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Paediatrics Section

Impact of Language Learning Strategies on Enhancing Independent Neonatal History-taking Skills among Non Native Language-speaking Medical Undergraduates: A Quasi-experimental Study

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ABSTRACT

Introduction: Communication in a native language is essential for non native-speaking medical undergraduates. There is a paucity of literature on the role of language learning strategies used by medical undergraduates to learn a non native language.

Aim: To study the role of language learning strategies in the development of independent neonatal history-taking skills by non native language-speaking Bachelor of Medicine and Bachelor of Surgery (MBBS) graduates.

Materials and Methods: This quasi-experimental prospective cohort study was conducted in the Department of Paediatrics at JIPMER Karaikal, Puducherry,South India from December 2022 to December 2023. A total of 46 non Tamil language-speaking MBBS undergraduates who fulfilled the inclusion criteria {Novice level according to the American Council on Teaching Foreign Languages (ACTFL) scale} were enrolled. The enrolled students were provided with standardised learning material containing common symptoms and Tamil translations of words and phrases. They were trained to take independent histories using various language learning strategies (memory, cognitive, compensation, metacognitive, affective, and social). The Strategy Inventory on Language Learning (SILL) questionnaire was used to evaluate the students' proficiency in their non native language and their use of language learning strategies. The percentage of enrolled students who improved from Novice to intermediate level was noted at the end of the study.

Results: The students (n=46) were at the Novice level at enrollment. At the end of the 12-month duration, 16 (35%) of the enrolled students were able to initiate and maintain simple conversations by asking and responding to questions (intermediate level). Notably, 56% of the enrolled students predominantly used social strategies to learn their non native language, validating the effectiveness of this approach.

Conclusion: Social language learning strategies were predominantly used by medical undergraduates to develop independent neonatal history-taking skills in a non native (Tamil) language.

Keywords: Communication, Language-questionnaire, Language-strategies, Newborn

INTRODUCTION

Communication skills are essential among medical graduates for eliciting medical history and for communicating with patients' families and other healthcare workers. Language skills are an integral component of communication skills. Communicating in the native language improves doctor-patient communication by building trust and comprehension [1]. Native language communication also improves healthcare quality and patient safety by minimising the chances of medical and diagnostic errors and improving interpersonal communication among healthcare teams [2].

Medical students transcend geographical boundaries to acquire medical knowledge, and a lack of native language skills may result in suboptimal learning and hamper the development of soft skills. Medical history-taking and communication with the patient's family are essential for diagnosis and acquiring medical knowledge. Hence, native language skills are necessary for medical students [3]. General language learning strategies are not practical due to limited time frames. Although communication skills have been integrated into the medical curriculum, native language learning is not explicitly addressed in the current curriculum. A methodologically integrated approach to native language learning is, therefore, necessary to improve history-taking skills [4].

Students often use coping strategies, such as employing an interpreter (usually a peer) or limiting interactions with patients who share a common language to communicate [5]. This may result in insufficient clinical exposure to the spectrum of patients within the institution.

Previously published studies have noted that students effectively utilise memory, cognitive, metacognitive, compensation, and social strategies to learn a second or foreign language [6,7]. However, none of these studies included medical undergraduates as participants. Medical undergraduates often use written notes with transliterations of critical terms and phrases to ask for specific histories (codebook) or frequently select patients who share a common language with them (avoidance/preference strategies). They may also rely on friends to ask for specific lines to repeat to patients (peer assistance) or to inquire about specific histories from the patients (peer translator). Rarely, some may resort to body language and gestures combined with a mix of languages (e.g., Hindi, English, and Tamil) to interact with patients (coping strategies). Strategies such as avoidance and coping can impede language learning. Understanding which strategies are effective for better native language acquisition is beneficial so that these strategies can be integrated into clinical teaching. Hence, the role of

language learning strategies in improving history-taking skills among non native language-speaking MBBS graduates in the Paediatrics (Neonatology) Department was studied.

MATERIALS AND METHODS

This quasi-experimental prospective cohort study was conducted in the Department of Paediatrics at a tertiary care Institute, JIPMER Karaikal, South India from December 2022 to December 2023. The study commenced after obtaining ethical consent (IEC/2021/045).

Inclusion criteria: Non native (non Tamil) speaking fifth-semester MBBS undergraduates were enrolled during the study period. A subjective assessment was conducted at the bedside by observing the students' clinical history-taking, which was evaluated based on the ACTFL oral proficiency assessment at the workplace [ANNEXURE 1] [8]. This assessment was performed by the native (Tamil) language-speaking faculty at the study centre. The ACTFL proficiency scale assesses language proficiency and classifies it into five levels: Novice, Intermediate, Advanced, Superior, and Distinguished [8]. Students who could not communicate or could only communicate using formulaic words, lists, and phrases (Novice level) were included.

Exclusion criteria: Native (Tamil) language-speaking medical undergraduates were excluded.

Sample size: A convenient purposive sample of 46 MBBS undergraduates was trained to take neonatal history in their native (Tamil) language by native language (Tamil) speaking faculty from the Department of paediatrics, medicine, surgery, dentistry, and anaesthesia.

Study Procedure

The faculty created standardised newborn history-taking proforma and a Tamil-to-English translation proforma to facilitate Tamil language training for the MBBS undergraduates. The language training sessions lasted one hour and were scheduled once weekly for twenty-four weeks. The Tamil-to-English proforma consisted of: 1) common symptoms translated into Tamil using Google Translate, dictionaries, or other appropriate methods; 2) the Tamil translation of words and phrases related to the onset, duration, progression, aggravating, and relieving factors of symptoms; 3) Tamil phrases to elicit positive or negative histories; and 4) Tamil words and phrases related to general parts of history, like family history, socioeconomic history, personal history, dietary history, developmental history, nutritional history, and birth history. The students used the proforma as a guide to learn the relevant Tamil language for history-taking. The Institute's medical education department validated the proforma for student use.

The MBBS undergraduates adopted multiple language learning strategies to learn their native (Tamil) language and become independent in newborn history-taking. These strategies included memory, cognition, metacognition, and social strategies [9]. The Strategy Inventory for Language Learning Questionnaire (SILL, Oxford 1990), a validated self-assessment tool, was used to assess different language learning strategies [10]. The SILL questionnaire contains fifty self-assessment questions divided based on various language learning strategies [ANNEXURE 2]. The SILL questionnaire records students' responses to each question on a scale of 1 to 5. The responses of enrolled participants were tabulated in Excel [ANNEXURE 3]. A score of 3 to 5 was considered a positive response to that specific learning strategy and was expressed as a percentage. The interpersonal listening and speaking skills in a non native language were subjectively assessed using the ACTFL proficiency scale [ANNEXURE 1] at the end of the 12-month training period through bedside observation of students' history-taking skills [8]. The Novice ACTFL proficiency scale corresponds to ILR 0/0+, and the intermediate scale corresponds to ILR 1/1+. Enrolled students who required peer assistance at the start of the study were able to initiate and maintain simple conversations with patients and elicit history without any translator or peer assistance by the end of the 12-month duration.

STATISTICAL ANALYSIS

The individual responses from each study participant were collected using Google Forms, and the median response for each question is attached in [ANNEXURE 4]. The median and interquartile range for each questionnaire were calculated using Microsoft Excel 2021.

RESULTS

Total 100% of the enrolled students at novice level proficiency (n=46) suggested the need for a translator at the beginning of the study for clinical history taking and examination. Hindi 24 (52%) students and Malayalam 14 (30%) students were the first languages of most enrolled students [Table/Fig-1]. This signified the need for MBBS students to receive training in the patient's native language. Total 16 (35%) at the intermediate level suggested that a translator was no longer needed at the end of the 12-month duration.

First language	Age (y) Mean±SD	Gender (Male)	N=46 n (%)	ACTFL proficiency in Tamil
Hindi	21.5±10	15	24	Novice (ILR 0/0+)
Malayalam	21±2	8	14	Novice (ILR 0/0+)
Others (Marathi/ Manipuri/Telugu/ Kannada)	21±1	05	08	Novice (ILR 0/0+)

[Table/Fig-1]: Baseline details of the enrolled participants.

The median responses to the learning strategies assessed using the SILL questionnaire has been depicted in [Table/Fig-2]. The median (IQR) of the social strategy was 4 (3-4), which was higher than that of the other strategies.

SILL questionnaire (Types of learning strategy)	Median (IQR)
Memory	2 (2-4)
Cognitive	3 (2-4)
Compensation	2 (2-4)
Metacognitive	3 (2-4)
Affective	2 (1-3)
Social	4 (3-4)

[Table/Fig-2]: The median (IQR) responses for the SILL questionnaire by the participants.
1. Never or almost never true of me; 2. Usually not true of me; 3. Somewhat true of me; 4. Usually true of me; 5. Always or almost always true of me

Students used various language learning strategies. The social strategy was used by 9 students (56%) to learn the native language and develop independent history-taking skills has been depicted in [Table/Fig-3]. The other less common learning strategies used were memory 1 (7%) student, cognitive 1 (8%) student, compensation 2 (10%) students, metacognitive 2 (9%) students and affective 1 (8%) student.

Type of strategy	Examples	ACTFL scale	
		Novice (30/46)	Intermediate (16/46)
Memory strategies	Creating mental linkages	7 (25%)	1 (07%)
	Applying images and sounds		
	Reviewing well and employing actions		
Cognitive strategies	Skimming and scanning	6 (20%)	1 (08%)
	Practicing		
	Analysing and reasoning		
	Summarising		
Compensation strategies	Paraphrasing	5 (18%)	2 (10%)
	Using gestures		
	Guessing		
	Coining Words		
	Adjusting the information		
Metacognitive strategies	Centring learning	3 (10%)	2 (09%)
	Evaluating learning		
	Planning learning		
Affective strategies	Reducing anxiety	5 (15%)	1 (08%)
	Encouraging oneself		
	Emotional state		
Social strategies	Asking questions, cooperating and practising with other native speakers	4 (12%)	9 (56%)

[Table/Fig-3]: Different language learning strategies adopted at the end of the study.

DISCUSSION

The present study explored the different language learning strategies used by non native medical students to attain communication skills in their native language during clinical learning. It found that, although students used multiple strategies for native language learning, social learning strategies were particularly effective. The students used different strategies for language learning, such as memory techniques, cognitive strategies such as note-taking, metacognitive strategies like self-regulated learning, and social strategies [11-14]. The current study revealed that social strategies- such as collaborative learning with peers and meaningful interactions with native speakers- proved highly effective in helping students gain independence during anamnesis (history-taking), which aligns with previous research [15].

Recent research has suggested that the learning environment should be tailored to students' language skills and learning needs [16]. This study also assessed the native language needs of the students at the beginning of the study and their self-efficacy at the end. The necessity of native language proficiency for successful patient-doctor communication has been documented previously [17,18]. However, these studies have primarily focused on the impact of native language skills on clinical outcomes [19-22] and clinical learning outcomes [23,24] without emphasising the language learning processes. In contrast, the current study explored the language learning strategies used by non native medical students to overcome language barriers. Understanding which strategies are effective in clinical learning environments can help medical educators integrate practical language learning support, especially in the context of the globalisation of medical education. In many countries, students have a different first language (mother tongue), the primary medium of medical education is English (second language), and the local language of communication with patients is non English (third language). In such situations, the study findings are highly relevant.

Limitation(s)

The study is descriptive and presents the issue of recall bias. The present study is a pilot study with a limited sample size and is based on single-centre research. As a convenience sample, the inclusion criteria were restricted to students in their fifth semester only. Due to this limited sampling, the study can be considered exploratory and requires evaluation of multiple batches of students using similar methods for confirmation.

CONCLUSION(S)

In conclusion, the present study emphasises the critical need to prioritise social learning strategies and to cultivate an inclusive learning environment that supports the language acquisition needs of all non native medical students. While most students used more than one strategy, our study suggests that social learning strategies may enhance independence in language skills within a reasonable timeframe. Therefore, integrating social strategies into medical education during history-taking can help us design opportunities for contextually learning the local language among non native medical students.

ANNEXURES

1) ACTFL oral proficiency scale at the workplace
2) SILL questionnaire
3) Data of SILL questionnaire (Excel)
4) Median responses to the SILL questionnaire (Table)

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