Comparing the discourse of patients with Alzheimer (at the early and middle stages of disease) and Persian-speaking normal individuals: A linguistic and pragmatic approach

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1. Introduction

Neurolinguistics is an interdisciplinary field that explores the relationship between language and various aspects of cognitive function. It investigates the inner workings of the mind within the framework of linguistics (Ahlsen, 2006). A recurring question in this field is whether an individual's linguistic and pragmatic abilities can independently enhance or hinder communication for those with neurological disorders. Some individuals with aphasia can compensate for their linguistic deficits by relying on their pragmatic skills. However, it has been observed that individuals with dementia, due to impaired pragmatic abilities, struggle to maintain their communication skills (Ulatowska & Chapman, 1995). Despite numerous studies, the exact nature of the pragmatic breakdown in dementia remains poorly understood and is a subject of ongoing debate (Garcia & Joanette, 1994).

Alzheimer's disease is the most common form of dementia. According to the International Classification of Diseases, Alzheimer's is characterized as a gradual decline in memory and cognitive function that impairs daily activities (Kilmova et al., 2015). This disease affects various aspects of cognitive function, including memory, reasoning, thinking, language, and judgment, gradually causing linguistic and cognitive problems by shrinking the cerebral cortex (Milton, 2008). Linguistic deficits are often among the first cognitive signs of Alzheimer's disease. These deficits manifest as difficulties in understanding word meanings, finding appropriate words, naming objects, and comprehending words due to a decline in the social aspects of language. Consequently, individuals with Alzheimer's may struggle in social communication, speaking excessively, loudly, repeating themselves, or losing track of the conversation's topic.

Assessing and identifying the language problems of individuals with Alzheimer's requires a comprehensive understanding of how the disease impacts language and the patients' cognitive perceptions. Recognizing the language abilities and disabilities of Alzheimer's patients at different stages of the disease can inform the

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provision of rehabilitation services for this segment of society. This research seeks to provide scientific insights into the linguistic performance of Persian-speaking Alzheimer's patients. The study aims to compare the discourse of Persian-speaking normal individuals and patients with Alzheimer's (at early and middle stages of the disease) at both linguistic and pragmatic levels. The study aims to address the following questions:

1) Is there a significant difference in the discourse of Persian-speaking normal individuals and patients with Alzheimer's (at the early and middle stages of the disease) at linguistic levels?
2) Is there a significant difference in the discourse of Persian-speaking normal individuals and patients with Alzheimer's (at the early and middle stages of the disease) at pragmatic levels?

2. Materials and methods

This study employed a mixed-method approach. The qualitative component involved reviewing the medical records of patients, including their scores on the Short Test for Cognitive Ability. The tests used in the study, such as "the cookie theft," "picture story telling," "short story retelling," and "proverb," were adapted to Persian. The quantitative aspect included administering these tests to both patient and control groups in a quasi-experimental manner. The independent variables for the quantitative component included linguistic discourse levels (lexical and grammatical), application levels (inference making and task recognition), and participants. The dependent variable was the participants' test scores. The study controlled for variables such as age (participants aged 60 to 97), disease stage (early and middle), and mother tongue (Persian-speaking). A total of 31 patients with Alzheimer's were compared with 31 normal monolingual Persian speakers, matched for educational background and age, using convenience sampling. The data were analyzed using repeated measures ANOVA, following verification of data normality using the Shapiro-Wilk test.

3. Results and discussion

The results of the study confirmed the expectation that normal participants would outperform patients with Alzheimer's in all tests. There were significant differences between the two groups in terms of linguistic and pragmatic levels, including inference making and task recognition. Patients with Alzheimer's demonstrated linguistic difficulties, such as pauses, repetitions, verbosity, disrupted speech, and neologisms. These linguistic issues often resulted in interrupted speech. The study also revealed that, in the early and middle stages of the disease, language skills were less impaired than perceptual skills. Theoretical and clinical implications of these findings will be discussed.

4. Conclusion

An overview of the patients' performance in all the tests suggests that their language skills were somewhat better than their pragmatic abilities. The study found that patients' weakest performance occurred in the "cookie theft" and "short story retelling" tests, likely due to severe language perception disorders. In contrast, patients performed best in the "compulsory selection" test, which could be attributed to the availability of multiple options reducing the memory load. Additionally, a comparison of patients' performance relative to their cognitive stage across various tests indicated that scores were highest in the "picture story creation" test, emphasizing the positive impact of simultaneously viewing images on memory capacity and comprehension.

Keywords: Aged Person, Alzheimer, Discourse, Linguistic Level, Pragmatic Level