

Exploring code-switching and code-mixing dynamics in Sundanese-Indonesian bilingual aphasia

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ABSTRACT

This research explores the intricate phenomenon of code-switching and code-mixing within the realm of bilingual aphasia patients who converse in both Sundanese and Indonesian. This research is essential to understanding the code-switching and code-mixing phenomenon to improve rehabilitation and effective communication for these patients. Employing a descriptive-qualitative methodology, this study aims to shed light on the language dynamics exhibited by these individuals. To this end, data were meticulously gathered through participant observation in everyday communication, supplemented by in-depth interviews conducted with family members and language therapists. The findings from meticulous data analysis illuminate that aphasia patients fluently alternate between Sundanese and Indonesian, frequently engaging in code-switching and code-mixing when grappling with linguistic expression or comprehension difficulties. Furthermore, this language phenomenon manifests in the patients' inclination toward employing shorter and simpler sentence structures. Consequently, these results underscore the importance of accounting for language selection, code-switching, and code-mixing within the language therapy process for Sundanese-Indonesian bilingual aphasia patients. Language therapists are urged to comprehend and adapt to the patients' flexible language utilization while devising tailored therapeutic strategies to enhance their linguistic proficiency. Moreover, this research calls for future investigations to explore this captivating phenomenon across diverse cohorts of bilingual aphasia patients, thus broadening our understanding of the intricacies involved.

Keywords: bilingual aphasia, code-mixing, code-switching, Indonesian, Sundanese

Article history

Submitted:

13 June 2023

Accepted:

23 November 2023

Published:

23 November 2023

Citation (APA Style): Nasrullah, R., Lukman, F., & Parmin, P. (2023). Exploring code-switching and code-mixing dynamics in Sundanese-Indonesian bilingual aphasia. *LITERA*, 22(3), 292-306. <https://doi.org/10.21831/ltr.v22i3.62494>.

INTRODUCTION

Language, a pivotal communication medium in human existence, assumes paramount significance. Within the realm of daily interactions, individuals frequently employ multiple languages as a means to engage with others (Canagarajah, 2021; Gajo & Berthoud, 2018; García, 2018; Ishida et al., 2018; Li et al., 2020; O'Brien & Federici, 2020; Zhang et al., 2021). This condition, underpinned by the intricate interplay of social, cultural, and environmental factors, profoundly influences language utilization (Nasrullah et al., 2021; Ramírez-Esparza et al., 2020; Wei, 2020). Notably, Indonesia is a captivating example, wherein individuals seamlessly navigate various regional and Indonesian national languages daily (Kohler, 2019; Albantani and Madkur, 2018; Wijana, 2018).

Code-switching and code-mixing are prevalent among Indonesian individuals with a bilingual background in everyday experiences. Language choice entails deliberately selecting a language for employment during a communicative exchange. Code-switching transpires when an individual transitions from one language to another within a communication interaction. In contrast, code-mixing transpires when an individual seamlessly incorporates multiple languages within a single sentence or conversation.

Code-switching refers to alternating between two or more languages or language varieties in a single conversation or interaction. This can occur for various reasons, such as to express identity, convey a particular message, or accommodate the listener's linguistic needs. Code-mixing is a phenomenon that occurs when speakers use elements from two or more languages in the same

sentence or conversation. It is a common practice in multilingual societies, and it can serve various purposes, such as to show off language proficiency, to express identity, or to convey humor. Code-switching can occur at the word, phrase, or sentence level and involves using loanwords, idiomatic expressions, or grammatical structures from one language in the context of another (Goral et al., 2019; Ramezani et al., 2020). (Aboh, 2020; Smolak et al., 2020) is similar to code-switching but refers to combining elements of two or more languages or language varieties within a single sentence or utterance. This can occur when a speaker is more proficient in one language than another or when a particular word or phrase is more readily available in another language. Code-mixing can also occur for stylistic or expressive purposes, such as to create humor or to convey a particular attitude or emotion.

The study of bilingual aphasia patients in the Sundanese-Indonesian context, especially regarding code-mixing and code-switching, has significant importance and justification. Firstly, Indonesia is a complex multilingual country where using two or more languages in daily communication is common. This research contributes to understanding how aphasia affects dual language ability, which is important not only for linguistics but also for medical practitioners and language therapy. Secondly, through this study, we can gain an understanding of the brain mechanisms and cognitive processes involved in code-mixing and code-switching, especially in individuals with language impairment. This is important for the development of more effective and personalised rehabilitation strategies. Thirdly, the results of this study can provide a new perspective on how identity and socio-cultural aspects influence language use in dual language individuals, particularly in Sundanese and Indonesian contexts. This will enrich our understanding of bilingualism in multicultural contexts.

Within the context of Sundanese-Indonesian bilingual aphasia patients, the realm of communication poses challenges stemming from impaired language proficiency (Calabria et al., 2019; KK Nair et al., 2021; Nasrullah et al., 2019, 2021; Peñaloza & Kiran, 2019). Aphasia, a language disorder from brain damage, engenders speech production, comprehension, reading, and writing obstacles. Consequently, Sundanese-Indonesian bilingual aphasia patients encounter difficulties accessing both languages, impacting their linguistic expression within communication.

Extensive scientific inquiry has been devoted to investigating the intricacies of code-switching and code-mixing within bilingualism and multilingualism, encompassing individuals with normal language abilities and those affected by specific language pathologies. For instance, Carpenter et al. (2021) embarked on a study examining the language competence of bilingual aphasia patients and typically developing bilingual speakers in a verbal fluency task to unravel the interplay between executive and language control mechanisms. Notably, the findings revealed that compared to bilingual aphasia patients, typically developing bilingual speakers exhibited superior performance on the task, with code-switching proving more responsive to heightened control demands than grouping strategies (Carpenter et al., 2021; Peñaloza et al., 2021). Moreover, bilingual aphasia patients' switching performance was influenced by language proficiency and language experience.

Another noteworthy investigation conducted by Svennevig et al. (2019) explored how individuals with multilingual dementia harnessed code-switching strategies as a resource to navigate word retrieval difficulties during picture naming tests and spontaneous conversations. The utilization of code-switching served to restrict meta-communicative functions, enabling participants to offer insights into their word retrieval processes or express frustration. Importantly, participants generally regarded code-switching as appropriate and relevant, predominantly employing it as a communicative resource to mitigate the effects of anomia, a common symptom associated with dementia (Svennevig et al., 2019).

A study by Smolak et al. (2020) investigated the developmental patterns of code-switching in bilingual children aged 31 to 39 months, specifically focusing on two distinct groups: Spanish-English children in San Diego and French-English children in Montréal. The findings indicated that exposure was pivotal in shaping code-switching usage among Spanish-English children, whereas proficiency emerged as a more influential factor among French-English children. In a separate investigation conducted by Goral et al. (2019), the utilization of code-switching in individuals with multilingual aphasia was examined. It was revealed that code-switching predominantly served as a strategic communication tool to navigate challenges associated with word retrieval difficulties. Similarly, Lerman et al. (2019) explored the use of code-mixing in bilingual individuals affected by aphasia.

The study elucidated that code-mixing behavior resembled word retrieval difficulties, suggesting that code-mixing was deployed to optimize communication efficacy. Furthermore, Grunden et al. (2020) undertook a study focusing on voluntary code-switching in bilingual patients with aphasia and healthy bilingual individuals. The researchers employed a switching task that allowed participants to freely alternate between the two languages. The results depicted a nuanced portrayal of language control abilities, underscoring the imperative nature of examining bilingual language control at an individual level within a comprehensive cognitive control framework.

Despite abundant research on bilingual aphasia, there remains a dearth of studies investigating the intricate facets of language choice, code-switching, and code-mixing within the context of bilingual aphasia patients in Indonesia, particularly among Sundanese-Indonesian bilingual aphasia patients. Furthermore, scarce attention has been given to exploring the patterns of language use, specifically in bilingual aphasia patients with proficiency in the Sundanese-Indonesian language pair. Furthermore, prior investigations have predominantly examined language use in bilingual aphasia patients within their daily communication interactions. In contrast, this study will narrow its focus to scrutinizing language use specifically within speech therapy sessions for bilingual aphasia patients. Additionally, the existing body of literature has not thoroughly delved into the comprehensive exploration of the factors influencing language use among bilingual aphasia patients in Indonesia. Consequently, this study aims to contribute significantly to the understanding of language use among individual bilingual aphasia patients in Indonesia, with a particular emphasis on those affected by bilingual aphasia in the Sundanese-Indonesian language pair while also shedding light on the diverse factors that exert influence on language use among individual bilingual aphasia patients in Indonesia.

The undertaking of research investigating language choice, code-switching, and code mixing in Sundanese-Indonesian bilingual aphasia patients holds substantial significance, as it possesses the potential to furnish a more profound comprehension of the language strategies employed in the communicative interactions of individuals affected by bilingual aphasia. The outcomes of this study are anticipated to furnish invaluable insights for linguists and speech therapists, facilitating their endeavors to enhance the language proficiency of Sundanese-Indonesian bilingual aphasia patients.

METHOD

The present study employed a descriptive qualitative methodology. The focal participant of the research was four persons afflicted with bilingual aphasia who demonstrated notable challenges in language utilization. The data collection process encompassed observational techniques and interviews involving the patient, their family members, and the speech therapists in the patient's rehabilitation program.

Four respondents were used as research samples determined with inclusion and exclusion criteria. The respondent was determined using a purposive technique with a fairly proportional ratio (Etikan et al., 2016). The inclusion criteria in determining respondents were: ischemic and hemorrhagic post-stroke patients who had undergone outpatient treatment; expressive/Broca's aphasia patients; speakers of Sundanese (first language) and Indonesian (second language); those willing to become research respondents by signing a consent form; first-attack post-ischemic stroke patients; those whose education at least elementary school or equivalent; patients aged > 18 years and < 80 years. The exclusion criteria were receptive and global aphasia, not mastering a foreign language as a third language.

This study occurred in Al Islam Hospital Bandung City and Jakarta National Brain Center Hospital. The data were collected for 6 (six) months, from September 2019 to February 2020. The data collected in this study included primary data and secondary data. The primary data were obtained by conducting direct interviews with the patients or the patient's families (wife/husband, father/mother, or child) using the provided research instruments. The secondary data were obtained by looking at the medical record data. The provision of data was made using a combination of listening and speaking methods with an essential technique in listening and advanced techniques in the form of note-taking and recording. Furthermore, instruments and unstructured interviews were another technique in the data collection besides the elicitation technique (Hogan et al., 2016; Kapantzoglou et al., 2017). In addition, the recording technique would often be used simultaneously to ensure that their speech can still be heard during the data processing.

In addition to using the techniques described above, two observations were also carried out during the data collection stage, i.e., naturalistic observation, observation without intervention, and observation

with intervention. The researcher observed the conversations between the patients, speech therapists, and family members at each evaluation session. Meanwhile, observation with the intervention was also carried out when, under certain conditions, the researcher wanted to know certain information that was difficult for the research subjects to provide without the researcher's direction. In particular, this technique was used to gather information about bilingual aphasia patients' linguistic backgrounds. The primary objective of the observations was to document the language usage patterns, types of language choices, code-switching, and code-mixing that manifested within the communication interactions of bilingual aphasia patients.

The collected data underwent descriptive analysis, wherein the types of language choice, code-switching, and code-mixing exhibited in the communication interactions of bilingual aphasia patients were systematically identified and categorized. Furthermore, analytical procedures were conducted to discern the factors that influence the language use of bilingual aphasia patients within communication interactions. The study findings are conveyed through a combination of narrative descriptions and tabular presentations, elucidating the diverse manifestations of language choice, code-switching, and code-mixing observed within the communication interactions of bilingual aphasia patients.

RESULTS AND DISCUSSION

This section will elucidate the patterns of code-switching and code-mixing observed in Sundanese-Indonesian bilingual aphasia individuals within the framework of language choice, code-switching, and code-mixing, encompassing diverse linguistic levels, including phonology, morphology, syntax, and spontaneous translation.

Language Choice in Sundanese-Indonesian Bilingual Aphasia Patients

Regarding language choice, patients AS and SH consistently responded in Indonesian, the language used by the interlocutor. Patient ED, on the other hand, answered in Sundanese, while patient SU alternated between Sundanese and Indonesian. Notably, ED and SU patients frequently exhibited code-switching and code-mixing symptoms. In contrast, patients AS and SH demonstrated a stronger preference for Indonesian and did not indicate code-switching or mixing with Sundanese. ED and SH frequently exhibited code-switching and code-mixing during the naming test. Specifically, ED demonstrated these phenomena prominently during the second evaluation, as in the initial evaluation, ED only displayed language proficiency in Sundanese, with no proficiency observed in Indonesian.

Table 1. Language Choices and Code-Switching Behaviors in Sundanese-Indonesian Bilingual Aphasia Patients

No.	Patient	Language Response	Code-Switching and Mixing	Preference	CLTE Impact on Recovery
1	AS	Indonesian	No	Indonesian	-
2	SH	Indonesian	No	Indonesian	-
3	ED	Sundanese	Yes	Sundanese (initially), Indonesian (later)	Yes
4	SU	Sundanese and Indonesian	Yes	Sundanese and Indonesian	-

Table 1 summarizes the language choices, code-switching and mixing behaviors, language preferences, and the impact of cross-linguistic transfer effect (CLTE) on the recovery process of the four patients (AS, SH, ED, SU) in your study.

The manifestation of language symptoms in ED vividly illustrates the impact of the cross-linguistic transfer effect (CLTE) on the language competence recovery process in Sundanese-Indonesian bilingual aphasia patients. For a more comprehensive illustration, refer to the following example.

Data 001

T: Tos sarapan, Bu?

'Have you had breakfast, Miss?'

P: Udah.... sarap tadi énjing di bumi

'already had breakfast this morning.'

T: Sarapan sareng naon?

What's for breakfast?

P: Sarapan nganggo pating hayam ... eh, lele.

Breakfast with chicken... er, catfish

T: *Lauk!*

Fish!

P: Betul... lauk. Anu makan, murang kalih ogé tuang. Lele.

That's right... fish. My son ate it, too. Catfish...

T: *Sayurna naon bu?*

What are the veggies, Miss?

P: Nggakk.... Eh, éta ogé sayuran.

No, uh, that's all the veggies...

T: *Naon sayur?*

What kind of veggies?

P: Eeéh ... naon kitu, enggal ... eh ... baaa ... bayur. Éh ... sayur. Héjo sering ngadahar.

Eeh... What's that? Eh... spinach vegetable. Eh, the one with the green color.

T: *Bayam?*

Spinach?

P: Leres, bayem. Bayam sayur.

Ya, bayam. Sayur bayam.

Yes, spinach. Spinach.

T: *Sayur Bayam!*

Sayur Bayam!

Spinach!

P: Bayam, bayem sayur. Eh, sayuran ... bayem

Bayam, sayur bayam. Eh, sayur... bayam.

Spinach, spinach vegetable. Eh, vegetable... spinach.

In data 1 above, the speech of the patient ED frequently exhibits indications of code-mixing. Despite the Sundanese speech context, this is evident in using Indonesian vocabulary items to express specific intentions. Several Indonesian words emerge in the patient's utterances, including "udah" instead of the Sundanese "atos" or "parantos") as a nonstandard form of the word "already," "eat" (instead of "tuang" or "dahar") as a substitute for the Sundanese term, "don't" (as a nonstandard form instead of "teu" or "henteu"), and "often" (which should be "sok" or "osok").

Data 002

T: *Bu, Kang R henteu acan kenal. Coba kenalkeun! Saha namina bu?*

Bu, Kang R belum kenal. Coba kenalkan diri! Siapa namanya?

Miss, I don't know Kang R yet. Please introduce yourself! What's your name?

P: Nama... Eh... Nama... ED. Janten naon?

Nama... Eh... Nama... ED. Jadi siapa?

Name... Eh... Name... ED. So who is it?

T: *Dimana bumi téh bu?*

Rumahnya di mana, Bu?

Where is the house, Miss?

P: Nuju ... gang ... eh, Mar... Marga Cinta. Nomor 33. RT 014/01, Bandung, eh tilu.

Lagi... gang... eh, Mar... Marga Cinta. Nomor 33. RT 014/01, Bandung, eh tiga.

Again... alley... er, Mar... Marga Cinta. Number 33. RT 014/01, Bandung, uh three.

T: *Nami murangkalih ibu?*

Siapa nama anaknya, Bu?

What's the child's name, Miss?

P: Nama abdi, eh, nama murangkalih ...

Nama saya, eh, nama anak saya...

My name, uh, my son's name...

T: *Suami ibu?*

Kalau suami, siapa Namanya Bu?

If your husband, what's his name, Miss?

P: Eeeeh ...

Eeeeh ...

In the illustration mentioned above, the speech of the patient ED frequently manifests indications of code-mixing. Specifically, the patient tends to employ words recognized as Indonesian lexemes to convey particular intentions despite the prevailing Sundanese context. Notably, one instance of code-mixing is observed in the usage of "*nama*" (an Indonesian term) instead of the Sundanese equivalent, "*nami*".

Code Switching and Code Mixing in the Speech of Sundanese-Indonesian Bilingual Aphasia Patients

Manifestations of code-switching and code-mixing among bilingual aphasia patients who speak both Sundanese and Indonesian languages are evident not only at the morphological level, involving the interchanging use of affixes, but also at the syntactic level, encompassing the blending of phrase structures and the utilization of grammar from one language in conjunction with lexical items from the other. Illustrative instances highlighting code-switching and code-mixing symptoms at the morphosyntactic level are presented below for reference.

Table 2 Morphosyntactic Manifestations of Code-Switching and Code-Mixing in Sundanese-Indonesian Bilingual Aphasia Patients

	Aspect	Description
1	Morphological Level	Interchanging use of affixes from Sundanese and Indonesian languages.
2	Syntactic Level	Blending of phrase structures and utilization of grammar from one language in conjunction with lexical items from the other.

Table 2 provides a concise overview of how code-switching and code-mixing occur at two distinct linguistic levels among patients who are bilingual in Sundanese and Indonesian. At the morphological level, it highlights the interchanging use of affixes from both Sundanese and Indonesian languages, demonstrating how elements from each language are blended at a very fundamental level of language structure. Meanwhile, at the syntactic level, it notes the blending of phrase structures and the utilization of grammatical constructs from one language alongside lexical items from the other. This complex interaction at the syntactic level signifies a deeper level of linguistic interplay, where the structural aspects of both languages are intertwined. This table serves as an essential reference for understanding the intricate ways in which bilingual aphasia impacts language processing at different levels of linguistic structure. For a more comprehensive illustration, refer to the following example.

Data 003

T: Ieu gambar naon bu? (gambar anak perempuan digigit anjing)

What is this picture, Miss? (a picture of a girl bitten by a dog)

P: Ada... seorang perempuan, eh ... manéhna ujug-ujug beung ... digigit ... digigit ku anjing! Anjing, anjing ... muhun. Janten ngan *ngajalankeun* anjeunna! Abdi reuwas. Anjeunna ngan hoyong angkat! Tapi tos digigit ku anjing!

There was... a woman, uh... a dog suddenly bit her! Dog, dog... Yeah, so she was running! I was shocked. She just wanted to run! But she got bitten by a dog!

The examples mentioned above reveal frequent indications of morphosyntactic code-mixing in the speech of patient ED. Indonesian phrases are frequently employed to convey specific intentions despite the contextual usage of Sundanese. Moreover, the utilization of specific affixes found in Indonesian and Sundanese forms is also commonly observed. As the example demonstrates, "a woman" represents a formulation derived from Indonesian phrasing.

Data 004

T: Pami ieu gambar naon bu? (rumah di antara dua pohon kelapa)

What is this picture, Miss? (a house between two coconut trees)

P: Imah! Sumuhun, **rumah!** Di bumi aya, imah ieu aya ... teu aya **kembang!** Ieu aya, kanggo aya ... henteu, teu aya kembang huh? Kusabab jangkungna, jangkung siga kieu ... hayam. Éh, sanés hayam. resep mésér abdi. Aduh ... tina naon?
 Home! Yes, home! There's a house, and there's a house... No flowers! This is for me... No, there are no flowers, right? Because the height, the height is like this... Chicken. Eh, not chicken. I like to buy that. Ouch... what is it?

Data 005

Pami ibu nuju jalan-jalan, nu sok ditingali naon wae bu?

Mul ... mul ... Mulha. Almuhajirin. Itu teh **masjid!** terang, eh ... terang, terang masjid, janten terang! Maka naon ieu? **Hewan anjing!** Nembe mendakan anjing ieu!

Oh enya, kamari jarang ningali anjing. Kamari, ah sigana henteu acan, acan ningali anjing sapertos kitu huh!

Teras ... milarian deui kanggo ... eh, kanggo ieu ... di bumi, di bumi, katuhu, henteu di bumi. Henteu di bumi, namina imah hah? Ieu bumi? Leres, di bumi aya anu kieu, hiji ieu, naon ieu? (nunjuk ka jandela)

Jandela!

Iya, betul... jendela... Jendela...

The examples mentioned above illustrate the frequent manifestation of morphosyntactic code-mixing symptoms in the speech of patient ED. Indonesian phrases, which can be distinguished, are frequently employed to convey specific intentions despite the contextual usage of Sundanese. Furthermore, the use of certain affixes, present in Indonesian, in combination with Sundanese forms is also commonly observed. The provided example demonstrates the phrase "dog animal," representing a formation derived from Indonesian phrases.

Data 006

P: Bu, cobu caritakeun, naon wae nu dilakukeun ku ibu ti enjing-enjing dugi ayeuna!

Miss, tell me what you did from morning until you got here!

T: Oh enya, ibu terang ayeuna. Waktu éta eh... **saya bangun tidur** tabuh lima magrib, eh, énjing-énjing ... tabuh lima énjing solat. Kajantenan sholat, abdi hoyong badé angkat-jalan. Ngan kitu... kejadian anu aya anu rada tiis, tetep, tetep rada tiris, jalan-jalan, dina waktu éta kantos teu pernah, tetep teu acan tiasa kaluar. Maksudna deukeut ka bumi abdi, henteu?

Oh yes, I know now. At that time, uh... I woke up at 5 o'clock, uh, early in the morning... Five o'clock in the morning to pray. Then, after praying, I was about to go for a walk. But something happened that felt cold, still a little bit cold, going for a walk. At that time, I never, still could not go out. I mean, close to home, no?

In the example mentioned above, the speech of patient ED frequently exhibits indications of code-mixing at the morphosyntactic level. Specifically, Indonesian clauses are frequently employed to convey specific intentions despite the discourse context being in Sundanese. As the provided example demonstrates, "I woke up" represents a clause formation originating from Indonesian.

Data 007

P: Tiis, eh, éta tiis! Teras abdi **diajarkan** ieu, naon anu disebut **apa?** Abdi mah janten rada terang, kedah terang supados diajar? Naon anu nyarios. Oh ayeuna terang, sanaos teu langkung, tapi lumayan ogé. Ti kamari parantos **belajar** saeutik tina ieu, ti tuang eh, bayar, eh! Henteu mayar! Ngésér ... mésér kebung, mas ... masak!

It's cold, uh, it's cold! Then I learned, what, what is this? I'm clear now; do you have to know to learn? What is being talked about? Oh, now I know, although not more, but enough. From yesterday, I've learned a little from this, from eating, eh, pay, eh! Not paying! Buying fuel for cooking!

In the above example, patient ED demonstrates evident manifestations of code-mixing at the morphosyntactic level. Notably, Indonesian phrases are frequently employed to convey specific intentions despite the discourse context being in Sundanese. Furthermore, using certain affixes found in

Indonesian, combined with Sundanese forms, is also frequently observed. For instance, the presence of the formation "taught" exemplifies a morphological formation rooted in Indonesian.

Data 008

P: Kanggo masak sapertos kitu! Masak? Janten abdi balik deui isuk-isuk, *akhirnya* nuju mésér. *Enjingnya* henteu, abdi tuang heula, nginum obat heula, ti dokter. Saatos kitu teras calik: pembantu, da badé mésér, poko! Balanja, kanggo, mésér, kanggo *kapentingan* ... kembang, eh sanés kembang. Kanggo belan, aduh, kembang. Maksud na mésér barang sapertos ... éta nyaéta masak, masak waé. Abdi oge ngagaleuh piring sareng jalmi éta. Aya toge, aya sagala jinis abdi, tapi abdi ogé diajar di ditu pikeun diajar tempe, terang, naon éta! énjing! Sareng énjing, teras mandi. Sanggeus mandi, eh ... siga kitu, siga diajar, eh henteu, henteu *belajar*. Eh, nyarios ka adi ogé, teras jam anu kitu bobo, ti satengah lima, tabuh lima belas. Lima belas énjing. Eh, salapan! Sapuluh! Salapan! Sapuluh! Maksud abdi tabuh sapuluh énjing! Jam sapuluh énjing énjing na nuju bobo, sabab réréncangan bakal kadieu, di tim, caket ieu. Di dieu bumi caket enya dugi ka rumah sakit di dieu. éta pasti bakal jam dua belas *siang*! Jam dua belas soré, aya seueur babaturan di dieu! réngsé *belajar*. badé diajar. Teras abdi diajar saeutik

To cook like that! Cook? So, I went home again in the morning—finally, another purchase. The next day, I ate first and took medicine from the doctor. Then, sit down; help. You see, I wanted to buy it! Shopping for... flowers, er not flowers. For shopping, ouch, flowers. I mean, buying things like... that's for cooking, all the time. I also bought plates. There are bean sprouts and all kinds, but I also learned here to shop for tofu and tofu; what is it? Tomorrow! And the next day, then shower. After bathing, eh... like that, like studying, eh no, not studying. I talked to my sister, too, and immediately went to sleep from half past five to fifteen. Fifteen o'clock in the morning. Eh, nine o'clock! Ten! Nine! Ten! That is, ten o'clock in the morning! I slept at ten o'clock in the morning because a friend would visit the house nearby. Here, the place is also close to the hospital. It was precisely noon! At noon, there are so many friends at home! After studying, I would study some more. Then, I learned a little bit.

The above example illustrates the manifestation of code-mixing symptoms at the morphosyntactic level. Notably, Indonesian phrases are frequently employed to convey specific intentions despite the speech context being in Sundanese. Additionally, the utilization of certain affixes that exist in Indonesian, juxtaposed with Sundanese forms, is frequently observed. For instance, "*akhirnya* (finally)" exemplifies a morphological formation rooted in Indonesian. Furthermore, the term "*enjingnya*" represents a hybrid composition combining elements from both Indonesian and Sundanese languages.

Data 009

T: *Pak, cobu sebatkeun nami-nami hari!*

Sir, tell me the names of the days!

P: Salasa... Eh, Senin... Selasa...

Tuesday... Uh, Monday... Tuesday...

T: *Bahasa Sunda na Pak!*

The Sundanese, sir!

P: Selasa...

Tuesday...

T: *Sala???*

P: Selasa...

Tuesday...

T: *Salasa!!!*

Tuesday!!!

P: Eh iya, betul.... Salasa...

Eh, yes, right... Tuesday...

T: *Teras pak?*

Next, sir?

P: Rebo... Kamis...

Wednesday... Thursday...

T: *Kem???*

P: Kamis...
 Thursday...
 T: *Kemis!!*
Thursday!!!
 P: Kamis... Jumat... Sabtu... Ahad
 Thursday... Friday... Saturday... Sunday

Data 010

T: *Pak, sekarang coba sebutkan nama-nama bulan dalam bahasa Indonesia!*
Sir, now tell us the names of the months in Indonesian!

P: Januari... Febreuari... Maret... **Safar...**
January... February... March... Safar (2nd month in the lunar calendar)

T: *Hah... Ulangi! Udah Mare tapa?*
Hah... Repeat! It's already March, what month?

P: Maret... Mei...
 March... May...

T: *Ap???*

P: Ap... April...
 Ap... April...

T: *Bagus, Terus?*
Good, then?

P: Mei... **syawal...**
May... Shawwal... (10th month in the lunar calendar)

Data 011

T: *Bukan... Syawal itu bulan dalam bahasa Sunda!*
No... Syawal is the month in Sundanese!

P: Meii...
 May

T: *Terus?*
Next?

P: Juni...
 June...

A unanimous consensus regarding the nature of code-switching and code-mixing symptoms observed in bilingual aphasia patients is yet to be reached. Whether these manifestations are pathological or represent a normal phenomenon observed in bilingual individuals remains. Taking a stance akin to Peresman (1984), the author posits that code-switching and code-mixing, specifically at the level of speech, serve as indications of a linguistic deficit, while spontaneous translation signifies a deficit in paralinguistic processing.

The occurrence of code-switching and code-mixing in the speech of bilingual aphasia individuals can stem from various causes. While some may indicate language deficits and conceptual impairments, as Peresman (1984) noted, others may result from deliberate and conscious communicative strategies. However, determining whether code-switching and code-mixing represent pathological symptoms or normative behaviors commonly observed in typical language users can be challenging. The key distinction between normal and pathological code-switching and code-mixing lies in the underlying motives driving their occurrence. In normal bilingual speakers, pragmatic considerations often influence the occurrence of code-switching and code-mixing. Conversely, in bilingual aphasia patients, medical factors, particularly difficulties in articulating intended words, play a significant role, leading to code-switching and code-mixing strategies as substitutes for the problematic words.

Code-switching and code-mixing can manifest as conscious or unconscious strategies employed by bilingual aphasia individuals to access the appropriate word in both languages. In such instances, a word from one language may serve as a "paraphasia" in the second language; however, it does not impede communication as it remains semantically accurate. Bilingual aphasia patients can benefit from speech therapy approaches that leverage code-switching and code-mixing to enhance functional

communication, particularly for individuals residing in bilingual communities. The occurrence of code-switching and code-mixing in bilingual aphasia patients is inseparable from the influence of cross-linguistic transfer effects on language competence restoration. This implies that code-switching and code-mixing symptoms reflect the cross-linguistic impact on bilingual aphasia patients, as observed in the case of Sundanese and Indonesian. Consequently, the potential for code-switching and code-mixing symptoms becomes more pronounced when patients command two cognate languages with numerous similarities across phonological, morphological, syntactic, and discourse aspects.

Data 012

T: Kita lanjut lagi ya pak. pelan-pelan. Tarik napas dulu. Kita sekarang menyebutkan nama binatang. Let's continue, sir. Slow down... Take a breath first. We are now naming the names of Animals.

Ini apa? (gajah)

What is this? (elephant)

P: Bi... eh... munding.

Bi... er... buffalo

T: Bukan, punya belalai panjang! Huruf awalnya g!

No, this animal has a long trunk! The first letter is g!

P: Bag... eh, gajah.

Bag... er, elephant.

T: Ini? (kambing)

This? (goat)

P: Embe... Eh, domba...

Goat... Uh, sheep...

Data 013

T: Kam??

P: Domba... Eh, kambing

Sheep... Uh, goats

T: He eh bener. Ini? (anjing)

He eh right. This? (dog)

P: Aduh... eh. Aduh...

Ouch... eh. Ouch...

T: A - n jadi apa?

A - n so what?

P: An... anjing!

An... dog!

T: Ini bapak pasti tau! (tikus)

This you must know! (rat)

P: Eh... tikus

Eh... rat

T: Ini? (kucing)

This? (cat)

P: Meong. Meong... (menirukan suara kucing)

Meow. Meow... (imitates cat's voice)

T: Apa meong? Meong suaranya? Binatangnya apa?

What meow? Meow? What's the animal?

P: Ucing...

Cats

T: Kurang /k/ pak... Ku??

Less /k/ sir...??

P: Kucing...

Cats...

T: Oke, selanjutnya? (ayam) a huruf depannya!

Okay, next? (Chicken) a first letter!

P: Anjing. Eh, an...

Dog. Uh, an...

T: *Kukuruyuuk... apa tuh pak?*
Kukuruyuuk... what is it, sir?
P: Anjing eh **hayam**.
Anjing eh ayam.
Dog, eh, chicken.

In the example above, patient ED demonstrates signs of code-mixing at the morphosyntactic level in their speech. Despite the speech context being in Sundanese, words identified as Sundanese vocabulary are frequently employed to convey specific intentions. Furthermore, using certain affixes found in Indonesian, combined with Sundanese forms, is also common. Within the provided example, the words *embe* (goats), *ucing* (cat), and *hayam* (chicken) serve as illustrations of the Sundanese vocabulary being utilized.

The occurrence of code-switching and code-mixing among bilingual aphasia patients proficient in both Sundanese and Indonesian languages is a substantial indicator of the impact of the cross-linguistic transfer effect (CLTE) on the process of language recovery in such individuals. This observation further corroborates the findings of prior scholars in the field (Chen, 2018; Goral et al., 2019; Jomaa et al., 2022; Lee & Faruqi-Shah, 2021; Ramezani et al., 2020; Riccardi, 2012). Code-switching entails the simultaneous use of two languages within a single conversation by individuals with a high level of mastery in both languages. It is important to note that this phenomenon is inconsistent in its application, as it heavily relies on the linguistic proficiency of the speaker and adheres to grammatical rules. Moreover, code-switching is subject to the influence of various factors, including environmental, social, and personal considerations such as the duration of one's residence in a particular linguistic community, educational background, and social connections. Given the close association between code-switching and the linguistic competence of speakers, any deterioration in language proficiency can impede the ability to engage in code-switching and code-mixing during speech production.

Bilingual aphasia patients often experience impairments in linguistic competence, affecting their code-switching ability. This aspect was highlighted by Peresman (1984) in a study involving three aphasia speakers who had sustained brain trauma and exhibited code-mixing and code-switching behavior (Peresman, 1984). These aphasia patients demonstrated considerable code-switching, code-mixing, and spontaneous translation. Based on the findings, Peresman concluded that the occurrence of code-switching, code-mixing, and spontaneous translation in the speech of aphasia patients served as an indicator of language competence deficits (Peresman, 1984). However, Grosjean (1989) presents a contrasting perspective to Peresman's argument. According to Grosjean, symptoms such as code-switching, code-mixing, and spontaneous translation can also manifest in normal bilingual or multilingual speakers, suggesting that these symptoms do not necessarily signify a language deficit (Grosjean, 1985). Nonetheless, a comprehensive evaluation of the patient's language competence before and after the onset of aphasia is crucial in determining whether these symptoms reflect a language deficit.

The occurrence of code-switching and code-mixing symptoms are commonly observed in the process of language competence recovery among bilingual aphasia patients. In bilingual aphasia patients, code-switching and code-mixing are characterized by using different languages within words or sentences, spontaneous translation, and other linguistic disturbances. The assertions made by Peresman (1984) are supported by the findings of Munoz, Marquardt, and Copeland (1999), who conducted a study comparing code-switching and code-mixing patterns between English-Spanish aphasia patients and fluent English-Spanish speakers. The results indicated that aphasia patients exhibited a higher frequency of code-switching and code-mixing than fluent speakers (Munoz et al., 1999). This suggests an increased reliance on both languages for communication due to neurological impairment.

This study explores the complex phenomenon of code-switching and code-mixing in the context of bilingual aphasia patients who communicate in Sundanese and Indonesian. This research significantly contributes to understanding the phenomenon, especially in improving rehabilitation and effective communication for these patients. In this study, the researcher used a single qualitative case study methodology to explain the language dynamics exhibited by these individuals. Data was carefully collected through participant observation in everyday communication, complemented by in-depth interviews conducted with the patient's family members and language therapists. The results of

meticulous data analysis revealed that the aphasic patients fluently switched between Sundanese and Indonesian, often code-switching and code-mixing when facing difficulties in linguistic expression or comprehension. In addition, this language phenomenon appears in the patients' tendency to use shorter and simpler sentence structures.

The results of this study highlight the importance of considering language selection, code-switching, and code-mixing in the language therapy process for Sundanese-Indonesian bilingual aphasia patients. Language therapists are encouraged to understand and adapt to these patients' flexible language use while designing customized therapy strategies to improve their linguistic abilities. In addition, this study also encourages future research to explore this interesting phenomenon across different groups of bilingual aphasia patients, thus expanding our understanding of the complexities involved in this phenomenon. In other words, this study provides insights that can help improve the care and understanding of bilingual aphasia patients who speak Sundanese and Indonesian and encourages further research to explore this topic.

Research Limitations and Suggestions for Future Research

This study, which explores the phenomenon of code-switching and code-mixing in bilingual aphasia patients who communicate in Sundanese and Indonesian, provides valuable insights into the complexity of this issue. However, like any scientific research, this study has some limitations that must be recognized. One limitation that arises is the limited sample size. This research used a single case study method, which means that only one aphasia patient was the subject of the study. This leads to limitations in generalizing the research findings to a wider population of bilingual aphasia patients. Thus, future studies may consider involving a larger sample to gain a more comprehensive understanding. In addition, this study also has limitations in terms of language context. Although Sundanese and Indonesian were the focal languages in this study, future research could explore the same phenomenon in aphasia patients in the context of other languages or different code-switching situations.

In addition to these limitations, this study provides some important suggestions for future research. One comparative study compares bilingual aphasia patients with monolingual aphasia patients in Sundanese and Indonesian. This will help in identifying clearer differences in code-switching and code-mixing phenomena. Future research could also take a longitudinal approach, observing the development of aphasia patients over time. That way, we can understand how code-switching and code-mixing evolve as patients rehabilitate. Technology can also be introduced in research, such as automatic speech monitoring, to generate richer and more objective data. Finally, socio-cultural aspects of code-switching and code-mixing must be considered to provide a deeper understanding of these phenomena.

By addressing the existing limitations and carrying out follow-up research with a broader and more diverse approach, we can deepen our understanding of the complexities of code-switching and code-mixing in the context of bilingual aphasia patients. This will help improve patient care and rehabilitation and guide language therapists in addressing the communication challenges bilingual aphasia patients face in Sundanese and Indonesian.

CONCLUSION

In conclusion, code-switching and code-mixing have emerged as a prominent pattern in the recovery of language competence among bilingual aphasia patients. These individuals, who experience deficits in linguistic competence, often encounter challenges in linguistic code-switching. The symptoms of code-switching and code-mixing exhibited by these patients manifest through the alternation of languages at both word and sentence levels, spontaneous translation, and various linguistic impairments. Evaluating the language competence of patients before and after the onset of aphasia is crucial in determining whether these symptoms reflect a language deficit. Moving forward, future research endeavors should prioritize the development of evaluation and intervention methods explicitly tailored for Sundanese-Indonesian bilingual aphasia patients who encounter code-switching and code-mixing. For instance, there is a need to create assessment tools that can effectively measure patients' proficiency in code-switching and code-mixing. Additionally, interventions should be designed to assist these individuals in overcoming the challenges associated with code-switching and code-mixing.

Moreover, it is imperative to embark on research initiatives to construct new models and theories that can elucidate and predict the phenomenon of code-switching and code-mixing in Sundanese-Indonesian bilingual aphasia patients. These studies can explore the intricate relationship between the

type of aphasia and the patient's ability to code-switch and code-mixing. By advancing our comprehension of this phenomenon, we can enhance clinical practices and ultimately facilitate better outcomes for bilingual aphasia patients.

ACKNOWLEDGMENT

We wish to express our sincere gratitude to the participants and their families for their willingness and support throughout the study. Their contribution has been invaluable in advancing our understanding of bilingual aphasia. We are also thankful to the speech therapists and clinical professionals who provided insights into the Sundanese-Indonesian bilingual context, which were crucial for our analysis.

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