

# **How does direct volunteering affect the onset of Alzheimer's Dementia in elderly patients with preexisting cardiac comorbidities?**

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Virginia Commonwealth University  
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**Alzheimer's  
Dementia**

**Diagnosis**

**Donepezil**

**Volunteering**

**Future  
Action**

**Work  
Cited**

## Alzheimer's Dementia

**Dementia is an irreversible disease which affects memory, thinking and behavior. Though there is no treatment available currently, there are many research pursuits hoping to develop one.**

**Alzheimer's is the sixth leading cause of death in the United States.**

**(What is Alzheimer's, 2021)**

**The progressive course of the disease results in cognitive and functional decline that has several effects: it influences quality of life for patients and caregivers, increases the need for informal care.**

**(Jelic, 2015)**

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## Diagnosis

It involves a clinical history, a physical examination and brief cognitive testing.  
(Feldman, 2008).

**Who is at  
high risk?**

An abstract graphic featuring a dark blue background. On the left, a large, light brown circle is partially visible. In the center, a medium-sized blue circle is layered over a larger, darker blue circle. A white rounded rectangle is positioned within the blue circles, containing black text.

**Individuals with pre-existing danger factors (hypertension, cardiac comorbidities) give off an impression of being at higher danger for dementia than those without observational and clinical preliminaries.**



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# Donepezil


Limitations for those  
with cardiac  
comorbidities

**Current  
Treatment**

**QTc  
prolongation  
(Cardiac health  
issues)**

**Effectiveness  
of Donepezil**

**Who can use  
Donepezil?**



Given the complexity of Alzheimer's Dementia, treatment of patients remains challenging. The currently approved treatments for Alzheimer's Dementia are limited to cholinesterase inhibitors (Cummings, 2019).

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Donepezil seems to only be effective if it is continually used, however people who have cardiac issues can not take the medication continually (Jelic, 2016).

# Donepezil

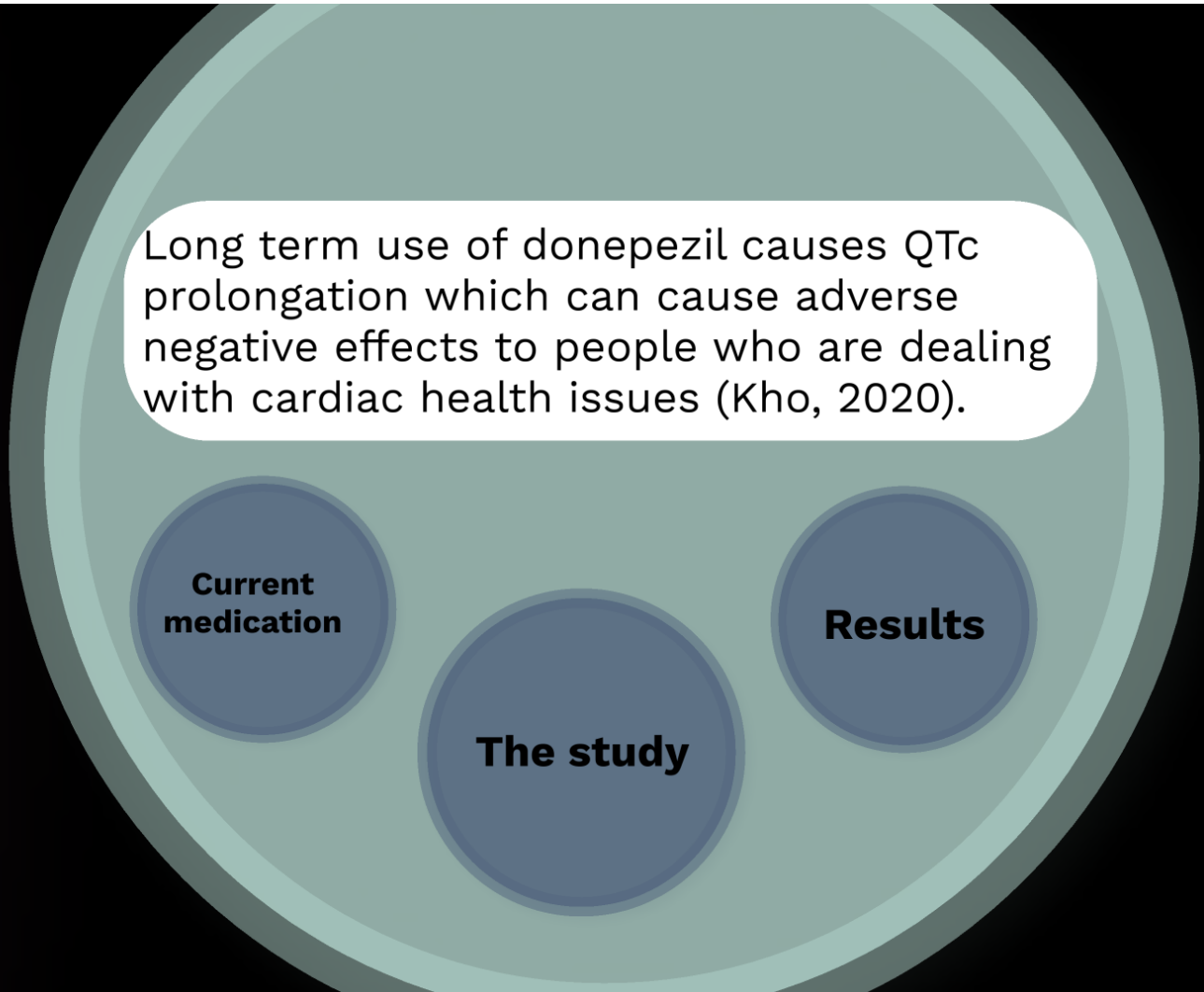
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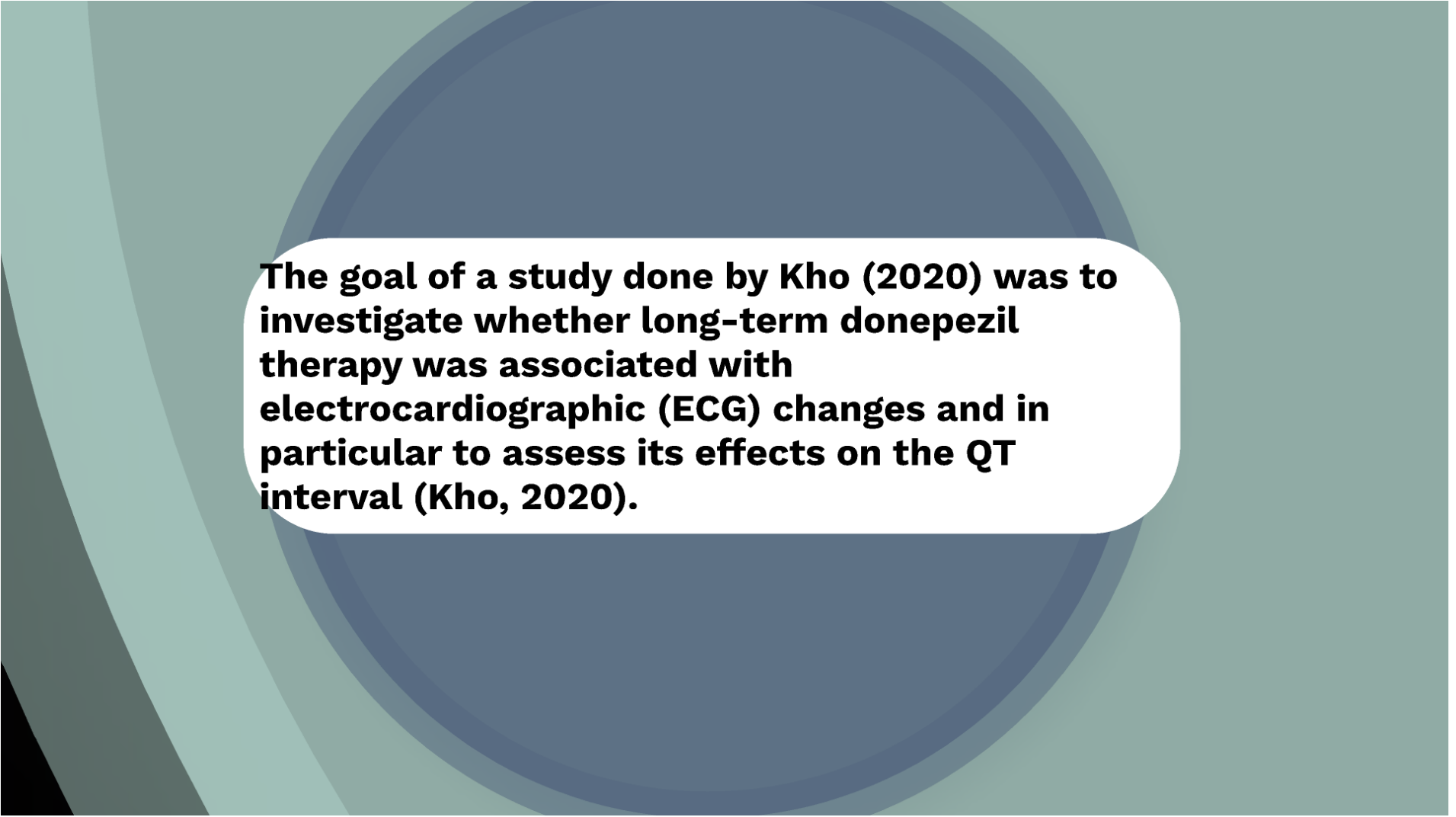


Long term use of donepezil causes QTc prolongation which can cause adverse negative effects to people who are dealing with cardiac health issues (Kho, 2020).

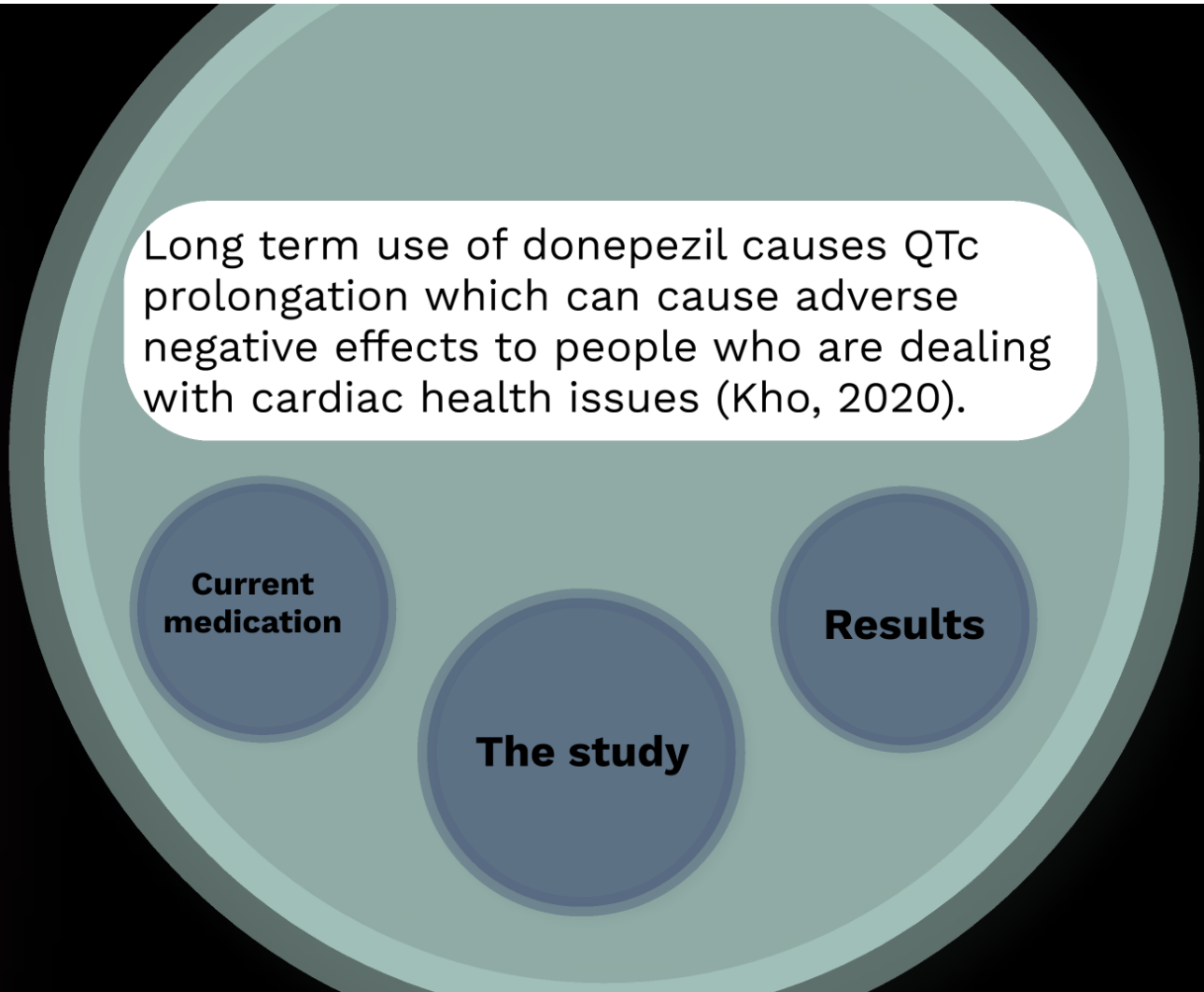
**Current  
medication**

**The study**

**Results**



**The goal of a study done by Kho (2020) was to investigate whether long-term donepezil therapy was associated with electrocardiographic (ECG) changes and in particular to assess its effects on the QT interval (Kho, 2020).**



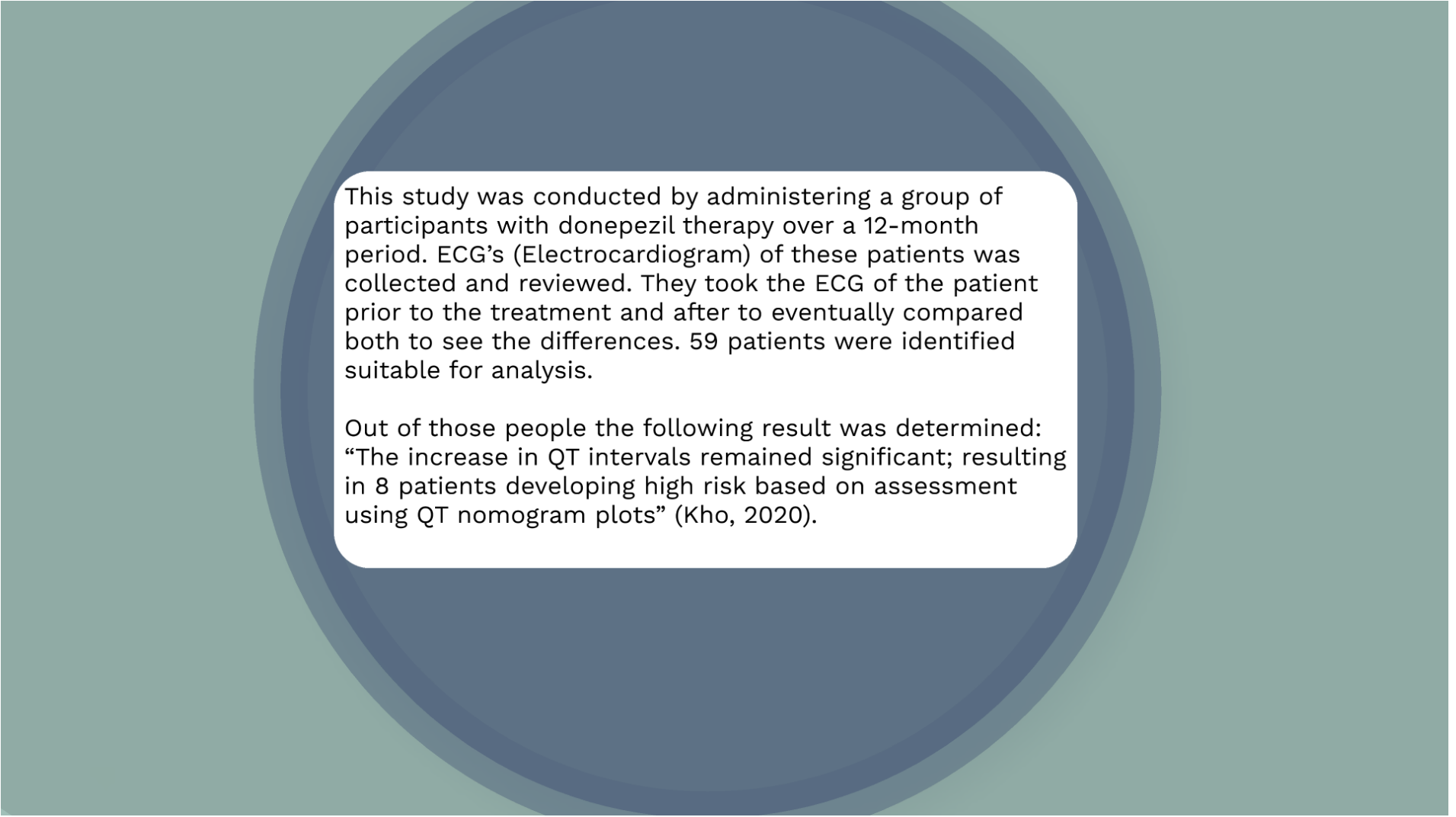
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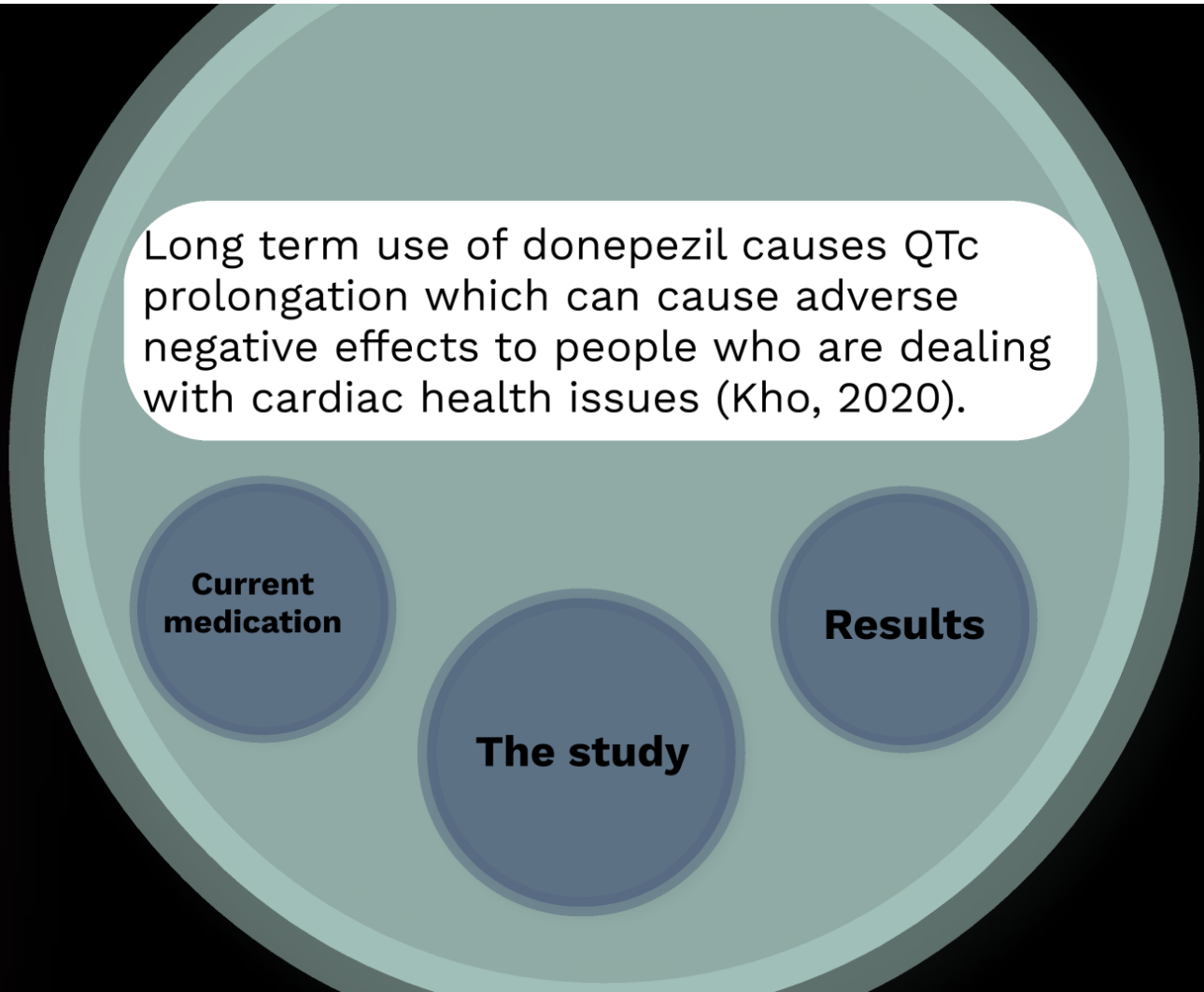
**Results**





This study was conducted by administering a group of participants with donepezil therapy over a 12-month period. ECG's (Electrocardiogram) of these patients was collected and reviewed. They took the ECG of the patient prior to the treatment and after to eventually compared both to see the differences. 59 patients were identified suitable for analysis.

Out of those people the following result was determined: "The increase in QT intervals remained significant; resulting in 8 patients developing high risk based on assessment using QT nomogram plots" (Kho, 2020).




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**Current  
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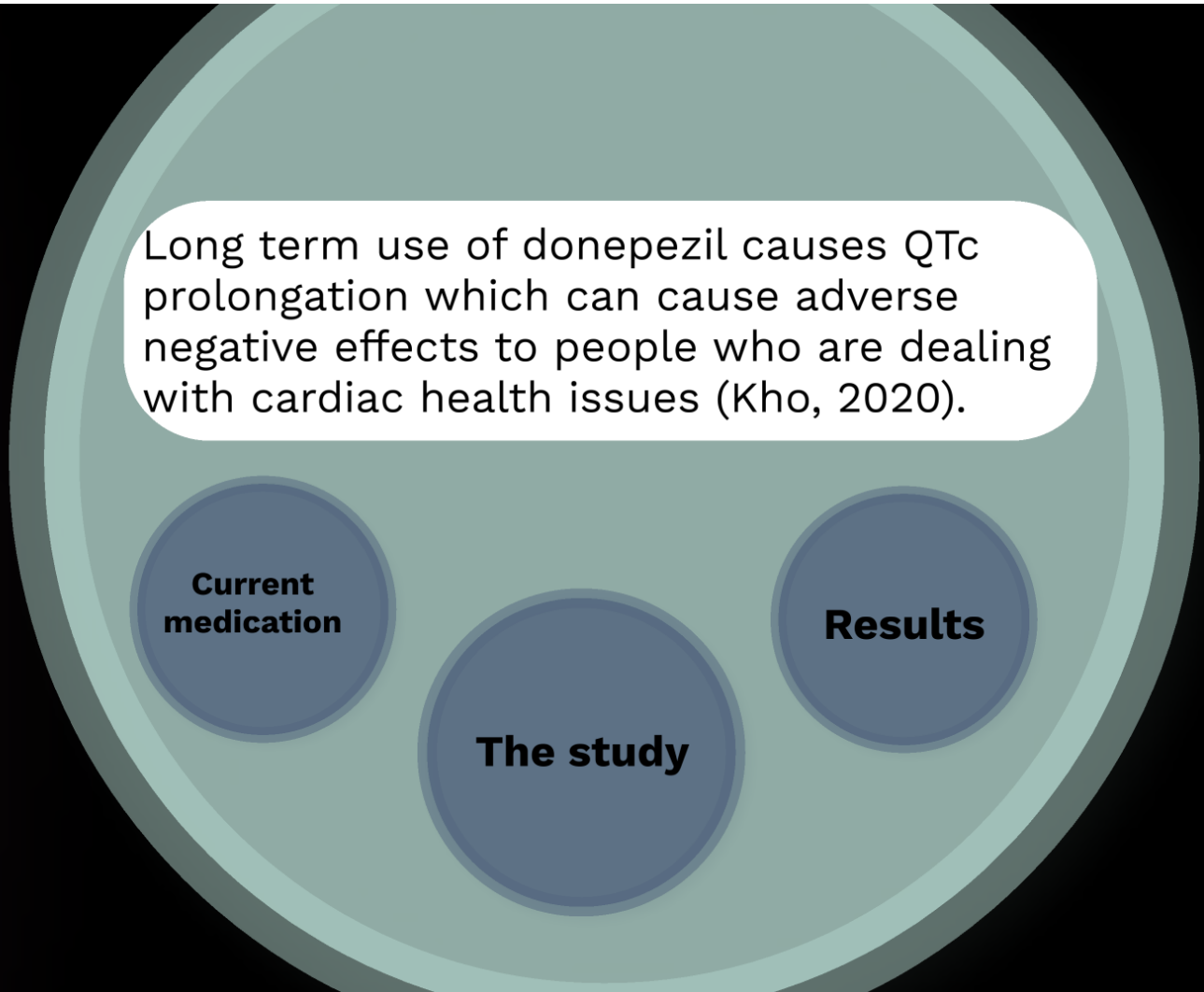
**The study**

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The results of this study were that “long-term use of donepezil is associated with prolongation of the QT interval”(Kho, 2020).

The suggestion that they gave in this study is that ECG evaluation should be done before donepezil initiation. They also mentioned that “clinicians should be even more vigilant in those prescribed tricyclic antidepressants.” (Kho, 2020)



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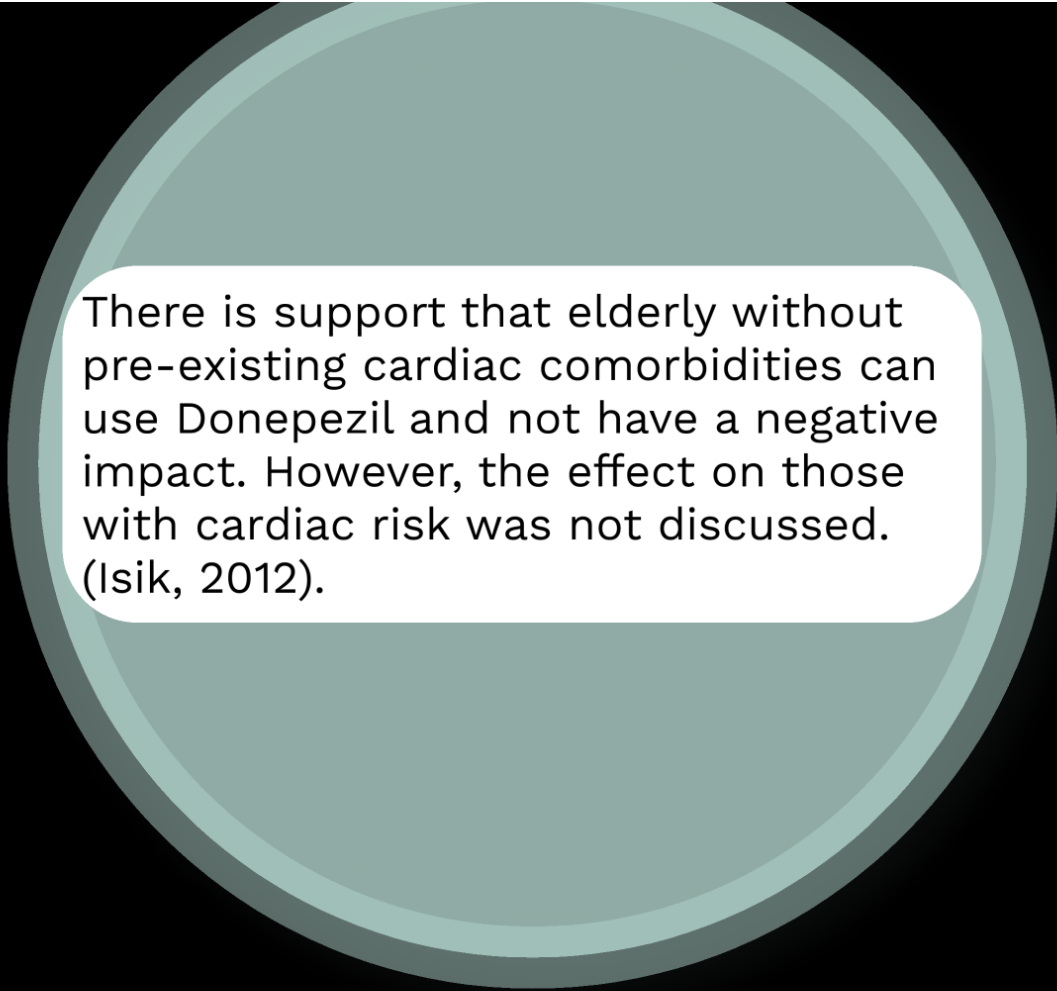
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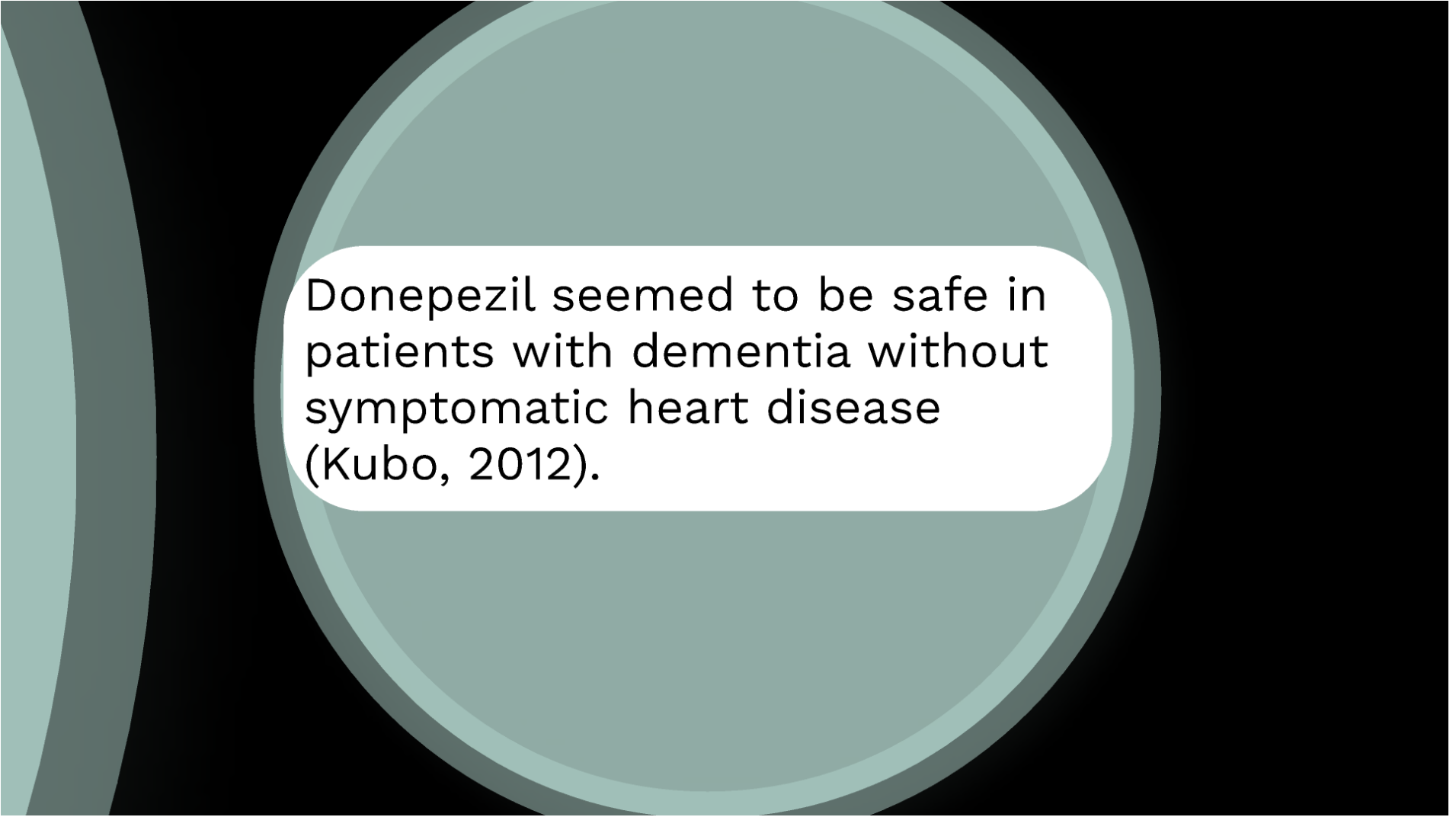
**Who can use  
Donepezil?**



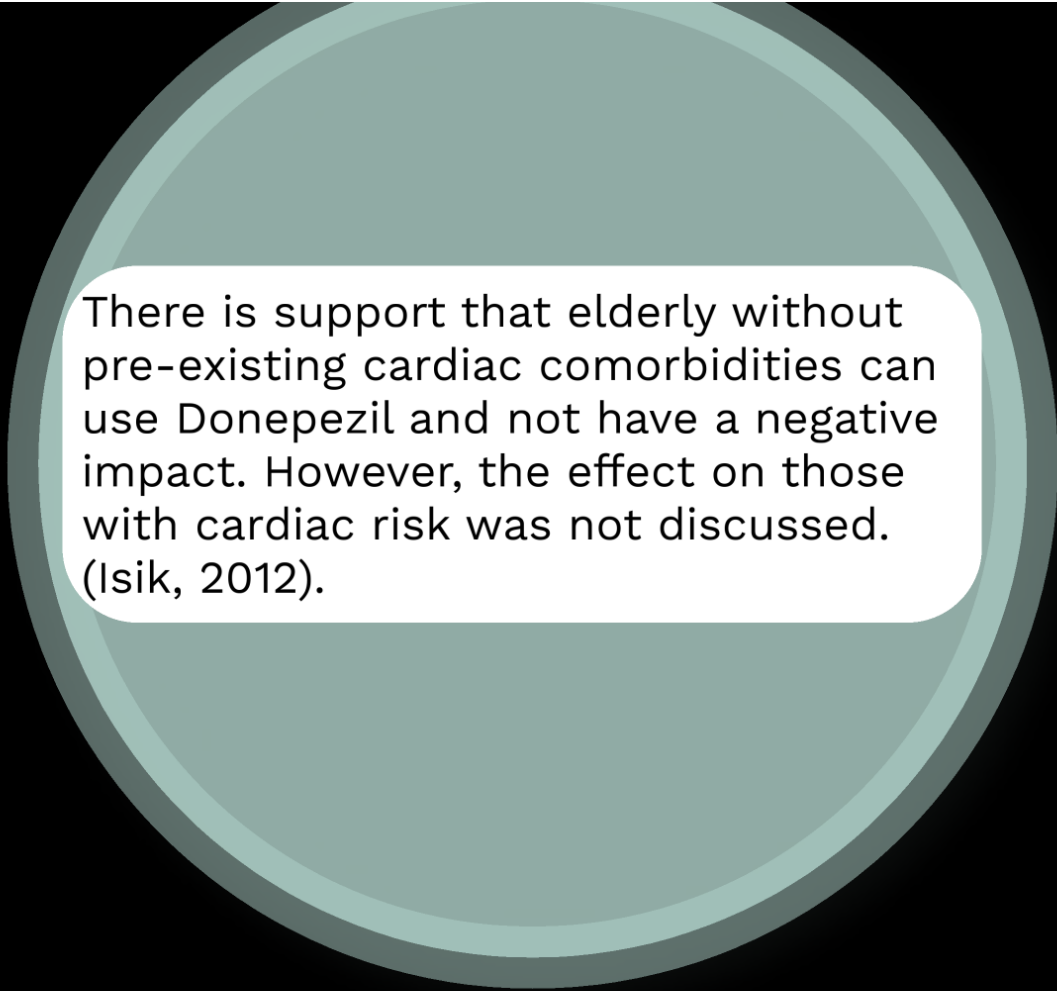
There is support that elderly without pre-existing cardiac comorbidities can use Donepezil and not have a negative impact. However, the effect on those with cardiac risk was not discussed. (Isik, 2012).



**Impact on  
patients  
without  
chronic  
heart failure**



Donepezil seemed to be safe in patients with dementia without symptomatic heart disease (Kubo, 2012).



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**Alzheimer's  
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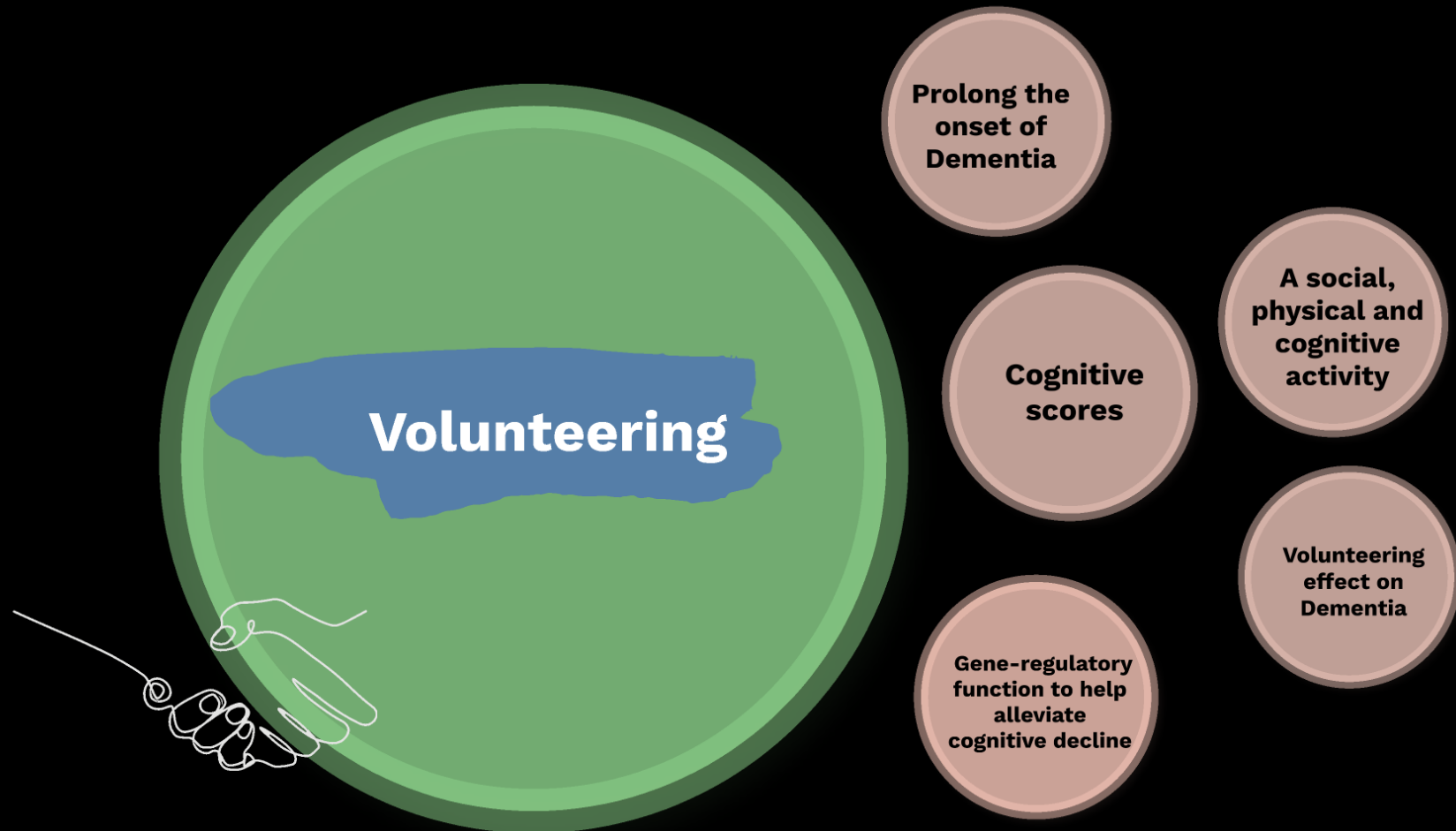
**Diagnosis**

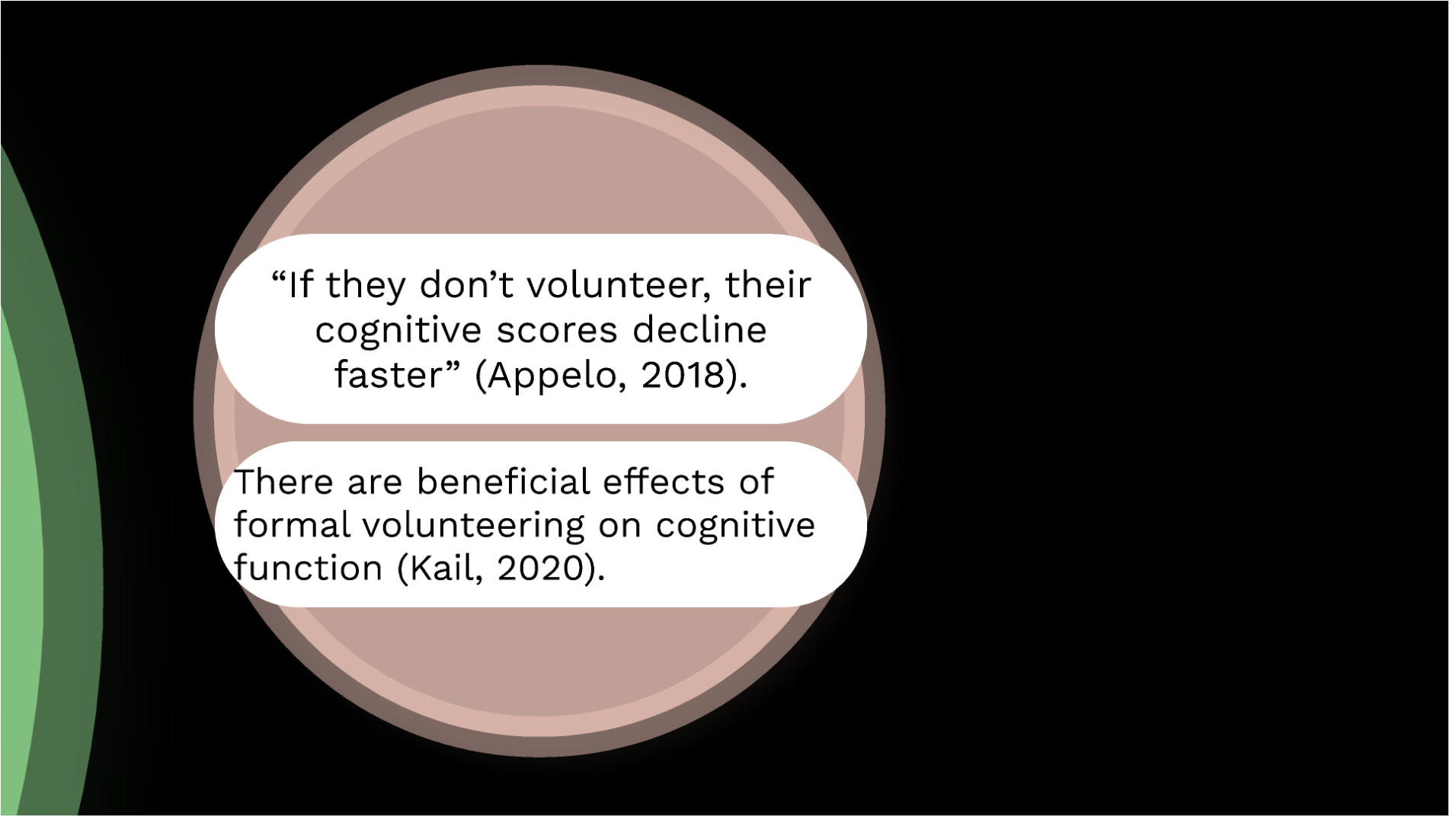
**Donepezil**

**Volunteering**

**Future  
Action**

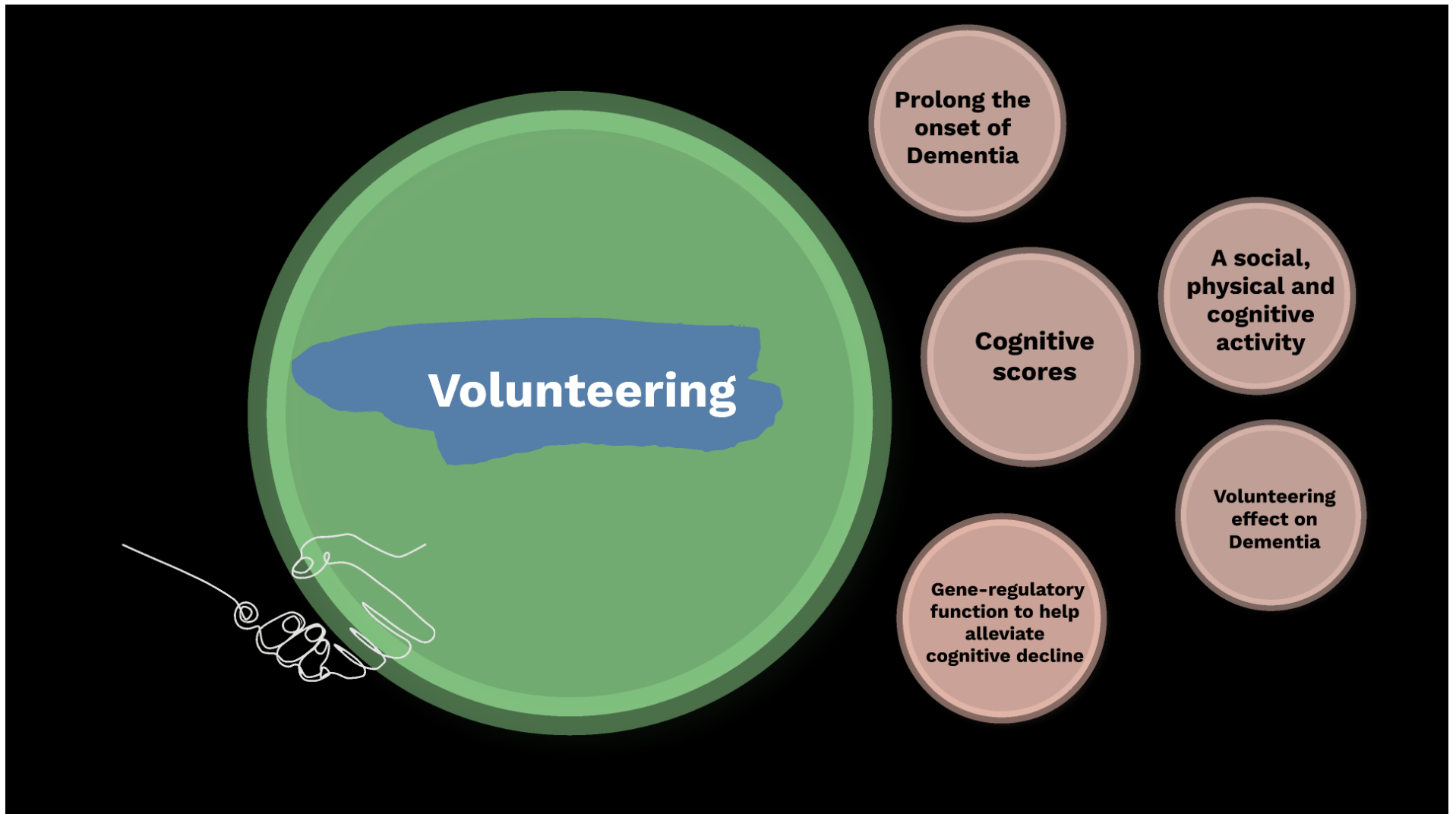
**Work  
Cited**

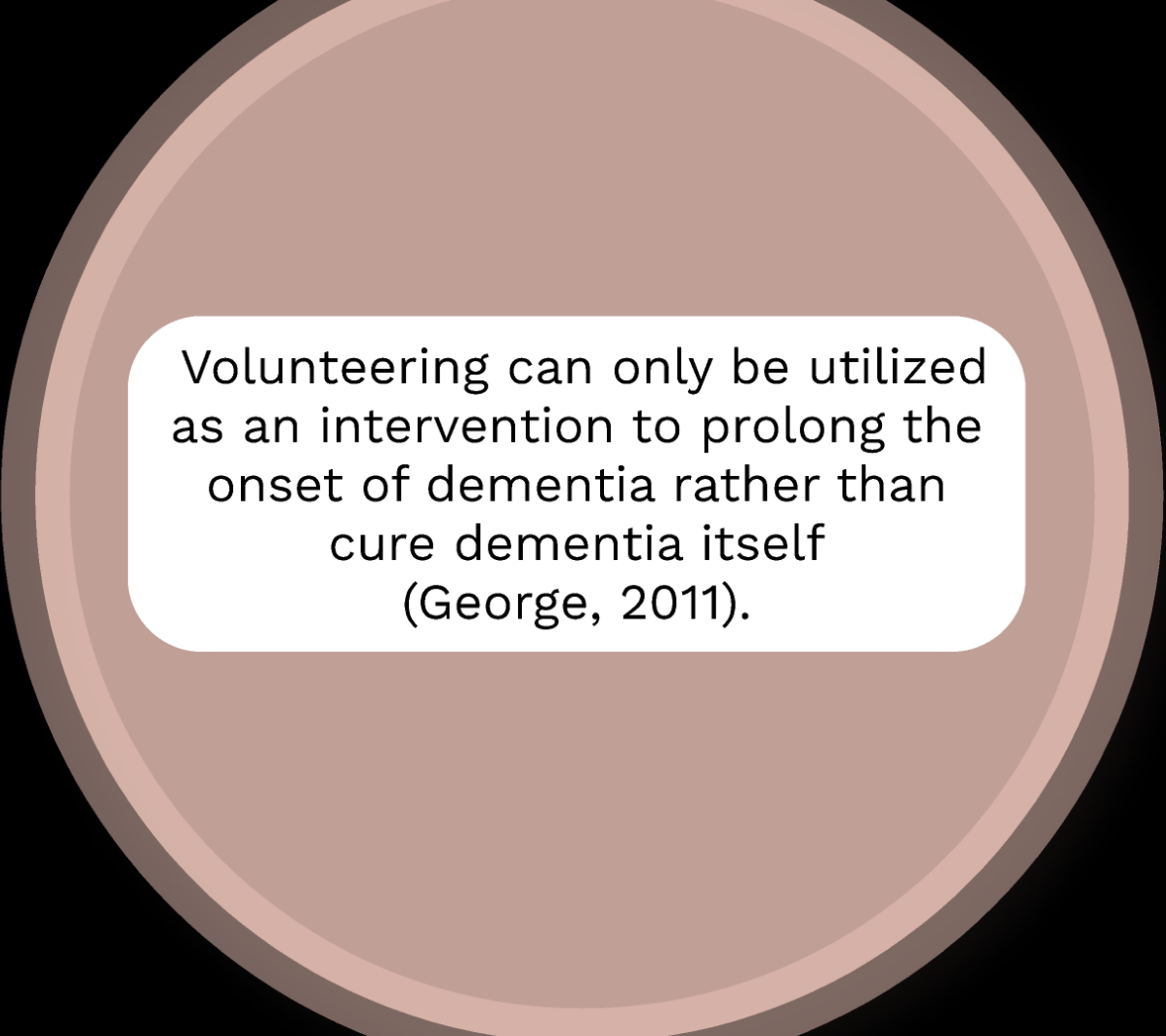




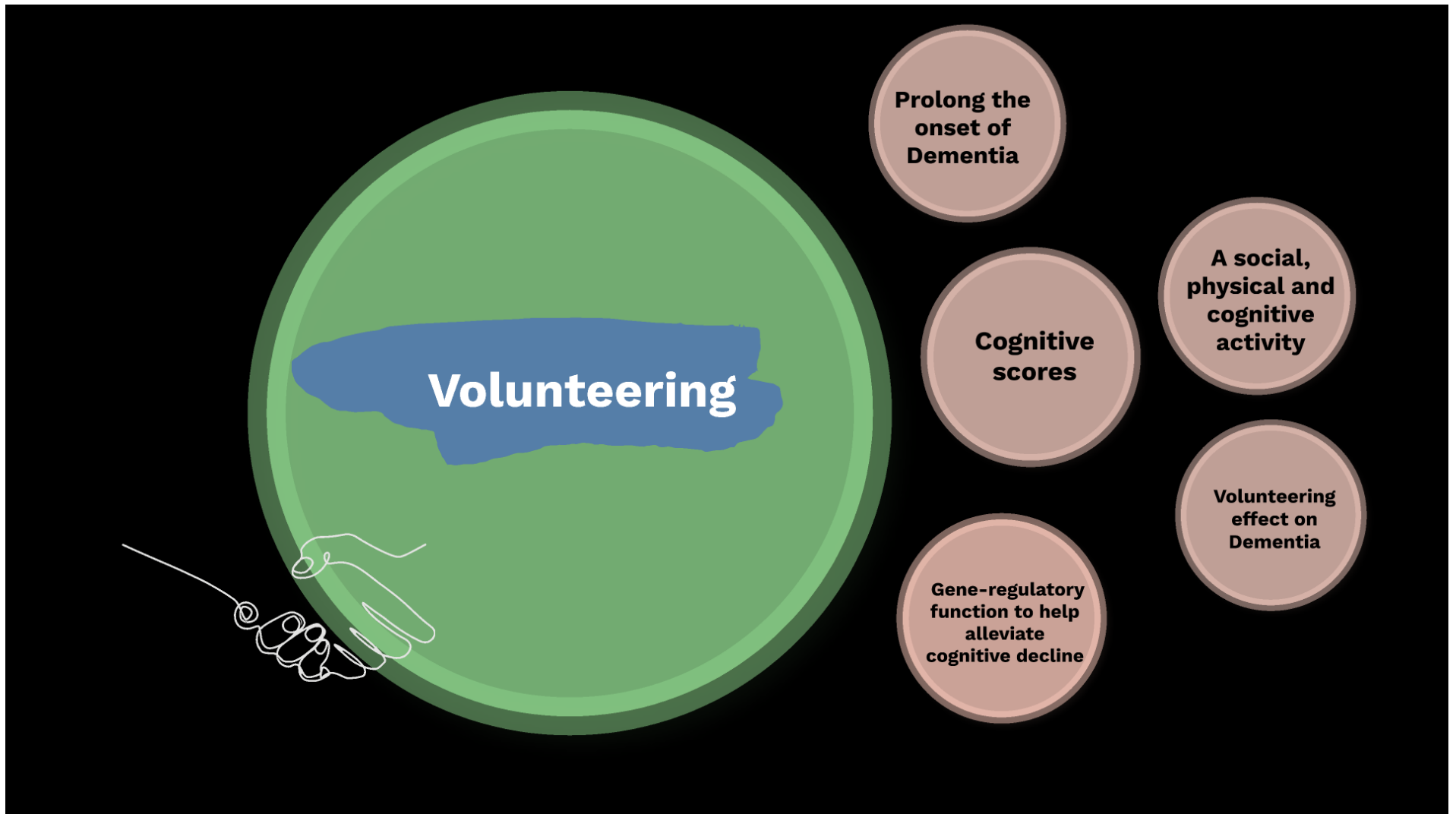
“If they don’t volunteer, their cognitive scores decline faster” (Appelo, 2018).

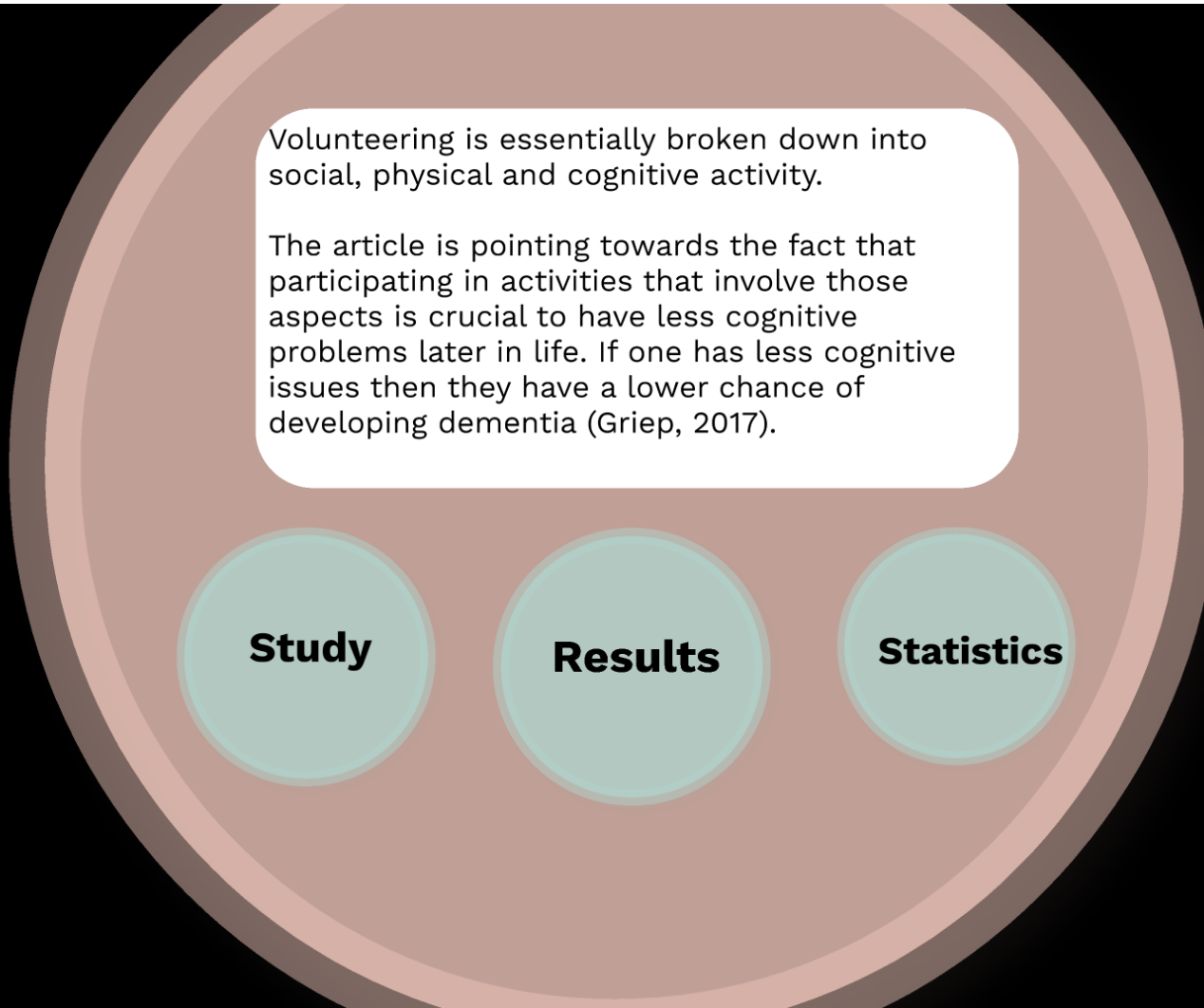
There are beneficial effects of formal volunteering on cognitive function (Kail, 2020).





Volunteering can only be utilized  
as an intervention to prolong the  
onset of dementia rather than  
cure dementia itself  
(George, 2011).



A diagram consisting of a large light brown circle with a darker brown border. Inside this circle, at the top, is a white rounded rectangle containing two paragraphs of text. Below the text box, arranged horizontally, are three smaller teal circles. Each teal circle contains a bold black word: 'Study', 'Results', and 'Statistics' from left to right.

Volunteering is essentially broken down into social, physical and cognitive activity.


The article is pointing towards the fact that participating in activities that involve those aspects is crucial to have less cognitive problems later in life. If one has less cognitive issues then they have a lower chance of developing dementia (Griep, 2017).

**Study**

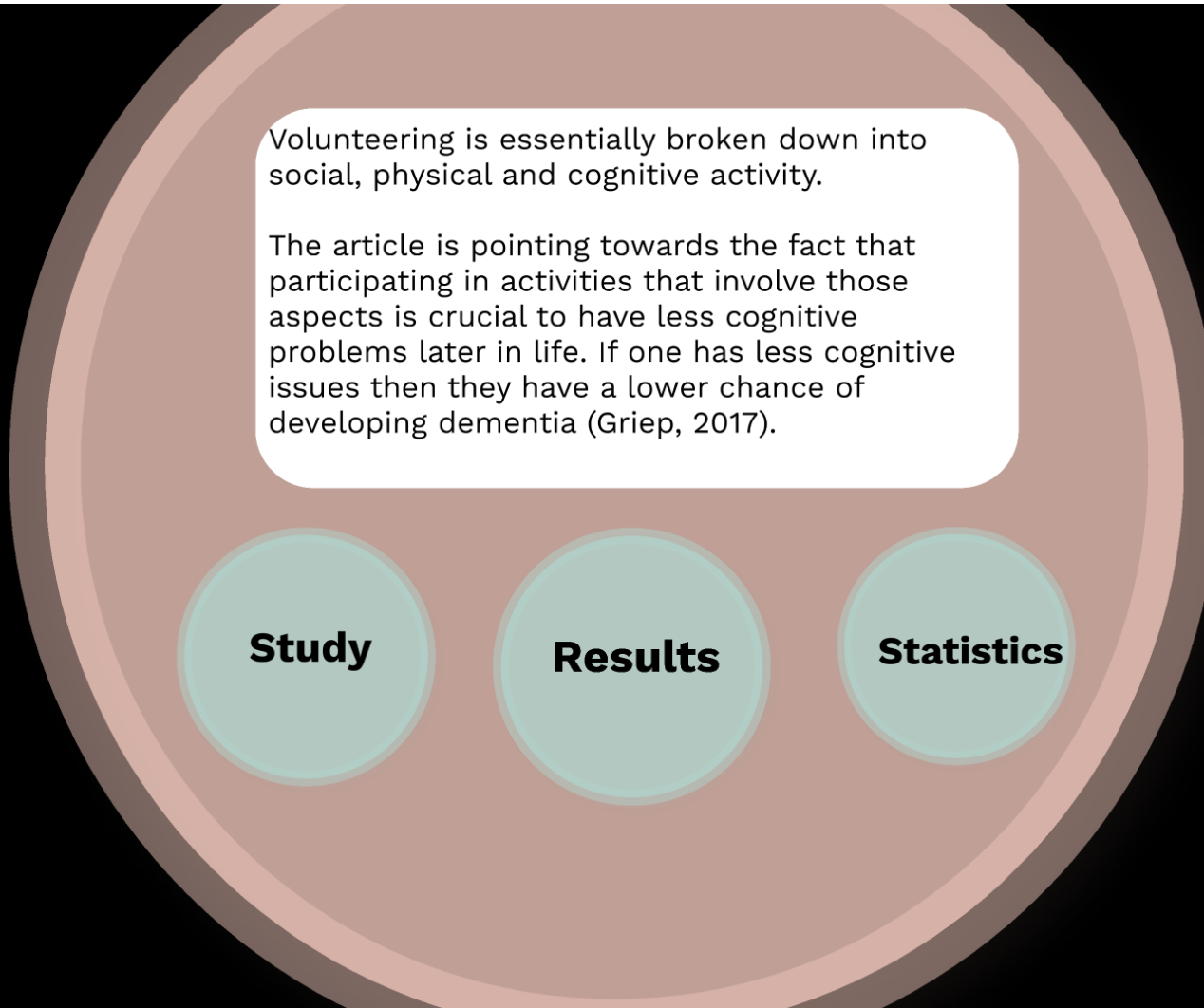
**Results**

**Statistics**





The groups of data they used were divided into three categories: no volunteering, discontinuous volunteering and continuous volunteering (Griep, 2017).

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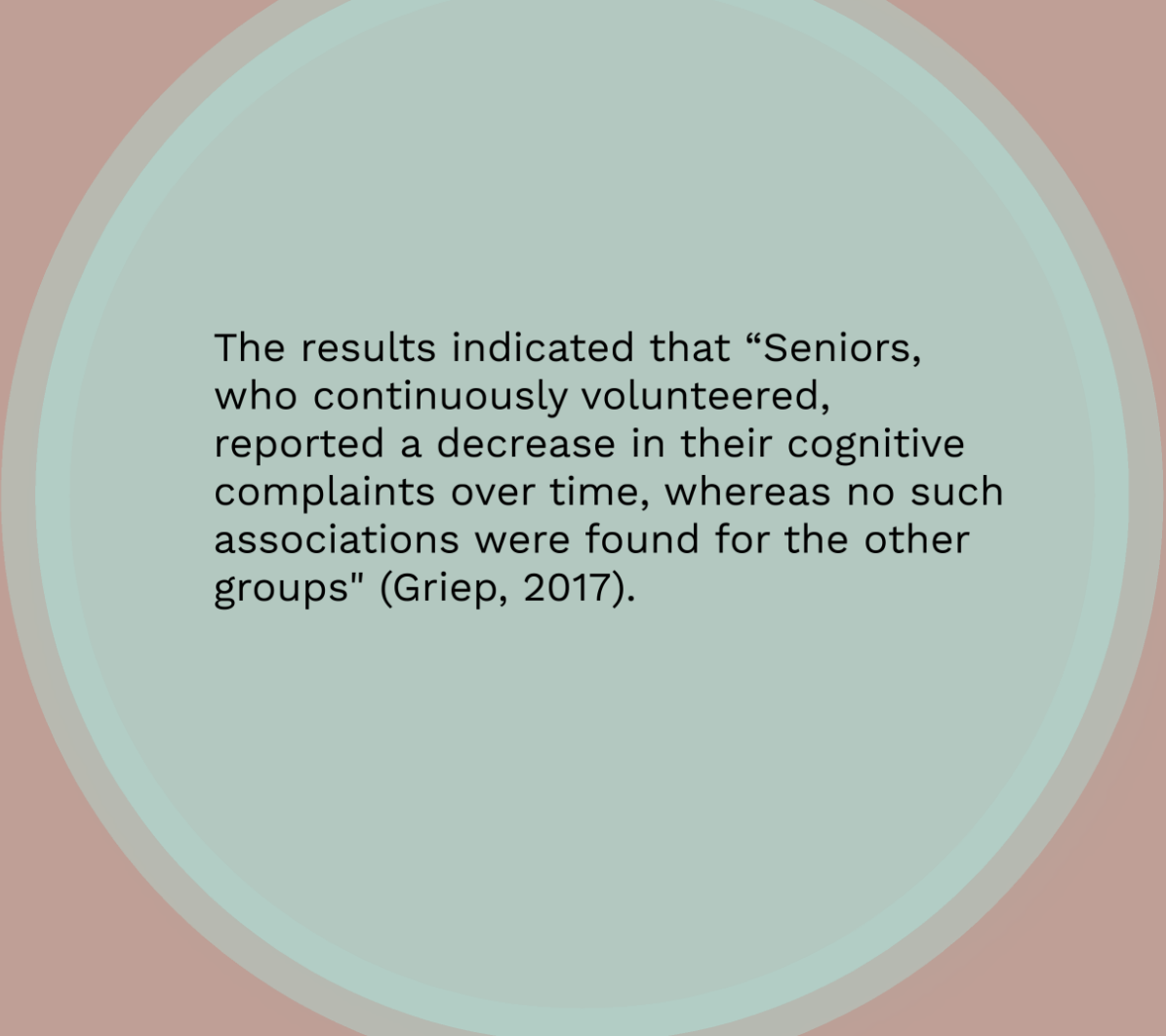
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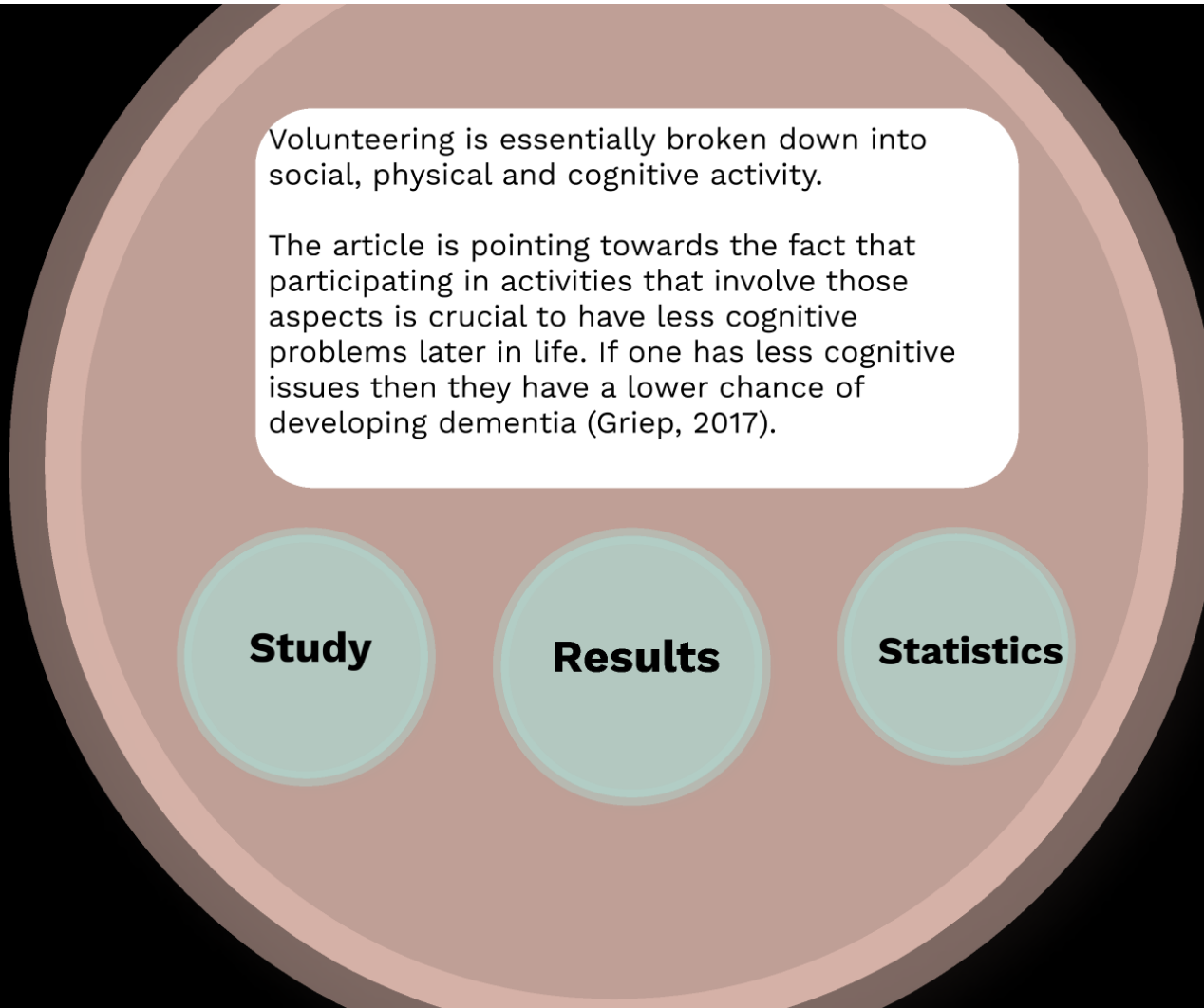
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The results indicated that “Seniors, who continuously volunteered, reported a decrease in their cognitive complaints over time, whereas no such associations were found for the other groups” (Griep, 2017).




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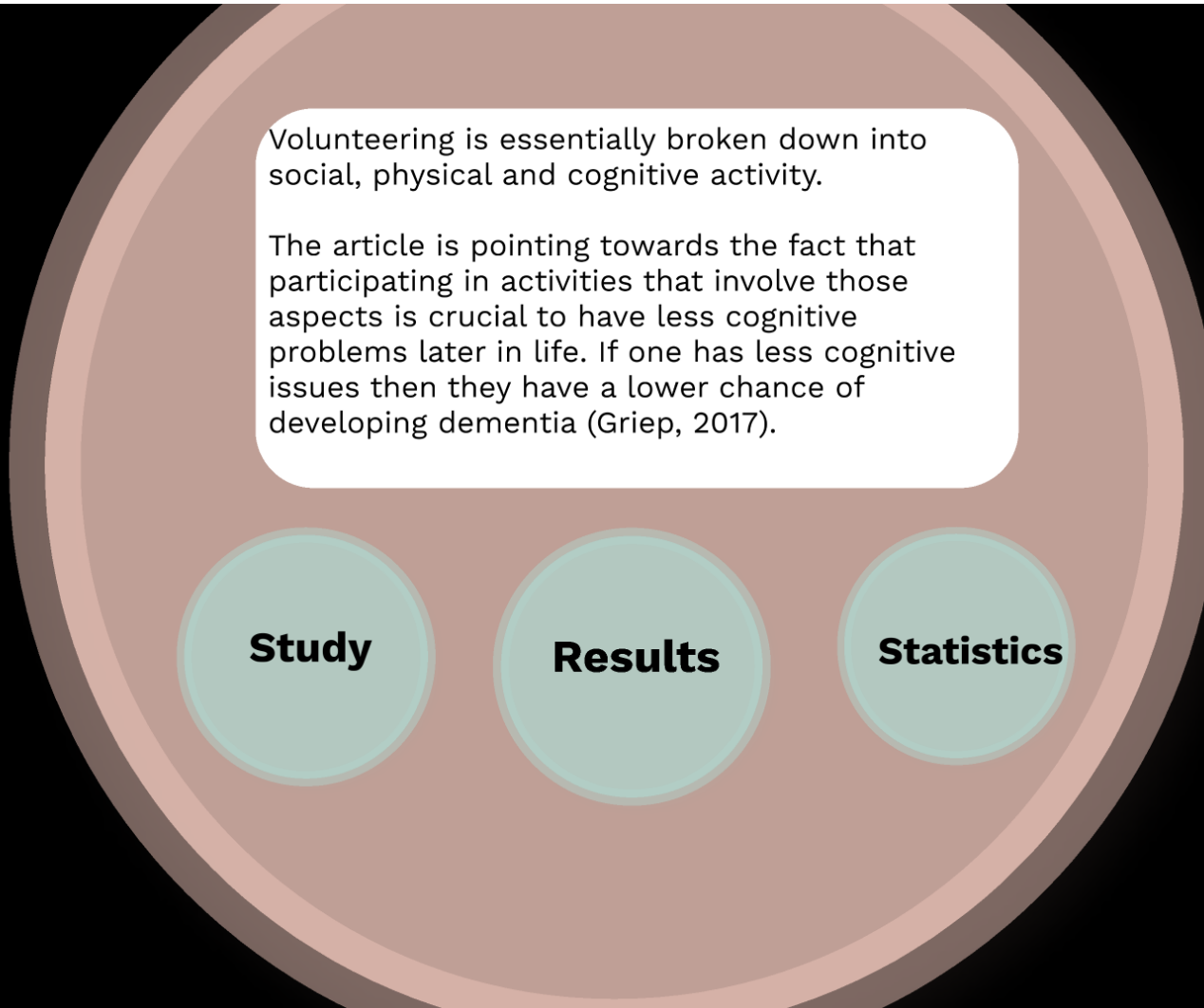
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"Those that volunteered continuously were 2.44 and 2.46 times less likely to be prescribed an anti-dementia treatment in 2012 and 2014, respectively" (Griep, 2017).

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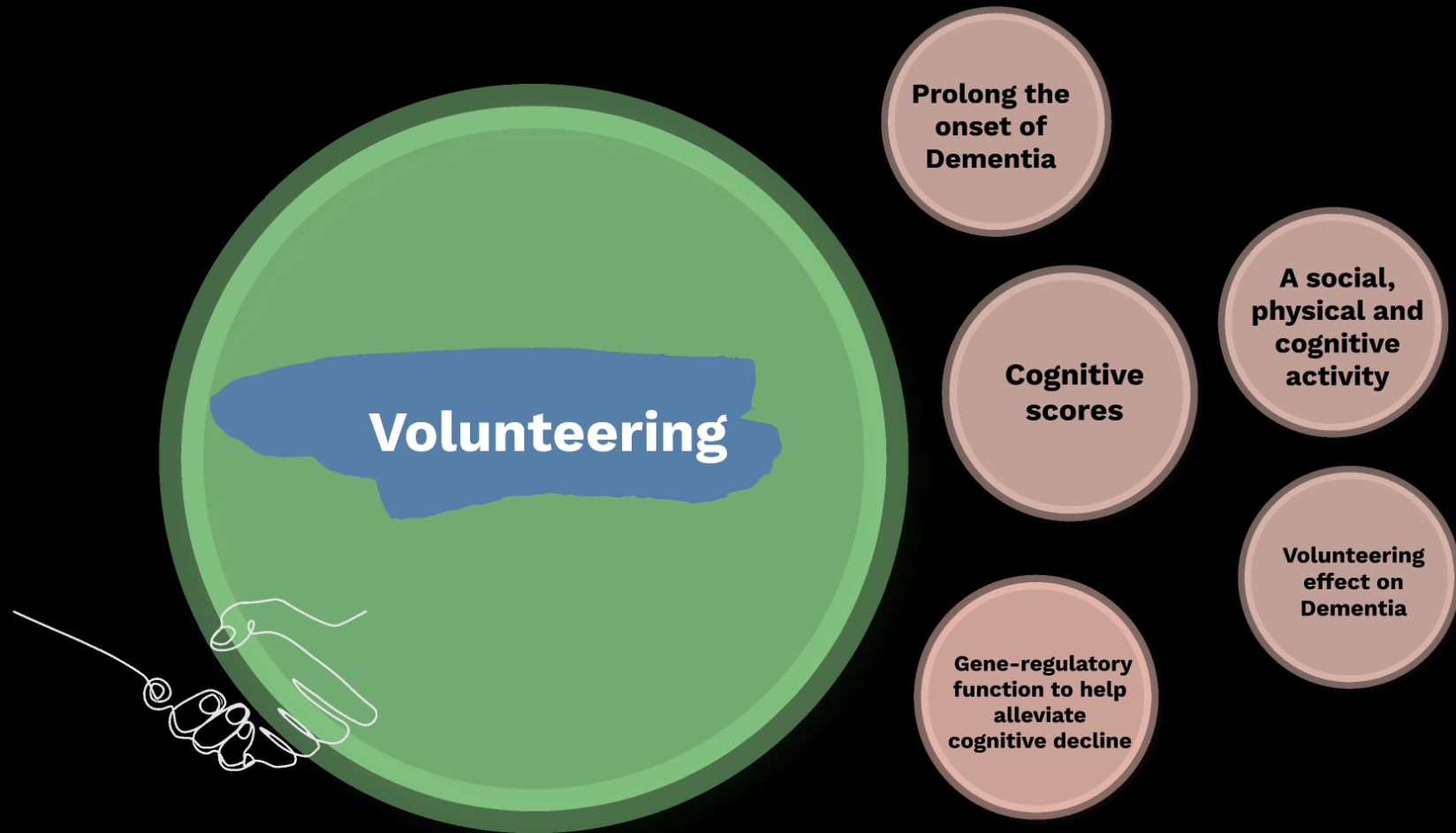
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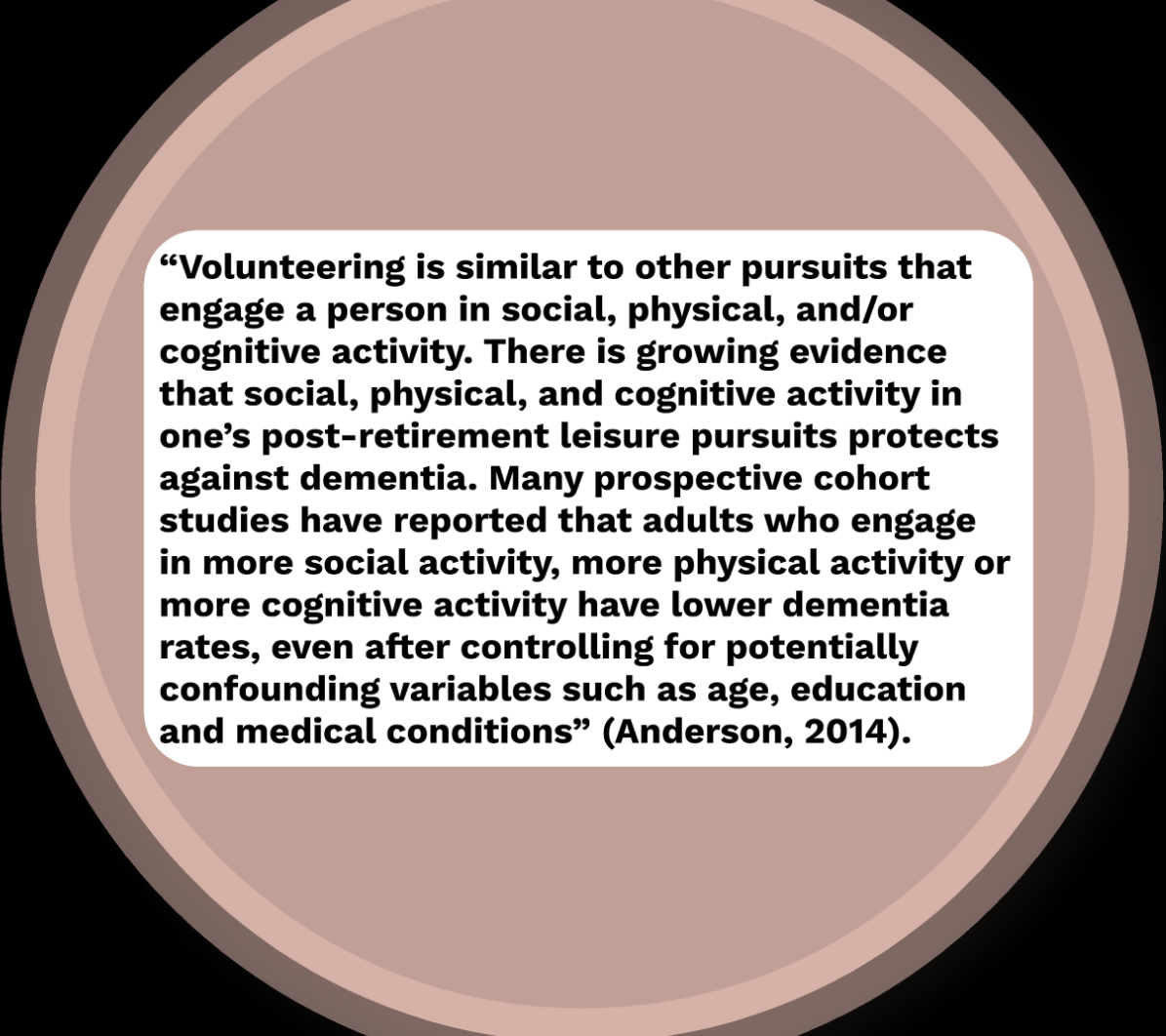
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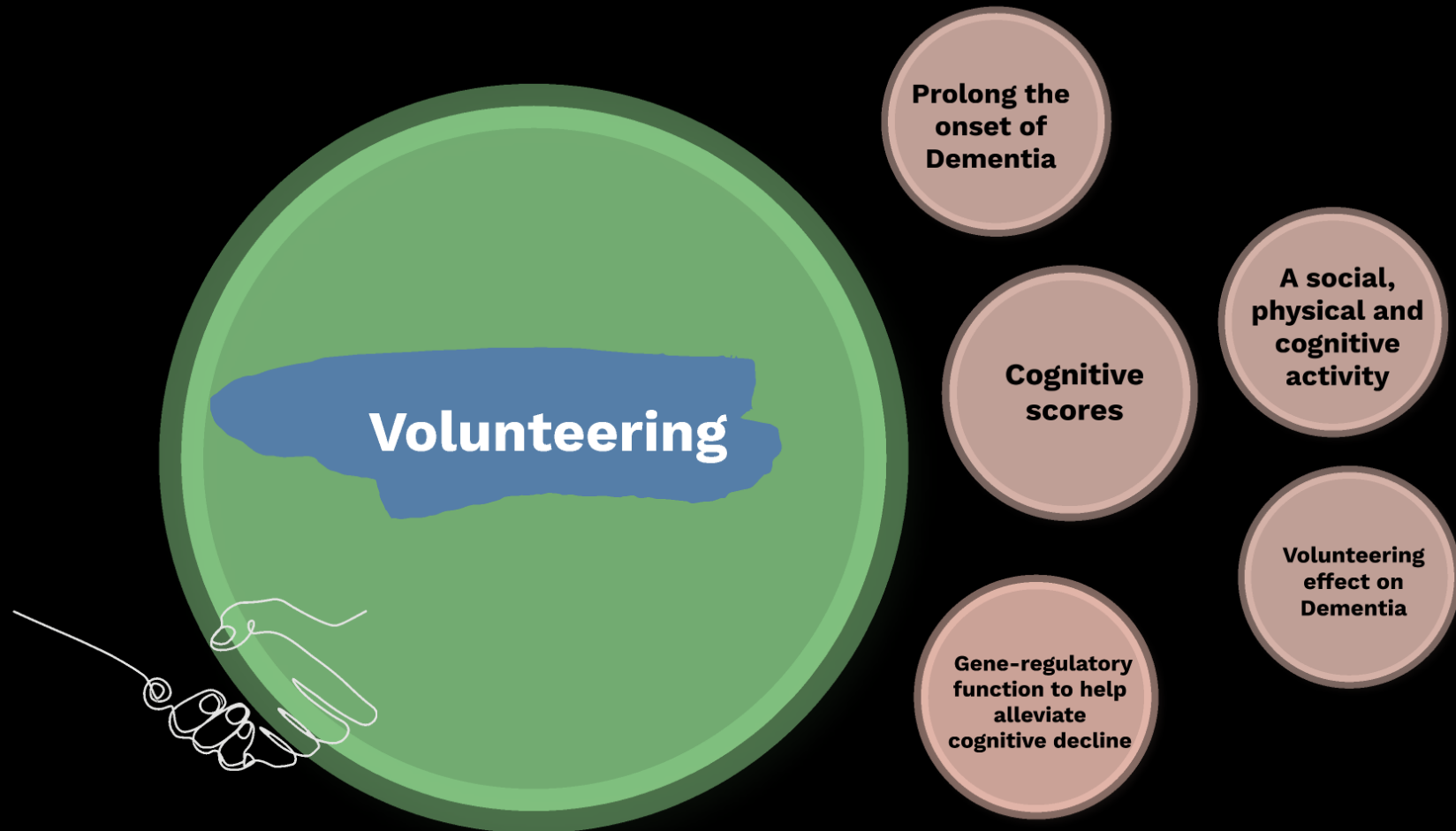
**Statistics**





**“Volunteering is similar to other pursuits that engage a person in social, physical, and/or cognitive activity. There is growing evidence that social, physical, and cognitive activity in one’s post-retirement leisure pursuits protects against dementia. Many prospective cohort studies have reported that adults who engage in more social activity, more physical activity or more cognitive activity have lower dementia rates, even after controlling for potentially confounding variables such as age, education and medical conditions” (Anderson, 2014).**







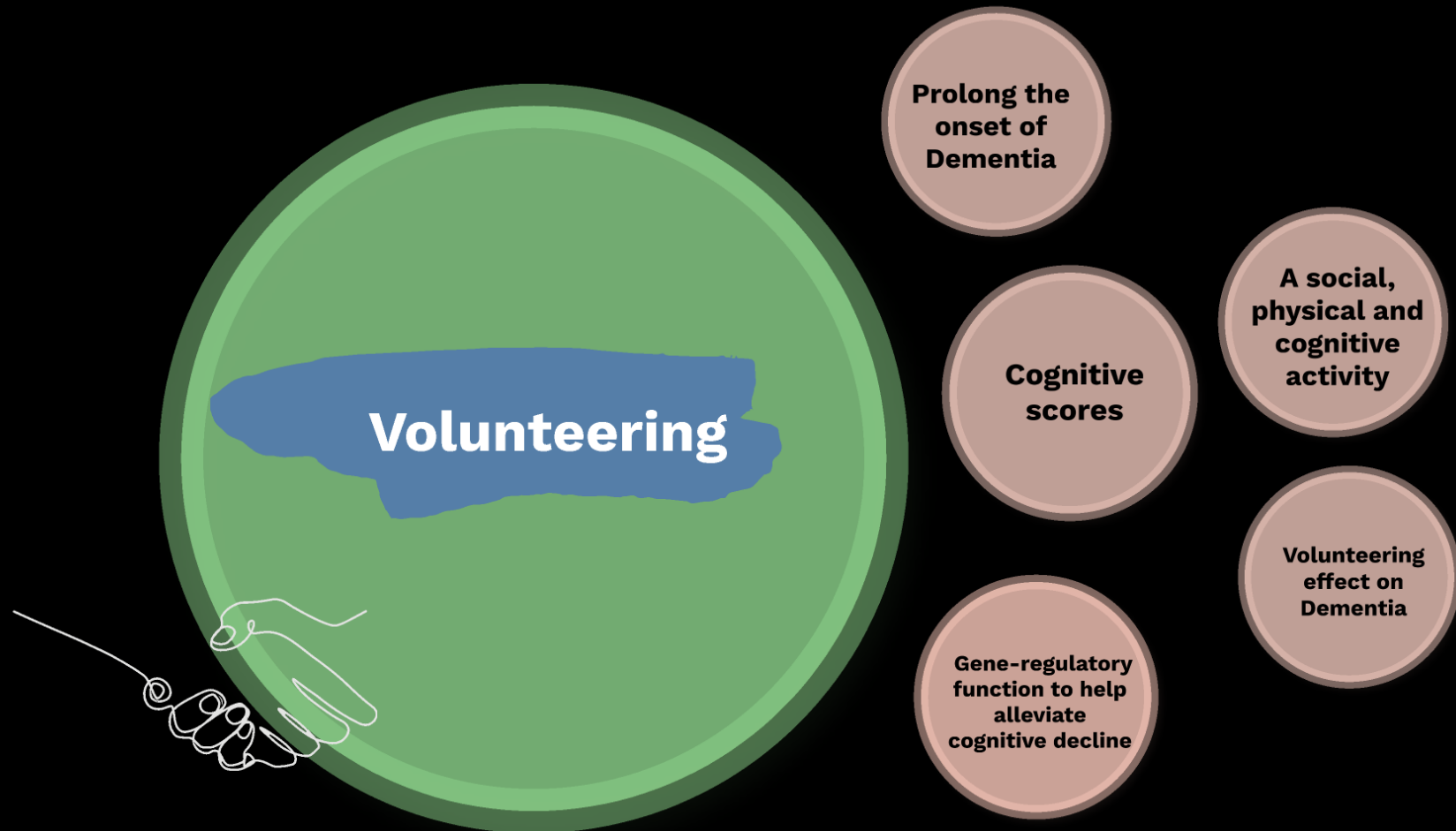
**Many studies have been done to see if volunteering is a viable way to prolong the onset of Alzheimer's Dementia.**

**In a study by Han (2020), they examined if volunteering resulted in cognitive health benefits in later life. Specifically, whether volunteering served a gene-regulatory function to help alleviate cognitive decline associated with polygenic risk for Alzheimer's Dementia.**

**Multilevel models were used in their methodology. They reported that “there is a robust within-person associations between volunteering and cognitive functioning over time” (Han, 2020).**

**They used volunteer status and time commitment as their factors. Overall, volunteering was associated with higher levels of cognitive functioning and slower cognitive decline.**

**The genetic aspect they explored also pointed towards the fact that “the within-person associations for volunteering and cognitive decline were more pronounced for older adults at higher genetic risk for developing Alzheimer's Dementia ” (Han, 2020).**



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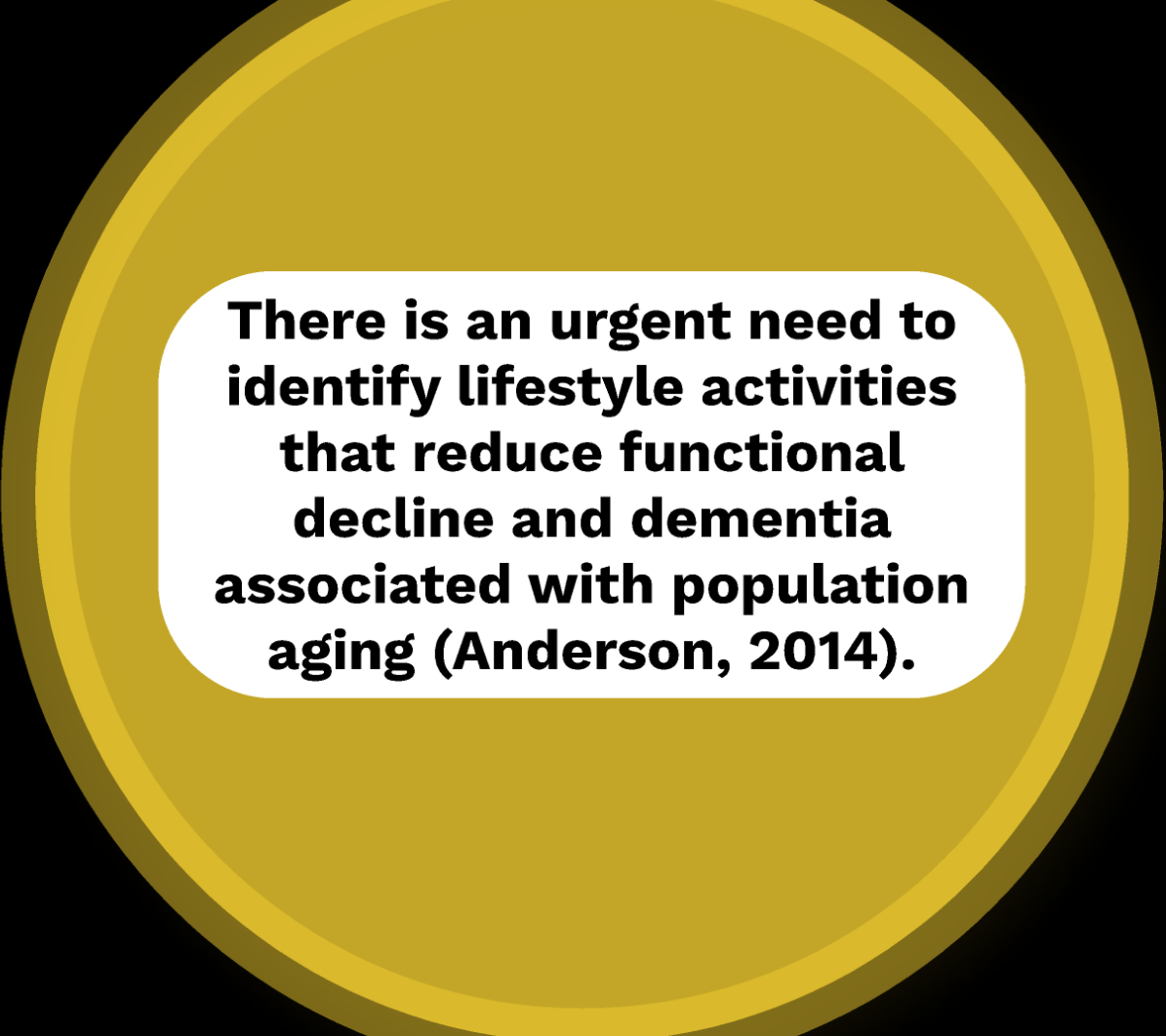
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**There is an urgent need to identify lifestyle activities that reduce functional decline and dementia associated with population aging (Anderson, 2014).**

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