation of Neurological Terminology in the *@the_brain_doctor* Instagram Captions

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Abstract. This study aims to identify the types of neurology terms and analyze the strategies used in translating them from English into Indonesian. The research applies the theoretical framework of neurology terminology proposed by Donkelaar et al. (2018), which classifies neurological terms according to their anatomical and functional categories. To examine the translation process, the study employs Molina and Albir's (2002) theory of translation techniques, focusing on how specific linguistic strategies are used to convey specialized medical meanings accurately and naturally in the target language. The data were collected from selected captions on the Instagram account *@the_brain_doctor*, which presents neuroscience and neurology content for public education. The data was analysed by qualitative descriptive method to identify and categorize neurology terms. Then, it further explored how these terms were rendered into Indonesian using translation techniques. The findings indicate that most neurology terms belong to the anatomical and pathological categories. Borrowing and calque were the most frequent translation techniques, reflecting an effort to maintain terminological precision and scientific consistency. However, adaptation and amplification were also used to enhance comprehensibility for general audiences. The study concludes that the translation of neurology terminology in digital health discourse requires both terminological accuracy and communicative clarity, bridging scientific precision with accessibility in popular science communication.

Keywords: Instagram caption, neurological terms, translation strategy

1 Introduction

Language is the principal medium through which humans conceptualise and communicate about the world. In linguistics, every discipline-specific lexicon, including that of neurology, reflects a complex interplay of lexical choice, semantic specificity and audience comprehension. Translation, as a sub-field of applied linguistics, concerns itself with how source language (SL) forms and meanings are rendered into target language (TL) forms so as to preserve meaning, adapt for audience and maintain functional equivalence. For specialised domains such as neurology, translation becomes more than mere language transfer. It becomes a bridge between scientific discourse and effective communication.

In neurology, terminology spans anatomical, physiological, pathological, diagnostic and therapeutic domains. For example, the catalogue of terms presented by [1] offers a hierarchical and systematic classification of neurological terms (neuroanatomical structures, neurological

function, and neurological disorders). The standardisation of such terminology is crucial, not only for clinical precision, but also for translation and multilingual education. In parallel, digital health discourse particularly on social media platforms such as Instagram, has become a vital site for public engagement with neurology content. Research shows that social media is increasingly leveraged for neurology education and professional communication (e.g. “Be in the Digital Room Where it Happens, Part II: Social Media for Neurology Educators”). The combination of specialised neurology terminology and popular health communication on Instagram creates a fertile ground for translation analysis: how are terms that originate in specialist discourse adapted for (or translated to) a broader, potentially multilingual audience?

Previous studies in translation have investigated the use of translation techniques in a variety of domains, such as audio-visual subtitling of films [2] and product label translation [3] using the taxonomy proposed by [4]. For instance, Molina and Hurtado Albir define translation techniques as “an instrument of textual analysis to study how translation equivalence works in relation to the original text.” However, while many studies apply these techniques to general translation contexts (e.g., films, idioms, tourism leaflets), fewer investigations have focused specifically on scientific medical terminology translation in digital health discourse and even fewer within the context of neurology on social media.

This gap in the literature motivates the present study: namely, an analysis of how neurology terms, as classified by [1] are translated in the Instagram captions of @the_brain_doctor, and which translation by [4] are applied. By doing so, this research aims to contribute both to the field of translation studies (by applying specialist-terminology analysis) and to health communication research (by exploring translation practice in a digital social media context). Specifically, this research examines the intersection of three domains: specialised neurology lexicon, translation theory, and Instagram-based digital health discourse. By so doing, this research addresses two connected research gaps: (1) the under-explored domain of neuro-terminology translation in social media settings, and (2) the lack of studies combining terminological classification (as per [1]) with translation-technique analysis (as per [4]).

The significance of this study lies in its contribution to both translation studies and digital health communication by addressing the underexplored area of neurology terminology translation on social media platforms. By integrating Donkelaar *et al.*'s neurological terminological classification with Molina and Hurtado Albir's translation technique framework, this research provides a systematic approach to analyzing how specialized medical terms are transferred from English into Indonesian in a public-facing digital context. The findings highlight the balance between maintaining scientific accuracy and ensuring communicative clarity, demonstrating how translation techniques such as borrowing, calque, adaptation, and amplification function to make complex neurological concepts accessible to general audiences. Consequently, this study offers practical insights for translators, health communicators, and content creators involved in popular science communication, while also enriching theoretical discussions on specialist terminology translation in digital media environments.

2 Research Method

This study employed a descriptive qualitative method to analyze the translation of neurological terminology found in the Instagram captions of the account @the_brain_doctor. According to [5], qualitative research is designed to investigate complex issues by collecting rich, descriptive data and interpreting these data within their natural contexts. Similarly, [6] emphasize that qualitative inquiry seeks to understand how individuals construct meaning, interact socially, and use language within specific cultural or situational settings. Thus, qualitative research is concerned not with quantification, but with depth, detail, and contextual understanding. This study applies a qualitative approach because the object of analysis, the neurological terms and their translations in Instagram captions, requires interpretation of linguistic, semantic, and contextual features rather than measurement. Translation studies, particularly those involving terminology, often demand an examination of how meaning is constructed and transformed across languages [7]. Furthermore, qualitative analysis is appropriate because the data consist of textual materials (Instagram captions) embedded in digital health discourse. As [8] notes, qualitative research is particularly suited for analyzing naturally occurring discourse, including digital communication, where meaning is shaped by context, audience, and social interaction.

The data source was taken from the verified official Instagram account of Dr. Faye Begeti, M.B., Ph.D, a neurologist and neuroscientist who actively shares educational content about neurology and neuroscience. The account was selected because it consistently provides scientific information containing neurological terms, making it a relevant and credible source for linguistic and translation analysis. Furthermore, the account has a blue verification badge and is followed by more than 143.000 users, indicating its authenticity and wide reach in the digital health community. The data in this study consisted of Instagram captions posted by @the_brain_doctor within the period of June 2024 to November 2025, which has more than 500 viewers. This time frame was chosen to ensure that the data represented recent linguistic usage and translation patterns in neurology-related digital discourse. The captions were written originally in English, and their machine-translated Indonesian versions automatically provided by Instagram's translation feature, were analyzed for comparison.

Data collection was conducted using the direct observation method, following several systematic steps:

1. Reading and observing all Instagram captions posted from June 2024 to November 2025.
2. Checking both the original English captions and their machine-translated Indonesian versions.
3. Transcribing the captions for textual analysis.
4. Highlighting the neurological terms and their corresponding translations in both language versions.

The data analysis process applied a descriptive qualitative approach, focusing on understanding patterns and contextual meanings rather than numerical measurement. The analysis was carried out in two main stages:

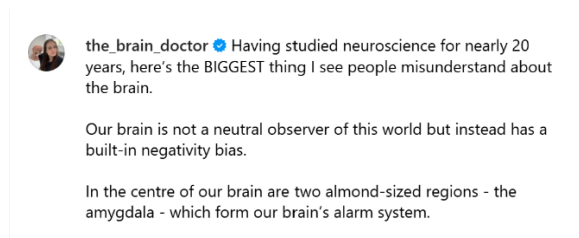
1. Classification of neurological terms using the framework proposed by Donkelaar et al. (2018) in *An Illustrated Terminologia Neuroanatomica*, which categorizes neurological terminology based on neuroanatomical structures, neurological function, and neurological disorders.
2. Analysis of translation techniques based on the taxonomy developed by Molina and Albir (2002), which identifies and explains the various strategies used to translate linguistic elements between languages.


The results were interpreted to reveal the dominant types of neurological terms used in digital health discourse and to evaluate the translation strategies applied to render these specialized terms accurately in Indonesian.

3 Finding and Discussion

This section presents the findings of the study based on the neurological terms identified in the selected captions from the @the_brain_doctor Instagram account and their corresponding Indonesian translations generated through Instagram's machine translation feature. This research found that all the types of neurological terms (neuroanatomical structures, neurological function, and neurological disorders) are found in this study. Also the translation strategy most likely used in the translating neurological terms are pure borrowing and naturalized borrowing. There were 30 datum found in the caption of the @the_brain_doctor Instagram account (period of June 2024–November 2025). However in this research, there were only four datum chosen as representative data. The detail discussion of those datum will be presented as follows.

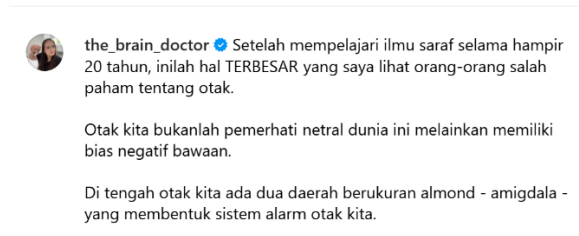
Datum 1




the_brain_doctor  Having studied neuroscience for nearly 20 years, here's the BIGGEST thing I see people misunderstand about the brain.

Our brain is not a neutral observer of this world but instead has a built-in negativity bias.

In the centre of our brain are two almond-sized regions - the amygdala - which form our brain's alarm system.



the_brain_doctor  Setelah mempelajari ilmu saraf selama hampir 20 tahun, inilah hal TERBESAR yang saya lihat orang-orang salah paham tentang otak.

Otak kita bukanlah pemerhati netral dunia ini melainkan memiliki bias negatif bawaan.

Di tengah otak kita ada dua daerah berukuran almond - amigdala - yang membentuk sistem alarm otak kita.

SL : In the centre of our brain are two almond-sized regions—the **amygdala**—which form our brain’s alarm system.

TL : *Di Tengah otak kita ada dua daerah berukuran almond-**amigdala**-yang membeentuk sistem alarm otak kita.*

(@the_brain_doctor, 21 July 2025)

The term *amygdala* refers to a paired, almond-shaped neuroanatomical structure located in the medial temporal lobe and is centrally involved in emotional processing, memory, and affective behavior. According to *An Illustrated Terminologia Neuroanatomica* by Donkelaar *et al.*, the amygdala is classified within the Telencephalon and more specifically under the Basal Forebrain / Limbic System Structures. In the framework of *Terminologia Neuroanatomica* (TNA), the amygdala is explicitly identified as a neuroanatomical structure that plays a major role in emotion-related neural processes [1]. Consequently, based on this classification, the term *amygdala* falls into the category of **Neuroanatomical Structure – Limbic System (Telencephalon)**, indicating that it is a structural anatomical term referring to a distinct and standardized brain region.

In the Target Language (TL), Indonesian, the term *amygdala* is translated as *amigdala*. This translation involves only a minimal orthographic adjustment—from *y* to *i*—in accordance with Indonesian spelling conventions, while preserving the original lexical form. From the perspective of translation studies, this strategy corresponds to **naturalized borrowing** as defined by Translation Techniques Revisited [4]. Borrowing occurs when a term from the Source Language (SL) is directly transferred into the TL, and it is considered *naturalized* when minor phonological or orthographic adaptations are made to align with TL norms. The transformation *amygdala* → *amigdala* thus exemplifies naturalized borrowing, as the term is largely retained while being linguistically assimilated into Indonesian.

Previous studies consistently show that borrowing, particularly naturalized borrowing, is the dominant strategy in the translation of medical and scientific terminology. Newmark [9] argues that borrowing is often unavoidable in specialized fields because technical terms are designed to be internationally stable and semantically precise. Similarly, Montalt and González Davies [10] emphasize that medical translation prioritizes terminological consistency over stylistic variation, especially for anatomical terms that are grounded in Latin or Greek roots. In the Indonesian context, Nababan *et al.* [11] also observe that borrowing is frequently used in medical translations to maintain accuracy and avoid semantic distortion, particularly when no exact indigenous equivalent exists.

The preference for naturalized borrowing in translating *amygdala* further reflects the standardized nature of neuroanatomical terminology in global neuroscience. As noted by Temmerman [12], standardized scientific terms function as “labels for fixed concepts,” and replacing them with descriptive or adaptive equivalents may risk ambiguity or conceptual loss.

In digital health discourse—such as Instagram-based educational content—this strategy allows translators to balance scientific authority with audience accessibility. By slightly adapting the spelling to Indonesian norms, the term becomes more readable for local audiences while still signaling its status as a technical, internationally recognized concept.

Therefore, the use of naturalized borrowing in translating *amygdala* demonstrates a conscious effort to preserve scientific precision while ensuring linguistic acceptability in the TL. This finding aligns with prior research in medical and scientific translation, which consistently reports borrowing as a preferred technique for highly specialized terminology [9], [10], [11]. In the context of social media-based health communication, such as the Instagram account *@the_brain_doctor*, this strategy supports effective knowledge dissemination by maintaining terminological accuracy without alienating non-specialist readers. Ultimately, this reinforces the view that accurate neurology translation in digital platforms requires adherence to established terminological conventions alongside sensitivity to the linguistic norms of the target audience.

Datum 2



the_brain_doctor You don't have to make changes this New Year if you don't want to but, if you do, it's important to approach them the right way.

The key is to focus on consistency over intensity.

We often choose intensity because it feels more ambitious, but what we're really doing is mistaking ambition for impatience.

By prioritising consistency, you allow small, steady actions to rewire your brain through neuroplasticity - the brain's ability to adapt and change.



the_brain_doctor Anda tidak perlu membuat perubahan Tahun Baru ini jika Anda tidak mau tetapi, jika Anda melakukannya, penting untuk mendekati mereka dengan cara yang benar.

Kuncinya adalah fokus pada konsistensi di atas Intensitas.

Kita sering memilih Intensitas karena rasanya lebih ambisius, tetapi yang sebenarnya kita lakukan adalah salah mengira ambisi untuk ketidaksabaran.

Dengan memprioritaskan konsistensi, Anda membiarkan tindakan kecil dan stabil untuk mengubah otak Anda melalui neuroplasticity - kemampuan otak untuk beradaptasi dan berubah.

SL : By prioritising consistency, you allow small, steady actions to rewire your brain through **neuroplasticity**-the brain's ability to adapt and change.

TL : Dengan memprioritaskan konsistensi, Anda membiarkan Tindakan kecil dan stabil untuk mengubah otak Anda melalui **neuroplasticity**-kemampuan otak untuk beradaptasi dan berubah.

(@the_brain_doctor, 1 January 2025)

The term *neuroplasticity* refers to the brain's capacity to reorganize neural pathways and modify both structural and functional connections in response to learning, experience, injury, or environmental change. Within the framework of *Terminologia Neuroanatomica* proposed by An Illustrated Terminologia Neuroanatomica, neuroplasticity is classified not as a physical brain structure but as a **Neurological Function – Physiological Process**. This categorization reflects the conceptual distinction between static anatomical entities and dynamic neurological mechanisms. Neuroplasticity encompasses processes such as synaptic strengthening and weakening, neuronal sprouting, cortical remapping, and functional reorganization, which collectively enable adaptive changes in brain function [1]. This functional classification clearly differentiates neuroplasticity from neuroanatomical terms such as *amygdala*, which denote identifiable brain regions rather than ongoing biological processes.

In the Target Language (TL), Indonesian, the term *neuroplasticity* appears unchanged and is retained in its original English form. Although an Indonesian equivalent (*neuroplastisitas*) exists and follows Indonesian morphological conventions, Instagram's machine translation system does not apply this adaptation. From the perspective of translation theory, this strategy corresponds to **pure borrowing**, as defined by Translation Techniques Revisited [4]. Pure borrowing occurs when a Source Language (SL) term is transferred verbatim into the TL without phonological, morphological, or orthographic modification. In this case, the indicators of pure borrowing are clear: the spelling remains identical, no localization occurs, and the English term is preserved intact in the Indonesian translation.

Previous studies in scientific and medical translation indicate that pure borrowing is frequently employed for abstract, process-oriented concepts, especially when they are globally standardized and predominantly circulated in English. Newmark [9] notes that for scientific innovations and theoretical constructs, translators often retain the original term to avoid conceptual ambiguity or misinterpretation. This is particularly relevant for terms like *neuroplasticity*, which function as umbrella concepts encompassing multiple sub-processes and theoretical frameworks within neuroscience. Similarly, Cabré [13] argues that borrowing is a preferred strategy when a term has achieved international currency and when its translated equivalent is not yet fully conventionalized in the target language.

In the Indonesian context, research by Nababan *et al.* [11] suggests that borrowing—especially pure borrowing—is commonly found in translations of advanced medical and scientific texts, particularly when the intended audience includes semi-specialist or educated readers. In digital health discourse, such as Instagram-based science communication, retaining the English term *neuroplasticity* may enhance recognition among readers who are already exposed to neuroscience content through global media and educational platforms. This aligns with findings by Olohan [14], who observes that popular science translation often blends specialist accuracy with internationalized terminology to maintain credibility and authority.

However, the use of pure borrowing in this case may also indicate a limitation of machine translation systems. While human translators may consciously choose between *neuroplasticity* and *neuroplastisitas* depending on audience and register, machine translation tends to default to source-language retention when term equivalence is uncertain or insufficiently represented in its training data. As noted by Kenny [15], machine translation systems frequently overuse borrowing for technical terms, prioritizing formal accuracy over linguistic naturalness. Consequently, while the retention of *neuroplasticity* ensures terminological precision, it may reduce accessibility for Indonesian readers without prior exposure to English scientific terminology.

Overall, the use of pure borrowing for *neuroplasticity* reflects both the globalized nature of neuroscience discourse and the operational tendencies of machine translation in digital platforms. The finding supports previous research indicating that functional neurological concepts are more likely to be borrowed intact than translated or adapted, particularly in popular science and social media contexts [9], [13], [14]. This underscores the need for careful consideration of audience competence in digital health translation, as effective communication requires balancing scientific exactness with linguistic inclusivity.

Datum 3



the_brain_doctor 🧠 Lifting the lid on the 'black box' that is often thought to be our brain and the role emotions play. I frequently have to explain this mechanism to patients in memory clinic where depression/other mental health conditions can cause symptoms so severe that people can cause people to worry that they are suffering from dementia. Let me know if you found this post helpful and can relate in the comments.



the_brain_doctor 🧠 Mengangkat tutup pada 'black box' yang sering dianggap otak kita dan peran emosi bermain. Saya sering harus menjelaskan mekanisme ini kepada pasien di klinik memori di mana depresi / kondisi kesehatan mental lainnya dapat menyebabkan gejala yang sangat parah sehingga orang dapat menyebabkan orang khawatir bahwa mereka menderita dementia. Beri tahu saya jika Anda menemukan posting ini membantu dan dapat menghubungkan di komentar.

SL : I frequently have to explain this mechanism to patients in memory clinic where depression/other mental health conditions can cause symptoms so severe that people can cause people to worry that they are suffering from **dementia**.

TL : *Saya sering harus menjelaskan mekanisme ini kepada pasien di klinik memori dimana depresi/kondisi kesehatan mental lainnya dapat menyebabkan gejala yang sangat parah sehingga orang dapat menyebabkan orang khawatir bahwa mereka menderita **dementia**.*

(@the_brain_doctor, 10 September 2024)

The term *dementia* refers to a group of clinical syndromes characterized by a progressive decline in cognitive functions, including memory, executive functioning, language, reasoning, and social cognition, severe enough to interfere with daily activities. Within the classification framework proposed by An Illustrated Terminologia Neuroanatomica, neurological terms are

broadly divided into neuroanatomical structures, neurological functions, and neurological disorders. Dementia does not denote a physical brain structure nor a normal physiological process; instead, it represents a **pathological condition** affecting the nervous system. Accordingly, *dementia* is classified under the category **Neurological Disorder**. This classification reflects its status as a disease entity associated with underlying neuropathological processes, such as neurodegeneration (e.g., Alzheimer's disease), cerebrovascular damage, or other central nervous system abnormalities [1]. As such, *dementia* functions as a diagnostic and clinical term rather than a descriptive anatomical or functional label.

In the Target Language (TL), Indonesian, the term *dementia* is not translated into its established Indonesian equivalent *demensia*, despite the latter being officially used in Indonesian medical literature and clinical practice. Instead, Instagram's machine translation retains the English form *dementia* without modification. From a translation-theoretical perspective, this strategy corresponds to **pure borrowing**, as defined by Translation Techniques Revisited [4]. Pure borrowing involves transferring a Source Language (SL) term directly into the Target Language without orthographic, phonological, or morphological adaptation. In this case, the English form *dementia* is preserved exactly, with no adjustment to Indonesian spelling conventions (*demensia*), resulting in a non-naturalized borrowed term.

Previous studies in medical and scientific translation suggest that borrowing is frequently employed for disease names due to their international standardization and clinical precision. Newmark [9] notes that disease terms often circulate globally in a relatively fixed form, especially in English-dominated medical discourse, making borrowing a common and sometimes unavoidable strategy. Similarly, Montalt and González Davies [10] argue that medical translation prioritizes terminological consistency and diagnostic accuracy, particularly for disease labels, which function as precise clinical identifiers rather than descriptive expressions. However, they also emphasize that when a standardized TL equivalent exists—as is the case with *demensia* in Indonesian—failure to use it may reduce linguistic naturalness and accessibility.

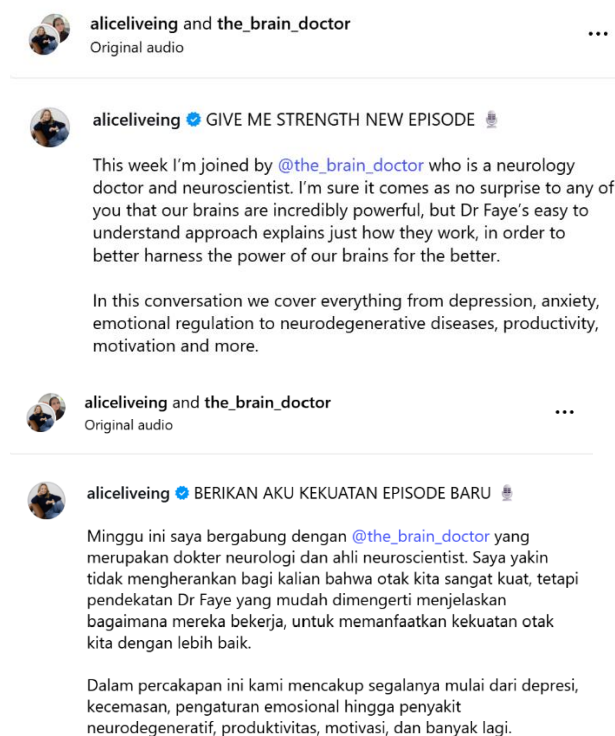
In the Indonesian context, research by Nababan *et al.* [11] demonstrates that while borrowing is widely used in medical translations, naturalized borrowing or established Indonesian equivalents are generally preferred in human translation to ensure clarity for non-specialist audiences. The use of pure borrowing in this case appears to reflect the operational tendencies of machine translation systems rather than a deliberate communicative choice. As Kenny [15] observes, machine translation often defaults to source-language retention for technical terms, particularly when multiple equivalents exist or when the system lacks sufficient contextual data to select the most appropriate TL form.

The retention of *dementia* may still be intelligible for Indonesian readers familiar with international medical discourse, as the English term frequently appears in academic articles, health campaigns, and media reports. However, for general audiences—the primary target of Instagram-based health education—this choice may reduce clarity compared to the more

familiar Indonesian term *demensia*. This finding contrasts with the translation of *amygdala* (*amigdala*), where naturalized borrowing was successfully applied, and highlights inconsistency in how Instagram's machine translation handles neurological terminology across different semantic categories (anatomical structure vs. disorder).

Overall, the use of pure borrowing for *dementia* illustrates both the globalized nature of neurological disease terminology and the limitations of automated translation in digital health discourse. While borrowing preserves scientific accuracy, it does not always guarantee communicative effectiveness for lay audiences. This supports previous findings that translation of medical disorders in public-facing platforms must carefully balance terminological precision with audience comprehension [10], [11]. The variation observed across different neurological terms underscores the need for greater awareness of terminological conventions and audience needs in machine-assisted health communication.

Datum 4



The screenshot shows two Instagram posts. The first post is an audio recording titled "aliciveing and the_brain_doctor" with the subtitle "Original audio". The second post is a text post by "aliciveing" with a blue verified badge, titled "GIVE ME STRENGTH NEW EPISODE". The text of the post discusses a conversation with a neurologist and neuroscientist, mentioning Dr. Faye's approach to understanding brain power. The third post is another audio recording titled "aliciveing and the_brain_doctor" with the subtitle "Original audio". The fourth post is a text post by "aliciveing" with a blue verified badge, titled "BERIKAN AKU KEKUATAN EPISODE BARU". The text of this post discusses a conversation with a neurologist and neuroscientist, mentioning Dr. Faye's approach to understanding brain power.

SL : In this conversation we cover everything from depression, anxiety, emotional regulation to **neurodegenerative disease**, productivity, motivation and more.

TL : Dalam percakapan ini kami mencakup segalanya mulai dari depresi, kecemasan, pengaturan emosional hingga **penyakit neurodegeneratif**, produktivitas, motivasi, dan banyak lagi.

((@the_brain_doctor, 13 June 2024)

The term *neurodegenerative disease* refers to a group of medical conditions characterized by the progressive degeneration and loss of structure or function of neurons in the brain or nervous system. Prominent examples include Alzheimer's disease, Parkinson's disease, Huntington's disease, and amyotrophic lateral sclerosis (ALS). Within the terminological framework proposed by An Illustrated Terminologia Neuroanatomica, such conditions are classified under **Neurological Disorder**, as they represent pathological states that impair normal nervous system function rather than anatomical structures or physiological processes. The term *neurodegenerative disease* thus functions as a higher-order disease category encompassing multiple specific disorders that share common pathological mechanisms, such as neuronal death, protein misfolding, and synaptic dysfunction [1]. This classification clearly distinguishes it from neuroanatomical terms (e.g., *amygdala*) and neurological function terms (e.g., *neuroplasticity*), which denote structural entities and adaptive processes, respectively.

In the Target Language (TL), Indonesian, the Source Language (SL) adjective *neurodegenerative* is translated as *neurodegeneratif*. This translation involves an orthographic and morphological adaptation consistent with Indonesian medical terminology conventions, in which English adjectives ending in *-ive* are commonly rendered as *-if* or *-atif*. From the perspective of translation theory, this strategy corresponds to **naturalized borrowing**, as defined by Translation Techniques Revisited [4]. Naturalized borrowing occurs when a term is borrowed from the SL but modified to conform to the phonological or orthographic norms of the TL. The transformation *neurodegenerative* → *neurodegeneratif* exemplifies this process, as the lexical root is preserved while the suffix is adapted to Indonesian spelling conventions.

Previous studies in medical translation consistently report that naturalized borrowing is a preferred strategy for translating disease-related terminology when a standardized TL equivalent exists. Newmark [9] argues that borrowing with adaptation allows translators to preserve terminological precision while ensuring linguistic acceptability in the target language. Similarly, Cabré [13] emphasizes that medical terminology often relies on international Latin- and Greek-based forms, which can be effectively integrated into national languages through controlled adaptation. In the Indonesian context, Nababan *et al.* [11] note that naturalized borrowing is commonly used in health and medical translations to balance accuracy with readability, particularly for terms that are already institutionalized in medical dictionaries and professional usage.

The use of *neurodegeneratif* is also consistent with standardized Indonesian medical terminology, as the term is attested in authoritative sources such as *Kamus Besar Bahasa Indonesia* (KBBI) and Indonesian medical dictionaries. This indicates that the translation choice reflects not only theoretical appropriateness but also terminological normalization within the TL. Compared to instances of pure borrowing observed in other data (e.g., *dementia* retained in English form), the translation of *neurodegenerative* as *neurodegeneratif* demonstrates a higher degree of localization and linguistic sensitivity. As Montalt and González Davies [10] argue, adapting disease-related terms into established TL forms enhances clarity and accessibility, especially in public-oriented health communication.

In the context of digital health discourse on social media platforms such as Instagram, the use of naturalized borrowing for *neurodegenerative disease* contributes to effective science communication by maintaining scientific credibility while accommodating the linguistic expectations of Indonesian readers. This finding aligns with Olohan's [14] observation that popular science translation often favors semi-domesticated terminology to bridge expert knowledge and lay understanding. Overall, the translation of *neurodegenerative* into *neurodegeneratif* illustrates an optimal balance between terminological accuracy and communicative clarity, reinforcing the importance of controlled adaptation in the translation of neurological disorder terminology.

The novelty of this study lies in its integrative and context-specific approach to analyzing the translation of neurology terminology in digital health discourse. Unlike previous studies that primarily examine translation techniques in general texts or conventional medical documents, this research uniquely combines Donkelaar *et al.*'s neuro-terminological classification with Molina and Hurtado Albir's translation technique framework to systematically analyze how neurological terms of different categories—neuroanatomical structures, neurological functions, and neurological disorders—are translated from English into Indonesian. Furthermore, by focusing on Instagram captions from a popular neuroscience account, this study introduces social media as a novel site of investigation for specialist medical translation, highlighting the role of machine translation in shaping public health communication. The findings reveal patterned variations in the use of borrowing strategies (pure vs. naturalized) across terminological categories, offering new empirical insights into how scientific precision, linguistic adaptation, and accessibility are negotiated in popular science communication. As such, this study extends existing translation research by bridging specialist terminology analysis, translation theory, and digital health communication within a real-world social media environment.

4 Conclusion

The findings of this study reveal that all three categories of neurological terms (neuroanatomical structures, neurological functions, and neurological disorders) appear in the captions of the @the_brain_doctor Instagram account. This indicates the rich and varied neurological content presented in digital health communication and highlights the relevance of specialized terminology in public science education. In terms of translation strategies, most neurological terms were rendered using pure borrowing, with the English terms transferred directly into Indonesian without orthographic or phonological adaptation. This tendency likely occurs because Instagram's machine translation system prioritizes terminological consistency and recognizes that many scientific terms are globally standardized in English. However, this reliance on pure borrowing may also reflect machine limitations in identifying or generating established Indonesian medical equivalents. Overall, the prevalence of borrowing strategies

shows the growing influence of English-based terminology in digital health discourse while also underscoring the need for more context-sensitive translation handling.

It is recommended that Instagram's machine translation system and application developers enhance the platform's sensitivity to domain-specific terminology, particularly in scientific and medical contexts. Integrating a specialized biomedical lexicon or collaborating with medical linguists could help the system better recognize established Indonesian equivalents for neurological terms (e.g., *demensia* instead of *dementia*). Additionally, improving adaptive translation algorithms would allow Instagram to distinguish between general and technical vocabulary, enabling more natural, comprehensible, and accurate translations for Indonesian users who rely on the platform for health information. Strengthening these features would not only improve translation quality but also promote clearer public understanding in digital health communication. Future studies are recommended to examine a broader range of medical specializations and social media platforms to determine whether the patterns of translation techniques identified in neurology-related Instagram content are consistent across different fields and digital contexts. Further research could also compare machine-generated translations with human translations to assess differences in accuracy, naturalness, and communicative effectiveness in digital health discourse. In addition, longitudinal or reception-based studies involving target readers are suggested to explore how different translation strategies affect public understanding and trust in health-related information.

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