

Understanding the Mysterious Aspects of Communication Decline in Alzheimer's Disease: A Case Study

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Abstract:

Alzheimer's disease is a significant global health challenge, and it's crucial to understand its symptoms for early diagnosis and effective interventions. While language loss is a well-known symptom, many other skills and abilities are also affected. Changes in the temporal lobe of the brain impair language processing in Alzheimer's patients. Even in the early stages, caregivers may notice a decline in formal language, which is essential for verbal communication. Symptoms include word loss, confusion in conversations, difficulty following a storyline, and decreased speech. Based on a qualitative content analysis, this paper is dedicated to investigating and delving into the mysterious nature of this condition. This paper also aims to explore the nature of Alzheimer's disease, focusing on its communicative symptoms and using a female patient as a case study. Effective social interaction plays a crucial role in improving the social skills of individuals with Alzheimer's, as discussed in this research.

Keywords: Alzheimer's disease; Communication difficulties; Language loss; Symptoms; Temporal lobe.

الملخص:

يمثل مرض الزهايمر تحدياً صحياً عالمياً بمقدار كبير، ومن الأهمية بمكان فهم أعراضه لغرض التشخيص المبكر والتدخل الفعال. فعلى الرغم من أن فقدان اللغة هو أحد الأعراض المعروفة، إلا أن العديد من المهارات والقدرات الأخرى تتأثر أيضاً. فالتغيرات في الفص الصدغي للدماغ تؤثر سلباً على معالجة اللغة لدى مرضى الزهايمر. وحتى في المراحل المبكرة، قد يلاحظ مقدمو الرعاية انخفاضاً في استخدام اللغة الرسمية، الذي يعد أمراً ضرورياً للتواصل اللفظي. وتشمل الأعراض فقدان الكلمات، والارتباك في المحادثات، وصعوبة متابعة القصة، وانخفاض الكلام. وباستنادنا إلى تحليل المحتوى النوعي، فإن هذا البحث يسعى إلى التحقيق والتعمق في الطبيعة الغامضة لهذه الحالة. ويهدف هذا البحث أيضاً إلى استكشاف طبيعة مرض الزهايمر، مع التركيز على أعراضه التواصلية واستخدام المريض كدراسة حالة. ويأخذ التفاعل الاجتماعي الفعال دوراً حاسماً في تحسين المهارات الاجتماعية للأفراد المصابين بمرض الزهايمر، وهو ما تمت مناقشته بالتفصيل في هذا البحث.

الكلمات المفتاحية: مرض الزهايمر؛ صعوبات التواصل؛ فقدان اللغة؛ الأعراض؛ الفص الصدغي.

Introduction:

As Alzheimer's disease (AD) progresses, critical cognitive processes like language and communication decline. Effective social care, which is just as important as medical treatment, relies heavily on communication for individuals with AD. Unfortunately, AD patients often struggle greatly when trying to communicate with others. In the early stages of

the disease, they may experience difficulty finding words, use incorrect words, or have trouble associating words correctly (Nicolas et al., 1985). As the disease advances, their language becomes more fragmented, with an increase in verbal and semantic errors, as well as the creation of new words (neologisms). Consequently, their ability to communicate gradually diminishes, making interaction more challenging.

Given this context, caregivers of individuals with AD prioritize developing and enhancing the patients' communication skills. However, this can be a daunting task, especially when there is a lack of suitable social interaction between the patient and their caregivers. Therefore, this research aims to examine the significant communication deficits associated with AD and highlight the importance of effective social interaction in improving patients' quality of life.

2. Comprehending Alzheimer's Disease:

2.1 Etymology: Alzheimer's /'altʃaɪmɜːz/or /'ɔːltʃaɪmɜːz/

In the early 20th century, a disease was identified and named after Alois Alzheimer (1864–1915), a German neurologist. AD, as it came to be known, is characterized by chronic degeneration of mental faculties and often includes emotional apathy. This progressive syndrome leads to a significant decline in brain function, structure, and abilities over time, severely impacting daily life for those affected. (Alzheimer Society, 2012)

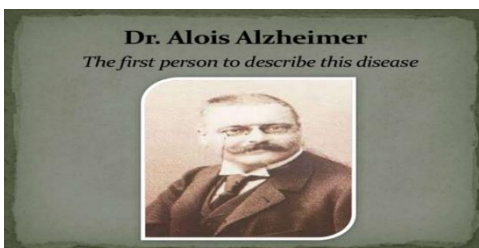


Figure1.

Alois Alzheimer

According to the Farlex Partner Medical Dictionary (2012), Alzheimer's disease (AD) is a progressive mental

disorder characterized by chronic personality disintegration, confusion, disorientation, stupor, deterioration of intellectual capacity and function, and impairment of memory, judgment, and impulses. Various factors such as drug intoxication, hyperthyroidism, pernicious anemia, paresis, subdural hematoma, benign brain tumor, hydrocephalus, insulin shock, and tumor of islet cells of the pancreas can contribute to the development of AD, with some cases being reversible upon treatment.

Furthermore, the Gale Encyclopedia of Medicine (2008) provides additional insight into AD, describing it as a general loss of cognitive abilities, including impaired memory, aphasia, apraxia, agnosia, and disturbances in planning, organizing, and abstract thinking. It is distinguished from other mental disorders by its specific pattern of cognitive decline and is associated with various underlying conditions that cause widespread cerebral damage or dysfunction.

Contrary to traditional beliefs associating AD with aging, research suggests that it is not an inevitable consequence of growing older. Rather, it is often attributed to degeneration in the cerebral cortex, the brain region responsible for cognition, language, memory, and personality (Watchman, 2013). Globally, there are currently nearly 18 million individuals living with AD, and projections indicate that by 2025, this number could exceed 35 million worldwide (Alzheimer Society, 2012).

2.2 Exploring the Symptoms of Alzheimer's Disease:

As indicated in the definitions, Alzheimer's disease encompasses various symptoms. To gain a better understanding of the disease, it is important to focus on its key cognitive and behavioral symptoms.

2.2.1 Cognitive Symptoms:

Alzheimer's disease is a devastating condition that affects the brain and leads to a progressive decline in cognitive abilities. While individuals with Alzheimer's may appear physically healthy, their mental functioning deteriorates significantly over time. Sujata Ray and Dr. Susan emphasize the significant cognitive impairments associated with dementia, suggesting that brain damage may begin decades before symptoms become apparent. This long period of silent progression makes finding a cure challenging and complicates the identification of risk and protective factors through observational studies. The authors note that individuals with pre-symptomatic brain damage may be less inclined or able to engage in cognitively stimulating activities, which could influence the apparent relationship between such activities and the risk of developing dementia (Ray & High, 2014, p. 9).

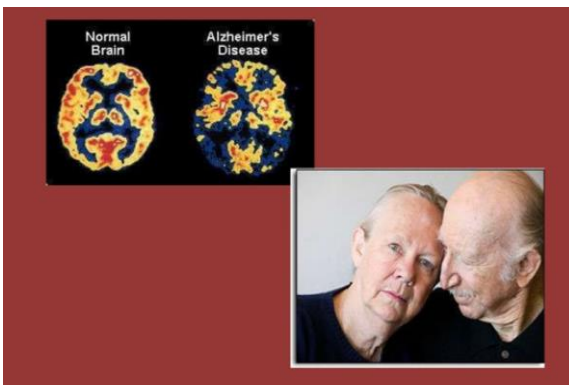


Figure 2.
Alzheimer
Disease and the
Brain
(www.Azh.org,
2010)

AD causes brain cell death, leading to a shortage of certain chemicals needed for brain messaging. This shortage can result in various symptoms like short-term memory loss, confusion, mood swings, and personality changes. Moreover, as the disease advances, individuals may also face challenges with motor planning and execution (apraxia), recognizing sensory inputs (agnosia), and managing tasks like planning, organizing, counting, and sequencing (executive functioning). These symptoms are frequently seen in dementia patients (Götell, 2013).



Figure 3. AD Symptoms.

Retrieved from <http://www.dementiacarecentral.com>

2.2.2 Behavioral Symptoms:

Behavioral symptoms in individuals with dementia are typically observed directly by monitoring their actions. These symptoms may manifest in various ways, including personality changes such as sudden depression, delusions, irritability, restlessness, decreased attention, increased agitation, impaired judgment, and faulty reasoning. Additionally, individuals with Alzheimer's disease (AD) may exhibit inappropriate behaviors such as screaming, cursing, experiencing hallucinations, and making aggressive gestures. According to the International Psychogenetic Association (2002), caregivers often report impulsive behavior as a common issue, which may manifest as overeating, outbursts of frustration, touching strangers, urinating in public, or displaying diminished social tact. Other observed behaviors may include restlessness, irritability, aggressiveness, violent outbursts, excessive sentimentality, and food preferences known as "food fads."

Additionally, AD disrupts everyday activities such as eating, washing, and dressing, making them extremely challenging. People with AD also tend to neglect their usual

hobbies and interests, while avoiding social and cultural interactions (Gotell, 2003).

2.3 Types of AD:

2.3.1 Early-onset Alzheimer's (EOAD):

This type of Alzheimer's disease affects individuals under the age of 65, typically in their 40s or 50s when diagnosed. It is relatively uncommon, occurring in up to 5% of all cases of Alzheimer's. Individuals with Down syndrome is at an increased risk for developing this form of the disease.

2.3.2 Vascular Dementia (VAD):

Vascular dementia (VAD) is recognized as the second most common form of dementia, trailing behind early-onset Alzheimer's disease (EOAD), and is responsible for approximately 20% of all cases of AD. Previously referred to as multi-infarct or post-stroke dementia, VAD primarily occurs due to blockages in blood vessels in the brain, resulting in strokes or brain hemorrhages. These vascular changes initially affect areas of the brain responsible for memory and cognitive functions, leading to significant impairment. According to the Alzheimer's Organization, individuals with VAD may experience sudden changes in thinking abilities following major strokes, or more gradual decline resulting from multiple minor strokes or other conditions affecting smaller blood vessels. Some experts prefer to use the term "vascular cognitive impairment (VCI)" instead of "vascular dementia" to better convey the range of cognitive changes that can occur, from mild to severe (Alzheimer's Organization, 2017, p. 52).

2.3.3 Lewy Body Dementia (LBD):

Dementia with Lewy bodies (DLB) is a less common type of dementia that shares similarities with AD. About ten percent of individuals with AD may also develop DLB. This form of dementia is named after the neurologist Frederick Lewy, who discovered it while working alongside Alois Alzheimer in the early 1900s (Alzheimer Association, 2017). Lewy bodies, in scientific terms, are abnormal aggregates of protein

that form inside nerve cells (English Wiktionary, 2016). When these Lewy bodies accumulate in neurons, they disrupt cell function, leading to symptoms such as memory loss, visual hallucinations, executive dysfunction, delirium, and often eventual Parkinson's disease.

2.4 AD and Language Loss:

Language disorders and speech impairments are prominent features of dementia, often seen as both cognitive and behavioral symptoms. In dementia, patients may experience changes in their jaw muscles and tongue, leading to reduced voice intensity. Additionally, individuals with dementia may exhibit involuntary, random movements and repeat sentences, phrases, or words that are no longer relevant to the conversation. This common phenomenon in dementia is known as preservation.

According to Ahmad (2014), patients with dementia struggle with intentional communication due to multiple cognitive deficits. They may have difficulty producing linguistic information because of challenges in thinking, generating, and organizing ideas. Furthermore, comprehension of language is hindered by deficits in cognitive processes and loss of knowledge. Dementia also affects the auditory and motor speech systems of patients, potentially impairing their ability to understand and process speech (Ahmad, 2014).

Diminished language abilities and speech barriers are some of the earliest noticeable signs of dementia. These challenges pose a significant intercultural hurdle for both patients and their caregivers. As the disease progresses, communication becomes increasingly difficult as the language skills of the individual gradually decline. Kmpler (1991) highlights that linguistic deteriorations in dementia primarily impact the semantic and pragmatic levels of language processing. Semantic issues include difficulty finding words, naming problems, choosing incorrect words, speaking incoherently, inventing new words, and a decrease in verbal

fluency (Bayles & Kaszniak, 1987). Pragmatic difficulties manifest as straying from the topic, repeating thoughts, excessive talking, and speaking at inappropriate times. It's clear that dementia profoundly affects a patient's language capabilities, presenting significant challenges that may compromise the quality of care provided (Miller, 2000).

2.5 Alzheimer's Disease and Aphasia:

Research has demonstrated that linguistic difficulties are particularly distressing for individuals with dementia. This is because the areas of the brain responsible for language and cognition, such as the Parietal and Frontal lobes, are heavily affected by the loss of brain cells and degeneration in the cerebral cortex. Aphasia, which is the loss of language comprehension and production abilities, is commonly observed in AD due to neuropathology. AD is characterized by the deterioration of neural tissue, resulting in cognitive and behavioral decline, including difficulties with communication. Since language function relies on various neural networks, the deterioration of neural tissue increases the likelihood of aphasia occurring in individuals with AD (Weekes, 2020).

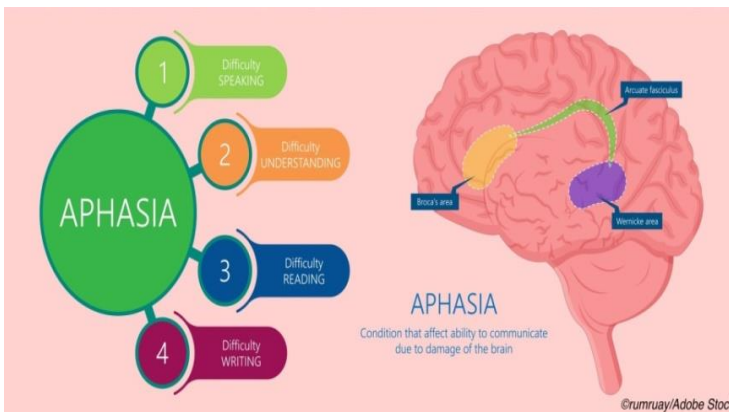
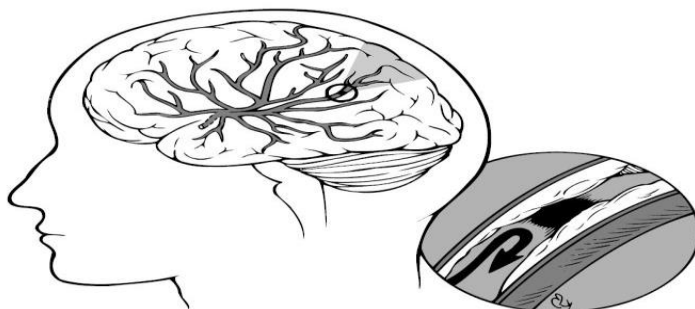


Figure4. Aphasia in AD. Retrieved from:

https://www.google.com/search?q=alzheimer%27s+disease+and+aphasia&sca_esv

According to Madscape (2017), aphasia is a type of cognitive impairment that occurs as a result of a stroke. When a blockage in the brain disrupts blood flow, it can lead to damage in the speech and language center of the brain, resulting in aphasia. Additionally, if the damage becomes widespread, it often results in AD.



Blocked artery in the brain prevents blood flow.

When you have a clot in a blood vessel in your brain, you can have a stroke. If the stroke affects the part of your brain that knows speech and language (the left side of the brain in most people), you could have aphasia.

Figure 5. Brain Stroke. Retrieved from Dementia Care Central website:
<http://www.dementiacarecentral.com/caregivinginfo>

2.5 Treatment for Alzheimer's Disease:

Medications are unable to cure AD; rather, they may only help to improve certain mental functions. Since the damage to the brain cannot be reversed, the primary objective of treatment is to enhance and manage the symptoms of the illness. However, there are numerous non-drug treatments available that can help patients live well with the condition, particularly through cognitive care and professional social support. Additionally, both pharmacological (such as anti-AD therapies) and non-pharmacological (like cognitive-linguistic stimulation) treatments may serve as effective management strategies and should be further explored through research.

2.6 Alzheimer's Disease and Communication:

McKillop (2011) explores various issues related to AD, including its impact on communication. He emphasizes that AD patients often experience significant decline in their ability to communicate, leading to frustration for both the patients and their caregivers. McKillop stresses the importance of recognizing that each AD patient is unique, requiring individualized approaches to communication. He advises caregivers to remain adaptable and responsive to the changing circumstances of communication, as these can vary greatly throughout the day.

Similarly, Oliver (2008), as cited by Njugwana and Kariuki (2012), underscores the significance of communication in AD. He notes that AD patients may exhibit a range of communication behaviors, from excessive talking to complete silence. Oliver emphasizes that even silence can convey important messages, such as unmet needs or distress. Any change in communication patterns, whether through verbal or nonverbal means, should be seen as a form of communication in itself.

In the context of caring for individuals with AD, it is crucial for caregivers to maintain effective communication with their patients. This responsibility lies with the caregivers, who play a significant role in facilitating either satisfying or frustrating interactions with the patient. Successful social interaction is identified as a key factor in understanding and promoting the communication abilities of individuals with AD. Therefore, caregivers must develop strong interpersonal skills to ensure a positive connection with their patients. It is important to note that people learn how to communicate through their experiences and social relationships (Njugwana & Kariuki, 2012, p. 17). Additionally, the environment can also influence communication patterns, as a person's daily interactions and speech may be shaped by the environment and social norms in which they operate.

3. Methodology:

3.1 A Case Study:

This paper presents a real-life example to demonstrate the research problem. The participants in this study include a woman diagnosed with Alzheimer's disease, along with her caregivers (which include staff members, an escort, and the responsible psychologist). Initially, the researchers introduce the patient, providing details about her background and circumstances to help understand her situation and perspective. This includes insights into her experience living with mild Alzheimer's disease, specifically in the context of having an intellectual disability. The focus then shifts to the linguistic challenges and communication barriers she encounters while residing in a care facility, which can feel unfamiliar and isolating.

3.1.1 General Information of the Patient:

Name	F. B
Age	67 (12/01/1938)
Gender	female
Place of Birth	Oran city. Algeria
Current Address	Saida Town. Algeria
Educational Level	Bacalorious in Arabic language
Occupation	Retired Primary Teacher
Kids	3 daughters and a son

3.1.2 Medical Information of the Patient:

Disease	AD
Stage	mild AD
Date of diagnosis with AD	03/2014

The patient was also undergoing psychological treatment due to temporary mood troubles, primarily stress, sadness, and anger.

3.2 Interviewees:

The caregivers who are in touch and work with F.B are three women from the care stuff: the psychologist, the social therapist, and the patient escort.

Caregiver' name	Job title	Educational degree	Experience in elderly care
Asmaa. B	Psychologist	Magister in psychology	4 years
Nadjma. H	Social Therapist	Master in sociology	2 years
L. R	Escort	Nursing diploma	4years (3years with F.B)

3.3 Settings:

The research was primarily conducted in the patient's home, and occasionally at the psychologist's office. It's important to mention that the patient is related to the female researcher, who visited the patient frequently with the family's consent, without any issues arising. As a result, the study was

predominantly carried out in one location to ensure ample exposure to the case under investigation.

3.4 Methods of Data Collection:

The main data collection of the current study was done by means of observation, filed note-taking and staff interviewing. Observations took place during numerous visits along 4 months, 3 of them were in casual normal days whereas the other sessions were taken during the days of organized social events. In the casual visits structured observations were conducted between 10:00 and 12:00, whereas, in the social occasions a day observation usually started before the social event, during, and continued after it for comparison purposes.

Leininger (1985) highlighted the researcher's crucial role in maintaining an objective perspective throughout the various stages of research (as cited in Gotell, 2003). Therefore, data collection for this study primarily relied on observing patients during interactive events and everyday situations. Additionally, the study compared patients' language skills in two distinct social environments: when they were interacting with others and when they were isolated.

The researchers in this study examined individual cases by observing their experiences and taking detailed field notes to better understand their perspectives. As Mulhall (2002) explained, "The field notes I took provided a rich description of what I saw, heard, and felt at the time, as well as my own thoughts and interactions" (Mulhall, 2002, as cited in Watchman, 2013, p. 137). Furthermore, data collection involved conducting taped interviews with caregivers of the patients, including psychologist Li, a social therapist, and a patient escort. These interviews aimed to explore the challenges faced by caregivers when communicating with patients, gather their insights on frequent interaction with individuals with Alzheimer's disease, and listen to their suggestions. All participants gave their

permission, and the interviews were conducted in their respective offices. Therefore, the research utilized a qualitative design with an in-depth interview approach.

3.5 Data Collection and Analyses:

In this study the author used qualitative research method to collect data because this method permits the evaluator to study selected issues, cases, or events in depth and details; the fact that data collection is not constrained by pre-determined categories of analysis contributes to the depth and detail of qualitative data (Patton, 1987). Furthermore, qualitative research methods are commonly employed in healthcare research studies due to their focus on capturing human experiences. This approach provides a richer understanding of complex human values and morals (Patton, 1987).

Then, in order to analyze the collected data, the researchers adopt a qualitative content analysis. According to Patton (1990) content analysis is the analysis of text (interview, scripts, diaries, articles, journals, or documents). More generally content analysis is used to refer to any qualitative data reduction and sense making effort that takes a volume of qualitative material and attempts to identify core consistencies and meanings (Patton, 1990).

3.5.1 Interviewing Results' Analyses:

Interviews with the staff have starkly highlighted and conveyed the different experiences they have lived in AD caring; contextually, from different care states. Primarily, the findings from interviewing showed that the caregivers were, likely, sharing the same idea about the nature of AD as a progressive cognitive disease, severe enough to interfere and change daily life of the individual. According to the staff most AD patients develop neuropsychiatric and behavioral symptoms and signs at some points during the course of the disease. Our patient F.B has the following symptoms:

- Memory loss or impairment.
- Language impairment (aphasia).
- Breakdowns in communication and failure to recognize or identify objects despite intact sensory functions.
- Difficulties with executive function, such as planning, abstracting, and sequencing.
- Restlessness, agitation, stress, anxiety, and frustration are examples of behavioral disturbances.

Furthermore, the analysis of the staff views has evidenced profoundly the linguistic barriers and the communicative obstacles that encounter an AD patient whilst interacting with others. The careers attribute communicative breakdowns with F.B to a variety of linguistic challenges, which the researchers summarize as follows:

- Difficulties finding, naming, and comprehending words.
- Limited verbal fluency as a result of difficulty retrieving words from memory.
- Semantic paraphasia (selection of incorrect words).
- Use of ambiguous referents (empty speech).
- Reiterating ideas and straying from the topic of the conversation.
- Disorganized patterns of speech

These deteriorating deficits at all linguistic functions and levels consistently result in failure at some points of the communicative process, which, as the data show, can be made more difficult if the patient lacks interaction and social contact with others. Thus, the data show that a lack of social attachment in Alzheimer's care increases the segregation and sense of isolation felt by individuals with the disease, as well as temporally decreasing their communicative skills, because a lack of interpersonal interactions leads to discomfort,

hopelessness, or depression, which then makes elderly patients unable to express themselves or their needs.

3.5.2 Observations and Field Notes' Discussion:

During her routine care sessions, patient F.B expressed stress and panic, as well as negative moods and feelings toward communicating with others. She did not respond or react to her addressee most of the time, and when she did, she used only brief fleeting speech with ungrammatical repetitive expressions, a low voice, and a stressful tone. Furthermore, whenever she was asked a question, F. B's responses were always brief, mostly consisting of "Waahh" (yes) or "laa"(no) responses. Furthermore, in a variety of contexts of interaction (family meetings, *L'aid* occasions...ect), F.B appeared to encounter difficulties in mutual understanding of what the speakers were saying, so she did not follow her addresses or began talking about something else.

3.5.1 Main Barriers F.B Encounters While Communicating:

- Difficulty finding the right words
- Repeating the same words or phrases again and again
- Substituting words that sound similar
- Inventing new bizarre words to describe familiar objects
- Easily losing train of thought
- Using curse words (a strange quirk of diseases that sap language skills)
- Lose the normal social conventions

Noticeably, the researcher's observations during normal care sessions revealed that F.B has a lower willingness to engage in conversation when she is only with her escort nurse. Furthermore, even though the patient F. B could communicate and had verbal ability, she did not like to respond; when she did

respond, her speech was fragmented, aimlessly, off topic, and expressed in thin, flat, or monotonous voices.

Actually, F. B's lack of contribution in communicative tasks is a result of her reduced social interaction with people from outside, as well as her lack of vitality and self-confidence. During the social events (family meetings, *L'aid* occasions...ect); however, the course of communication was altered; patients appeared highly motivated, and they appeared to perform the various tasks with increased attention and vitality. It appears that the patient has left her state of weakness and dullness. In comparison to the observed results of the usual care sessions, F. B's verbal abilities appeared to have improved; she reacted with more revitalized strength, she expressed her ideas almost clearly, a mood of fun and playfulness seemed to prevail throughout the visits, especially, the visits of her daughters, son and grandsons.

Furthermore, F.B seemed to be partially released from her aphasia thus, she spoke with an ameliorated tone and more sonorous warmer voice which allowed her to gained an enhanced ability to communicate her will. Occasionally, what the researchers deduced during the different social events, is that F.B has decreased her usual resistance of communication; her interaction with the large number of visitors has noticeably ameliorated her social identity and boosted up her self-confidence; therefore, it is important to recognize that where the AD patient is situated, in terms of his/her sense of self-identity in relation to others is very crucial for the success of any communicative task thereby, is crucial for improving the quality of AD care .

In a nutshell, the researchers observed that social interactions during social occasions had a positive impact on patients compared to routine care sessions. These interactions helped patients with AD regain cognitive, physical, and communicative abilities that were thought to be worsened by

the disease. Patients also appeared to express their needs, desires, and physical abilities more effectively. The collected data indicated that interacting with others significantly improved the linguistic capacities of AD patients and led to enhanced verbal communication skills, resulting in more successful communication tasks.

Conclusion:

It is crucial to understand that communicating with AD patients is regarded as one of the most challenging and difficult tasks facing caregivers. People with AD encounter multiple intentional communication difficulties because by definition, they have various cognitive and behavioral deficits sufficient enough to interfere with the occupational functions of the auditory and the motor speech' systems (Eva Gotell, 2003). However, all these cognitive and behavioral impairments don't mean necessarily that the task of communication is impossible with these patients. In fact, despite experiencing symptoms of AD, patients are still able to communicate their needs and desires, particularly when caregivers and society support their abilities and assist them in managing AD as they would any other illness.

Therefore, the basic aim of this research was to illuminate the core symptoms of AD and highlight the role of effective social interaction on promoting the communicative capacities of AD patients. In this study, it was found that patients experience significant difficulties communicating their thoughts and needs during routine care sessions. However, during organized meetings and social events, these difficulties seemed to lessen. These results suggest that engaging in effective social interaction can greatly improve the communication skills of individuals with dementia and help them better remember their language abilities. Additionally, the study found that these positive effects of social interaction

extend to both Alzheimer's disease patients and their caregivers.

It is recommended that social interaction activities, social events, and communication strategies be incorporated into the training programs for professional caregivers working in residential facilities. Similarly, family members who live with someone with AD should also be educated on these strategies.

Finally, it is worthy to note that further studies are crucially required in this domain of AD caring and communication in order to better the lives of this category of people as well as the lives of their caregivers.

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