v. 5, n. 19, 2025

International Journal of Health Science

Acceptance date: 24/04/2025

ALZHEIMER'S AND THE USE OF CANNABIDIOL

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Abastract: The aim of this study is to evaluate the knowledge of nursing students (2nd, 4th, 6th, 8th and 10th terms) at the Eduvale College in Avaré about the therapeutic use of cannabidiol in the treatment of Alzheimer's disease. Based on recent research indicating the potential of cannabidiol to reduce symptoms and delay the disease, the aim is to promote an informed and ethical discussion on the subject among future health professionals. The methodology includes the application of face-to-face questionnaires, which will include 10 questions for the students, followed by data analysis using Excel to identify the perceptions and opinions of the participants. It is believed that the study will contribute to a broader and more critical understanding of the role of CBD in the treatment of Alzheimer's disease, preparing students for a more enlightened dialog on the subject and a professional understanding. The results indicated that the majority of participants confirmed the benefits of the substance and advocated specific training for health professionals to administer it. The conclusion is that it is essential to expand studies and the training of health professionals for the safe and effective use of cannabidiol in the treatment of Alzheimer's, promoting social access and dialog to overcome the prejudices and barriers that still exist.
Keywords: Alzheimer's, Cannabidiol, DA Cannabis, CBD.

INTRODUCTION

Alzheimer's disease, also known as AD, is defined as "progressive dementia, characterized by a slow decline in memory, language, visuospatial abilities, personality and cognition." (ANNETTE LEIBING, 1998).

This disease was discovered by the renowned psychiatrist Alois Alzheimer and, as Cintia Liaria Engel (2019 p.03) explains, in 1901 he met Frau Auguste Deter, a patient with senile dementia, and studied her behavior. After three months, she stopped communicating, but had intense screams. In 1907, after her death, Alzheimer examined her brain and noticed atrophy and twisting of the fibers, revealing distinct characteristics, thus inaugurating the study of the disease that bears his name (ENGEL, 2019).

Alzheimer's disease is prevalent in around 90% of dementia cases in individuals over 65 years of age, a stage of life considered to be advanced . This disease tends to increase in developed countries due to increased life expectancy (ELAHI and MILLER, 2017, apud SEQUEIRA, J. A 2020).

Individuals affected by this condition end up losing the ability to perform everyday tasks, such as working, exercising and looking after themselves. Consequently, they become dependent on assistance from third parties, and their memory undergoes significant changes, no longer being what it was before, as FORLEZA (2005) explains.

The disease is treated with medication, which aims to stabilize cognitive impairment, behavior and the development of routine activities. There is provision in the Clinical Protocol and Therapeutic Guidelines (PCDT) for treatment which, according to the Ministry of Health, takes place via oral administration of the following substances: a) Donepezil; b) Galantamine; c) Rivastigmine; d) Memantine (BRASIL, 2022).

In terms of treatment, there was a breakthrough in November 2016, when the National Health Surveillance Agency of Brazil approved the rules for marketing hemp oil, which is rich in cannabidiol (SOUZA, 2017; BABOSA et al., 2020).

CBD acts as a protector of the nervous system, in which it slows down neurodegeneration and can create new neurons, causing AD patients to improve, thus improving their quality of life, as explained by Oliveira (2021) and Roland et al. (2022).

This substance is recognized as a metabolic compound that does not cause intoxication and does not induce psychoactive effects, which provides a greater sense of security in relation to this medication, especially as it is derived from the cannabis plant, as explained by Elsad (2019) and Bezerra et al. (2020).

Despite the research on the subject, in Brazil we still face regulatory obstacles. Due to the prohibition of the plant in the country, the only way to access cannabis or its components according to Cardoso (2019).

But recently, we had another major breakthrough with the publication of Resolution RE 1.492, of May 6, 2022, in which the Brazilian National Health Surveillance Agency (ANVISA) published a health authorization for the production of another medicinal product based on cannabis, namely Cannabis Sativa Greencare Extract 160.32mg/ml (BRAZIL, 2022).

In addition, this substance was also the focus of discussion at the Federal Supreme Court this year, when it ruled on Extraordinary Appeal No. 635659, which in plenary and by a majority of votes, defined that anyone who acquires, stores, deposits or transports up to 40 grams of Cannabis Sativa or six (06) female plants will be presumed to be a user of narcotics. This decision represents further progress that is also reflected in the area of health (BRASIL, 2024).

The substance cannabidiol is found in the Cannabis Sativa plant, which is popularly known as marijuana and also contains around 400 substances.

Cannabidiol works follows:

> Cannabidiol (CBD) is a substance from the Cannabis sativa plant, has no psychotropic effect and its molecule freely crosses the blood-brain barrier, which is a special structure that surrounds the blood vessels of the central nervous system and has an important metabolic function, protecting it from potentially toxic substances.
>
> Research shows that some of the cannabinoids reduce the accumulation of beta-amyloid and the inflammation of the brain that occurs in Alzheimer's disease. In this way, it is believed to have the potential to support the treatment of the disease. Research in mice, previously induced to AD, submitted to treatment with cannabidiol, demonstrated a reduction in cognitive loss and dementia (Pitanga, et al., 2018). (BABOSA, M. G.A; BARROS, E. F.A; LIMA, G. R; SILVA, G. F; SOUZA, P. G. V. D, The use of the Cannabidiol compound in the treatment of Alzheimer's disease (literature review) 2020).

To further solidify this issue, we have the following understanding on the subject:

> According to a study by Watt (2017 apud Barbosa et al., 2020), the use of cannabidiol has shown significant results in reducing or removing the impact of inflammation, oxygen accumulation and brain cell decline. The brain cells of Alzheimer's generally show a path of rapid decline and destruction. However, cannabidiol's ability to minimize the (FREITAS, A, K, L; CRUZ, G, S; SILVA, K, M, S; SILVA, M, D, S; GOMES, M, L, S; PASTANA, R, R; SILVA, C, Q; LAMEIRA, C, N; The use of Cannabis sativa in the treatment Alzheimer's, 2022).

It can be understood from the above that of the 400 substances in the Cannabis Sativa plant, only two are most commonly used for therapeutic purposes, namely THC and CBD, since these substances have a potential in Alzheimer's disease that slows down the progression of the disease.

BACKGROUND

For most students, cannabidiol is a novelty in the medical field, given the recent nature of research into this drug in the contemporary social context.

Alzheimer's is one of the diseases with a significant incidence, and the discovery of the benefits that cannabidiol can provide emerges as a promising advance in relieving its symptoms. Because of its novelty, health students are entering uncharted territory, thus requiring the search for and dissemination of knowledge on this subject.

HYPOTHESIS

It is believed that, as it is a novelty, the use of cannabidiol may still be somewhat taboo. However, as time progresses, both health professionals and society in general will tend to accept the use of this treatment and its potential applications in various pathologies more readily.

The use of cannabidiol oil currently requires judicial authorization due to its classification as a controlled substance, although it is pertinent to note that all medicines, in essence, are pharmacological substances, without necessarily incurring stigmatization by society.

Cannabidiol is recognized as a remarkable therapeutic agent in medicine, capable of mitigating pain and slowing down the progression of certain diseases, although not everyone shares this perception.

Thus, discussion of this topic among students is essential to promote critical and in-depth reflection, with a view to broadening understanding and giving new meaning to this pressing issue.

OBJECTIVES

To raise awareness among future health professionals about the potential therapeutic applications of cannabidiol (CBD) in Alzheimer's disease, with the aim of improving understanding of the effects of this compound on the progression of the disease, including its ability to mitigate neuroinflammation and neurodegeneration processes.

SPECIFIC OBJECTIVES

The specific objectives are:

- Assessing knowledge on the subject of embroidery;
- Raising awareness of the benefits of cannabidiol;
- Identify where they learned about the use of cannabidiol.

METHODOLOGY

A descriptive study was carried out by applying face-to-face questionnaires to nursing (2nd, 4th, 6th, 8th and 10th terms) in the evening (7.30pm to 10.30pm) from Monday to Friday, with an average of 150 people attending on the days and at the times described. This work was carried out in order to capture the individual perceptions of each interviewee.

Data collection was conducted through a field study at the Eduvale College in Avaré/SP, using a questionnaire aimed at nursing students. This questionnaire was made up of 10 closed and objective questions. The interviewees responded to the survey after signing a free informed consent form, in which they were told about the advantages and disadvantages of the work in question, and were informed that the research had been approved by the Research Ethics Committee contained in Resolution 466/2012 of the National Health Council. The Research Ethics Committees must be accredited by the National Research Ethics Commission (CONEP) under CAAE 8000.23224.7.0000.5411.

Thus, of an average of 150 individuals, only 104 took part in the field research and those who were not present on the day the research was carried out were excluded.

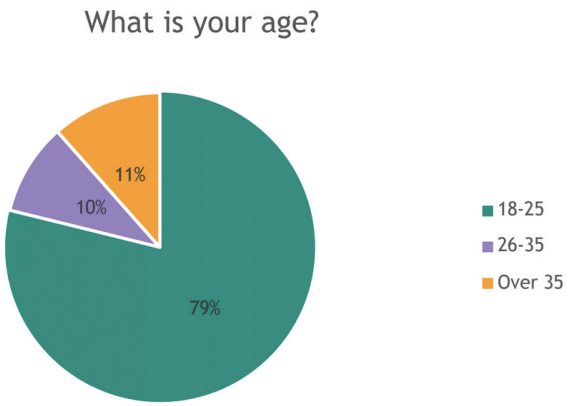
DATA ANALYSIS METHODOLOGY

The methodological procedure for analyzing the data was based on the Excel tool using spreadsheets, sorting, graphs, formulas and statistical functions.

RESULTS AND DISCUSSION

The following are the results of the field research carried out in this course conclusion.

GRAPH 01: AGE RANGE NURSING STUDENTS INTERVIEWED



Graph 01 - Age range of nursing students interviewed.

Source: SILVA (2024).

As can be seen from the pie chart below, which shows the age distribution of the respondents, the majority, i.e. 79%, are aged between 18 and 25. A smaller proportion, 10%, are aged between 26 and 35, while 11% of those questioned are over 35.

Thus, the graph highlights that the largest group of survey participants is made up of young adults, predominantly aged between 18 and 25.

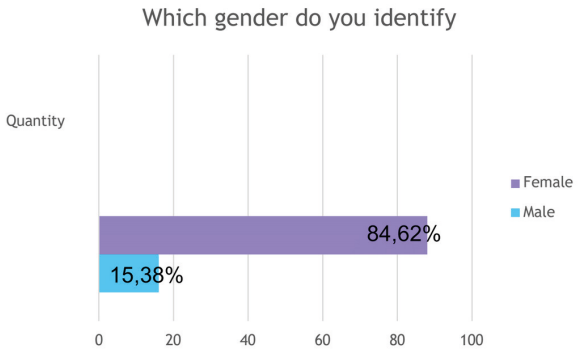
No articles were found in the literature to answer this question.

GRAPH 02: GENDER IDENTIFICATION OF NURSING STUDENTS INTERVIEWED

The following bar chart shows the gender identification of the interviewees. It shows that the significant majority, 84.62%, identify themselves as women, represented by the purple bar. In contrast, 15.38% recognize themselves as men, symbolized by the blue bar.

It can therefore be concluded that this graph indicates a predominantly female group of interviewees.

No articles were found in the literature to answer this question.



GRAPH 02 - GENDER IDENTIFICATION OF NURSING STUDENTS INTERVIEWED.

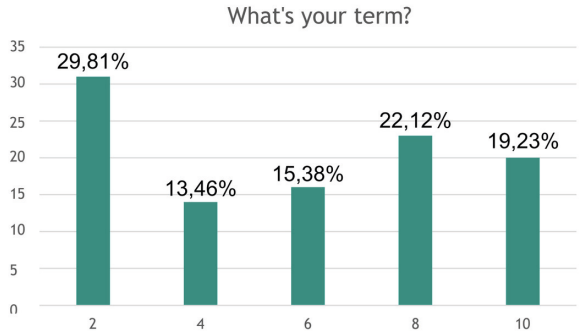
Source: SILVA (2024).

GRAPH 03: ACADEMIC PERIOD OF THE INTERVIEWEES' UNDERGRADUATE NURSING COURSE

The bar chart below shows the distribution of interviewees according to their academic period. It can be seen that the largest group, 29.81%, are in their second term, followed by 22.12% who are in their eighth term. The 10th term accounted for 19.23% of respondents, while 15.38% were in their 6th term. Finally, 13.46% of those interviewed are studying for their 4th term.

Thus, the graph shows that the majority of participants are in the initial and final stages of their academic journey in the nursing course.

No articles were found in the literature to answer this question.



GRAPH 03 - ACADEMIC PERIOD OF THE INTERVIEWEES' UNDERGRADUATE NURSING COURSE.

Source: SILVA (2024).

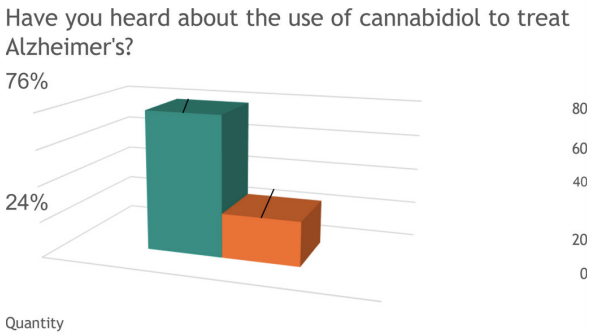
CHART 04: KNOWLEDGE ABOUT USE OF CANABIDIOL IN THE TREATMENT OF ALZHEIMER'S

The following three-dimensional bar graph of the results of a question about the use of cannabidiol in the treatment of Alzheimer's shows two bars representing the answers.

The first green bar indicates that 76% of people answered "yes", i.e. they had heard about the use of cannabidiol in the treatment of this disease. The second orange bar indicates that 24% of respondents answered "no", i.e. they had never heard of its use.

Therefore, the majority of those asked showed that they were aware of the subject.

According to Sousa (2023), approximately 80% of the global population resorts to the use of medicinal plants as an alternative treatment for the prevention of some diseases, healing and basic health care. Among the various medicinal plants, cannabidiol is recognized for its treatment potential and is therefore an extremely important plant.



GRAPHIC 04 - KNOWLEDGE ABOUT USE OF CANABIDIOL IN THE TREATMENT OF ALZHEIMER'S.

SOURCE: SILVA (2024).

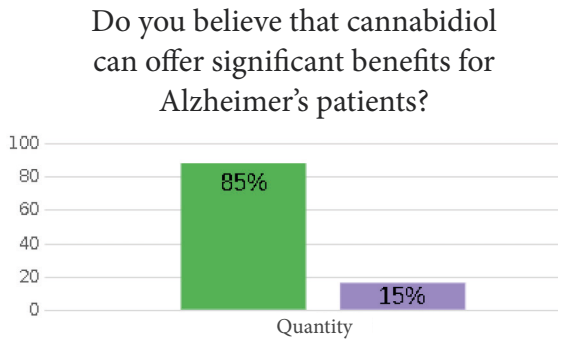
CHART 05: OPINION ABOUT SIGNIFICANT SIGNIFICANT OF THE SUBSTANCE FOR TREATING THE DISEASE

The bar chart on display shows the results of a question about the benefits of using cannabidiol for Alzheimer's patients.

In this graph made up of two bars representing the responses, the green bar represents 85%, indicating that the majority of people believe that cannabidiol can offer significant benefits to patients with this illness. The purple bar, which represents 15%, shows that these respondents believe that the use of this substance does not offer significant benefits.

As a result, most of the interviewees expressed a positive opinion on the subject.

According to Nunes, G.B. et al, (2023), cannabidiol has potential benefits in the treatment of Alzheimer's disease. Studies show that CBD has anti-inflammatory and antioxidant properties, which are able to help reduce inflammation and oxidative stress in the brain, factors that are directly related to the progression of Alzheimer's disease.



GRAPH 05 - OPINION ON THE SIGNIFICANT BENEFITS OF THE SUBSTANCE FOR TREATING THE DISEASE.

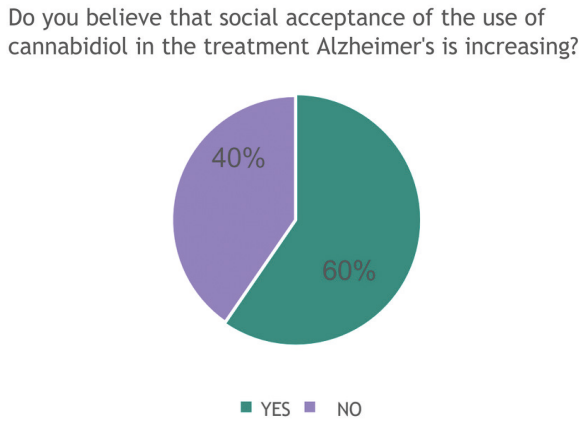
Source: SILVA (2024).

GRAPH 06: OPINION ON THE PROGRESS OF SOCIAL ACCEPTANCE IN THE USE OF CANNABIDIOL FOR THE TREATMENT OF ALZHEIMER'S

The pie chart shows the results in terms of the progress of social acceptance of the use of cannabidiol to treat Alzheimer's. It should be noted that the two parts of the graph represent the responses: the green band means that 60% of respondents believe that acceptance of the use of the substance to treat the disease is increasing. The purple band represents 40% of

respondents, i.e. a smaller proportion believe that social acceptance is not increasing. Thus, it can be concluded that there is progress in the social acceptance of the use of cannabidiol.

According to OLIVEIRA (2021), the UN has reclassified cannabis, placing it on the list of substances with recognized medicinal properties, although it is under strict control. This is an important step forward in relation to international prohibition. So Brazil is lagging behind in this process, but the first steps have already been taken.



GRAPH 06 - OPINION ON THE PROGRESS OF SOCIAL ACCEPTANCE IN THE USE OF CANNABIDIOL FOR THE TREATMENT OF ALZHEIMER'S.

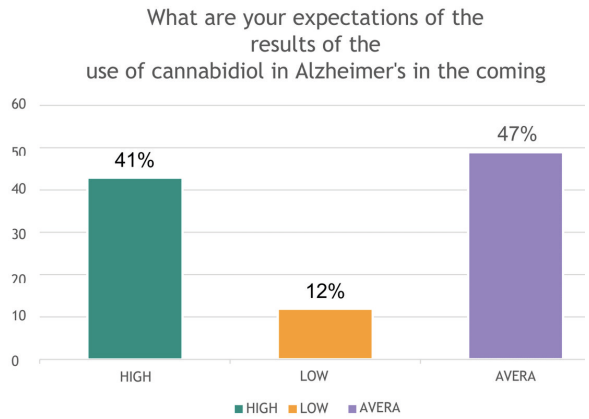
Source: SILVA (2024).

GRAPH 07: EXPECTATIONS REGARDING THE RESULTS OF RESEARCH INTO THE USE OF CANNABIDIOL TO TREAT THE DISEASE IN THE COMING YEARS

The bar graph entitled "research results on the use of cannabidiol in Alzheimer's in the coming years" shows people's expectations regarding the use of the substance to treat the disease.

It can be seen that the majority of people have medium expectations, i.e. 47% or high, i.e. 41% about the results of using cannabidiol to treat the disease and only 12% of respondents have low expectations and there is no data for zero expectations.

According to REZENDES. A.C.O. et al, (2024), the use of cannabidiol (CBD) in the treatment of Alzheimer's disease has caused great interest and expectation in the medical community and among patients and their families. AD, being a progressive neurodegenerative disease, is characterized by memory loss, cognitive impairment and behavioural changes, and so far there is no known cure.



GRAPH 07 - EXPECTATIONS REGARDING THE RESULTS OF RESEARCH INTO THE USE OF CANNABIDIOL TO TREAT THE DISEASE IN THE COMING YEARS.

Source: SILVA (2024).

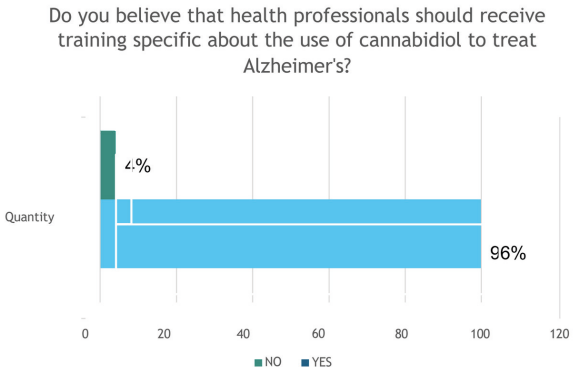
GRAPH 08: OPINION ON THE SPECIFIC TRAINING OF HEALTH PROFESSIONALS TO ADMINISTER THE USE OF THE SUBSTANCE

The numbered graph below, represented by two bars, shows the result regarding the opinion of health professionals on receiving specific treatment for the disease substance use.

You can see that the bar with the answer "no" is very short, indicating that only 4% of respondents don't believe that training is necessary. The bar with the answer "yes" is much longer, showing that 96% of those interviewed believe that professionals should have specific training.

As a result, most people see the importance of training health professionals to manage the element correctly.

According to ARISTIDES (2024), it is important to improve the quality of teaching on medical cannabis, offering complementary courses for professionals who have already been trained, with the aim of acquiring knowledge about the care provided to patients. The use of CBD as a legal medicinal method is relatively new for health professionals. In addition to the lack of knowledge in the curriculum, it is important to consider the comfort and safety of these professionals when learning this therapeutic method, since these implications directly or indirectly affect the quality of treatment offered to patients.



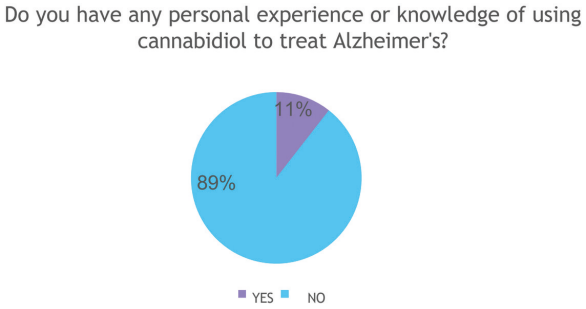
GRAPHIC 08 - OPINION ABOUT O TRAINING SPECIFIC OF HEALTH PROFESSIONALS TO ADMINISTER THE USE OF THE SUBSTANCE.
Source: SILVA (2024).

GRAPH 09: PERSONAL EXPERIENCE OR KNOWLEDGE ABOUT THE USE OF CANNABIDIOL

Pie chart number 09 shows the answers to the question of whether the interviewees had any personal experience or knowledge of the substance used to treat the disease. In the blue section, 89% respondents have no experience or knowledge of the substance. On the other hand, the purple section, accounting for 11%, represents those who have such knowledge. The graph makes it easy to see the distribution of responses and reveals that the vast majority of participants are not familiar with the subject, which may be relevant to understanding public perception of the issue

In this way, this diagram makes it easier to visualize the distribution of responses and shows that a large majority of participants have some experience or knowledge of the subject explained and that it may be relevant to highlight public perception and knowledge of the subject.

No articles were found in the literature to answer this question.



GRAPH 09 - PERSONAL EXPERIENCE OR KNOWLEDGE ABOUT THE USE OF CANNABIDIOL.
Source: SILVA (2024).

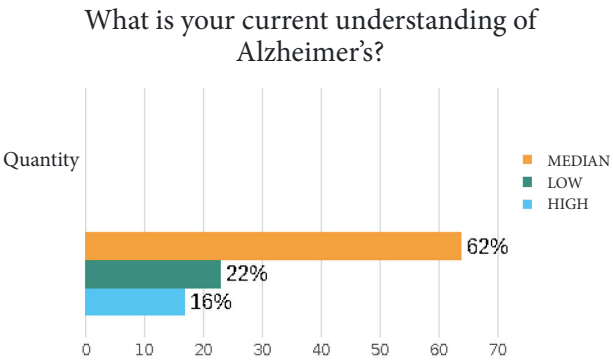
GRAPH 10: LEVEL OF UNDERSTANDING OF ALZHEIMER'S DISEASE

The horizontal bar graph seeks to show the levels of understanding about Alzheimer's disease.

Represented by the orange bar at the top, with the high level, it indicates that 62% of the people interviewed have a high level of understanding about the disease. Represented by the blue-green bar in the middle, with a medium level, it shows that 22% of respondents have a medium level of understanding. And represented by the dark blue bar with a low level at the bottom, it indicates that 16% of people have a low level of understanding about the disease.

In this way, the diagram clearly illustrates the distribution of Alzheimer's disease knowledge levels among future health professionals, which can be important for educational communication.

According to the Ministry of Health in Brazil, around 1.2 million people have some form of dementia, with more than 100,000 new diagnoses every year. Worldwide, this figure reaches 50 million people (BRASIL, 2021).



GRAPH 10 - LEVEL OF UNDERSTANDING OF ALZHEIMER'S DISEASE.

Source: SILVA (2024).

CONCLUSION

Through the research carried out with nursing students at the Eduvale College in Avaré, it was possible to observe that, although CBD is a current issue in Brazil, it already arouses interest and recognition on the part of future health professionals.

The results indicated a significant level of knowledge about the therapeutic use of cannabidiol, with graph 5 showing **"opinion on significant benefits of the substance for treating the disease"**, with 85% of the individuals saying yes and only 15% saying no. In other words, we have a positive perception of its benefits in the treatment of Alzheimer's **disease**.

The majority of those interviewed believe that the use of cannabidiol could be an extremely important advance in the management of AD symptoms, and highlight the need for training for health professionals. As shown in Graph 8: **"Opinion on specific training for health professionals to administer the substance"**, we can see that 96% believe that there should be training for professionals and only 4% believe that it is not necessary.

We therefore conclude that it is essential to intensify studies and training for health professionals, so that they can act safely and effectively in the treatment of Alzheimer's patients using cannabidiol. In addition, the research reinforces the importance of social access and dialog on the subject, in order to overcome the prejudices and barriers still found in Brazil.

In this way, it is hoped that this study will contribute to the dissemination of information and the construction of a more informed and conscious clinical practice in relation to the use of the substance in the treatment of Alzheimer's and as it is used for various other pathologies.

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