Research Log

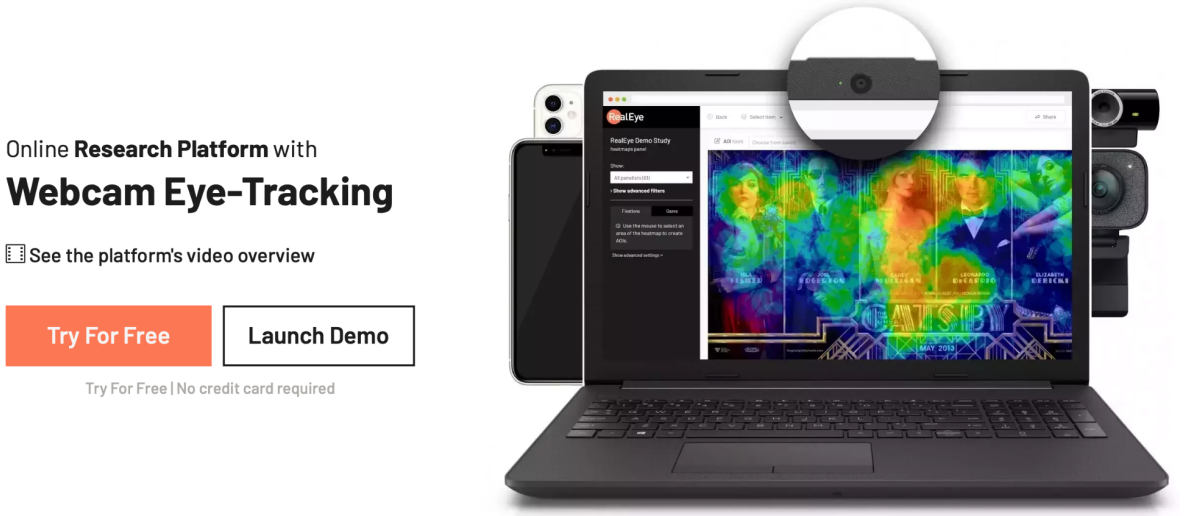
The research project that was being conducted underwent various phases throughout the semester. Initially, the team had to decide which equipment would be the most suitable for the research project. This was a crucial decision that required extensive research and discussion amongst the team members. After carefully evaluating the available options, the team concluded that realeye.io would be the best choice for virtual eye tracking. This decision was made after considering several factors such as the accuracy of the system, ease of use, and cost-effectiveness.

Before deciding on realeye.io, there was a dilemma that arose between using iMotion or realeye. This was a challenging decision that required the team to conduct in-depth research and analyze the pros and cons of each system. After consulting with Dr. Dixon and obtaining permission from Dr. Duchowski, the team ultimately decided to move forward with realeye.io.

To obtain the necessary information and student purchasing details, one of the team members contacted Adam from realeye. Adam's contact information was provided by Dr. Duchowski, who was a valuable resource for the team throughout the project. Through the communication with Adam, the team was able to gather all the required information and make the necessary arrangements to acquire the equipment. Overall, the team went through a rigorous process to ensure that they made the best decisions for the project and utilized the most suitable equipment to achieve their research goals.

Research Log 1

Finalizing the equipment or software to use, realeye.io:



Research Log

Making Presentation
After finalizing the software, we need to provide the introductory presentation about the motivation, problem statement

Evaluation of Cognitive Load Through Eye Tracking of People with Dementia

Margi Engineer

For the initial presentation of the survey, three platforms were chosen, and the results of three participants were demonstrated in a demo.

The three platforms screenshots which were used in the survey are here:

Research Log

Comparative efficacy of interventions for reducing symptoms of depression in people with dementia: systematic review and network meta-analysis

Jennifer A Watt,[1,2] Zahra Goodarzi,[3,4,5] Areti Angeliki Veroniki,[1,6,7] Vera Nincic,[1] Paul A Khan,[1] Marco Ghassemi,[1] Yonda Lai,[1] Victoria Treister,[1] Yuan Thompson,[1] Raphael Schneider,[8,9,10] Andrea C Tricco,[1,11] Sharon E Straus[12,11]

For numbered affiliations see end of the article.

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Additional material is published online only. To view please visit the journal online.

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http://dx.doi.org/10.1136/bmj.n532

Accepted: 15 February 2021

ABSTRACT

OBJECTIVE

To describe the comparative efficacy of drug and non-drug interventions for reducing symptoms of depression in people with dementia who experience depression as a neuropsychiatric symptom of dementia or have a diagnosis of a major depressive disorder.

DESIGN

Systematic review and meta-analysis.

DATA SOURCES

Medline, Embase, the Cochrane Library, CINAHL, PsycINFO, and grey literature between inception and 15 October 2020.

ELIGIBILITY CRITERIA FOR STUDY SELECTION

Randomised trials comparing drug or non-drug interventions with usual care or any other intervention targeting symptoms of depression in people with dementia.

MAIN OUTCOME MEASURES

Pairs of reviewers screened studies, abstracted aggregate level data, and appraised risk of bias with the Cochrane risk of bias tool, which facilitated the derivation of standardised mean differences and back transformed mean differences (on the Cornell scale for depression in dementia) from bayesian random effects network meta-analyses and pairwise meta-analyses.

RESULTS

Of 22 138 citations screened, 256 studies (28 483 people with dementia) were included. Missing data posed the greatest risk to review findings. In the network meta-analysis of studies including people with dementia without a diagnosis of a major depressive disorder who were experiencing symptoms of depression (213 studies; 25 177 people with dementia; between study variance 0.23), seven interventions were associated with a greater reduction in symptoms of depression compared with usual care: cognitive stimulation (mean difference −2.93, 95% credible interval −4.35 to −1.52), cognitive stimulation combined with a cholinesterase inhibitor (−11.39, −18.38 to −3.93), massage and touch therapy (−9.03, −12.28 to −5.88), multidisciplinary care (−1.98, −3.80 to −0.16), occupational therapy (−2.59, −4.70 to −0.40), exercise combined with social interaction and cognitive stimulation (−12.37, −19.01 to −5.36), and reminiscence therapy (−2.30, −3.68 to −0.93). Except for massage and touch therapy, cognitive stimulation combined with a cholinesterase inhibitor, and cognitive stimulation combined with exercise and social interaction, which were more efficacious than some drug interventions, no statistically significant difference was found in the comparative efficacy of drug and non-drug interventions for reducing symptoms of depression in people with dementia without a diagnosis of a major depressive disorder. Clinical and methodological heterogeneity precluded network meta-analysis of studies comparing the efficacy of interventions specifically for reducing symptoms of depression in people with dementia and a major depressive disorder (22 studies; 1829 patients).

CONCLUSIONS

In this systematic review, non-drug interventions were found to be more efficacious than drug interventions for reducing symptoms of depression in people with dementia without a major depressive disorder.

SYSTEMATIC REVIEW REGISTRATION

PROSPERO CRD42017050130.

WHAT IS ALREADY KNOWN ON THIS TOPIC

Interest is growing in social prescribing—linking patients with non-drug interventions in their community—to reduce symptoms of depression, isolation, and loneliness

Individual randomised trials have shown that non-drug interventions (eg, exercise) alleviate symptoms of depression in people with dementia

The comparative efficacy of drug and non-drug interventions for reducing symptoms of depression in people with dementia, with or without a diagnosis of a major depressive disorder, is, however, unknown

WHAT THIS STUDY ADDS

In this systematic review, non-drug approaches were associated with a meaningful reduction in symptoms of depression in people with dementia and without a diagnosis of a major depressive disorder

Drug approaches alone, however, were not more efficacious than usual care

Introduction

Fifty million people worldwide have a diagnosis of dementia.[1] About 16% of people with dementia also have a diagnosis of a major depressive disorder, but 32% of those with dementia will experience symptoms of depression (as part of the neuropsychiatric symptoms of dementia) without a formal diagnosis of a major depressive disorder.[2 3] In people with dementia, symptoms of depression manifest clinically as physical (eg, poor appetite, low energy) and behavioural (eg,

Research Log

ALZHEIMER'S DISEASE AND RELATED DEMENTIAS
BASICS OF ALZHEIMER'S DISEASE AND DEMENTIA

What Is Dementia? Symptoms, Types, and Diagnosis

On this page:

- What are the signs and symptoms of dementia?
- What causes dementia?
- What are the different types of dementia?
- How is dementia diagnosed?
- Who can diagnose dementia?

Dementia is the loss of cognitive functioning — thinking, remembering, and reasoning — to such an extent that it interferes with a person's daily life and activities. Some people with dementia cannot control their emotions, and their personalities may change. Dementia ranges in severity from the mildest stage, when it is just beginning to affect a person's functioning, to the most severe stage, when the person must depend completely on others for basic activities of daily living, such as feeding oneself.

Dementia affects millions of people and is more common as people grow older (about one-third of all people age 85 or older may have some form of dementia) but it is **not** a normal part of aging. Many people live into their 90s and beyond without any signs of dementia.

There are several different forms of dementia, including Alzheimer's disease, which is the most common.

What are the signs and symptoms of dementia?

Signs and symptoms of dementia result when once-healthy neurons (nerve cells) in the brain stop working, lose connections with other brain cells, and die. While everyone loses some neurons as they age, people with dementia experience far greater loss.

The signs and symptoms can vary depending on the type and may include:

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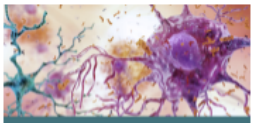
- Acting impulsively
- Not caring about other people's feelings
- Losing balance and problems with movement

People with intellectual and developmental disabilities can also develop dementia as they age, and in these cases, recognizing their symptoms can be particularly difficult. It's important to consider a person's current abilities and to monitor for changes over time that could signal dementia.

What causes dementia?

Dementia is the result of changes in certain brain regions that cause neurons (nerve cells) and their connections to stop working properly. Researchers have connected changes in the brain to certain forms of dementia and are investigating why these changes happen in some people but not others. For a small number of people, rare genetic variants that cause dementia have been identified.

Although we don't yet know for certain what, if anything, can prevent dementia, in general, leading a healthy lifestyle may help reduce risk factors.



Watch: How Alzheimer's Changes the Brain

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Stay connected! Join NIA email lists and find us on social media.

Articles

Participating in Activities You Enjoy As You Age

Quitting Smoking for Older Adults

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Getting Your Affairs in Order Checklist: Documents to Prepare for the Future

Latest News

Sense of smell linked to speed of brain loss and cognitive decline
03/30/2023

Research Log

Blogs by a family member

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Blogs by people with young onset

Read blogs written by people living with young onset dementia

Click here

Recommend a blog

If you can recommend any other blogs specifically about young onset dementia, please do share the details with us

Email us

Young onset dementia resources

Search our collections of young onset dementia related books, films and publications

Click here

Research Log

The results from the free demo version were shown:

fixation

participant_tags	participant_quality_grade	participant_quality_grade_item	test_item_display_order	fixation_point_x	fixation_point_y	fixation_starts_at_ms	fixation_ends_at_ms	fixation_duration_ms	saccade_amplitude_percent	not
	3	5	1	54.043981481481	42.601762664591	17	407	390		Rea
	3	5	1	6.8022762345679	-1.5406457427948	612	990	378	4.7709415831914	
	3	5	1	12.372134038801	-2.8105342123877	1021	1208	187	63.440450902571	
	3	5	1	86.278211805556	15.761002050201	1298	1691	393	41.560825949742	
	3	5	1	44.754754754755	57.417339625089	1721	1872	151		
	3	5	1	15.561693948413	6.9882385747644	2068	2464	396	22.619449477348	
	3	5	1	30.703125	42.124025021081	2589	2745	156	10.888460824824	
	3	5	1	18.082045949693	45.903172087176	2771	3168	397	9.2810516056455	
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	3	5	1	67.456502525253	56.40255437264	3499	3719	220	16.694520189512	
	3	5	1	81.534519300144	34.383718995844	3749	4119	370		
	3	5	1	17.389736829075	31.015847019697	4325	4698	373	11.069432596791	
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	3	5	1	19.722215531039	85.527481370584	6861	7248	387	6.3478721724369	
	3	5	1	27.184591892312	84.582475165321	7268	7668	400	7.1781597022197	
	3	5	1	19.754131780917	91.070188874636	7699	7833	134	45.949899142117	
	3	5	1	73.87003968254	95.488253342785	7930	8313	383	4.2503919937816	
	3	5	1	68.99537037037	97.354430174483	8344	8735	391	2.3796273763772	
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	3	5	1	63.715277777778	97.983800350263	9168	9401	233	35.753158924732	
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	3	5	1	8.7136994949495	19.594279963971	9782	9870	88	12.4826872994	
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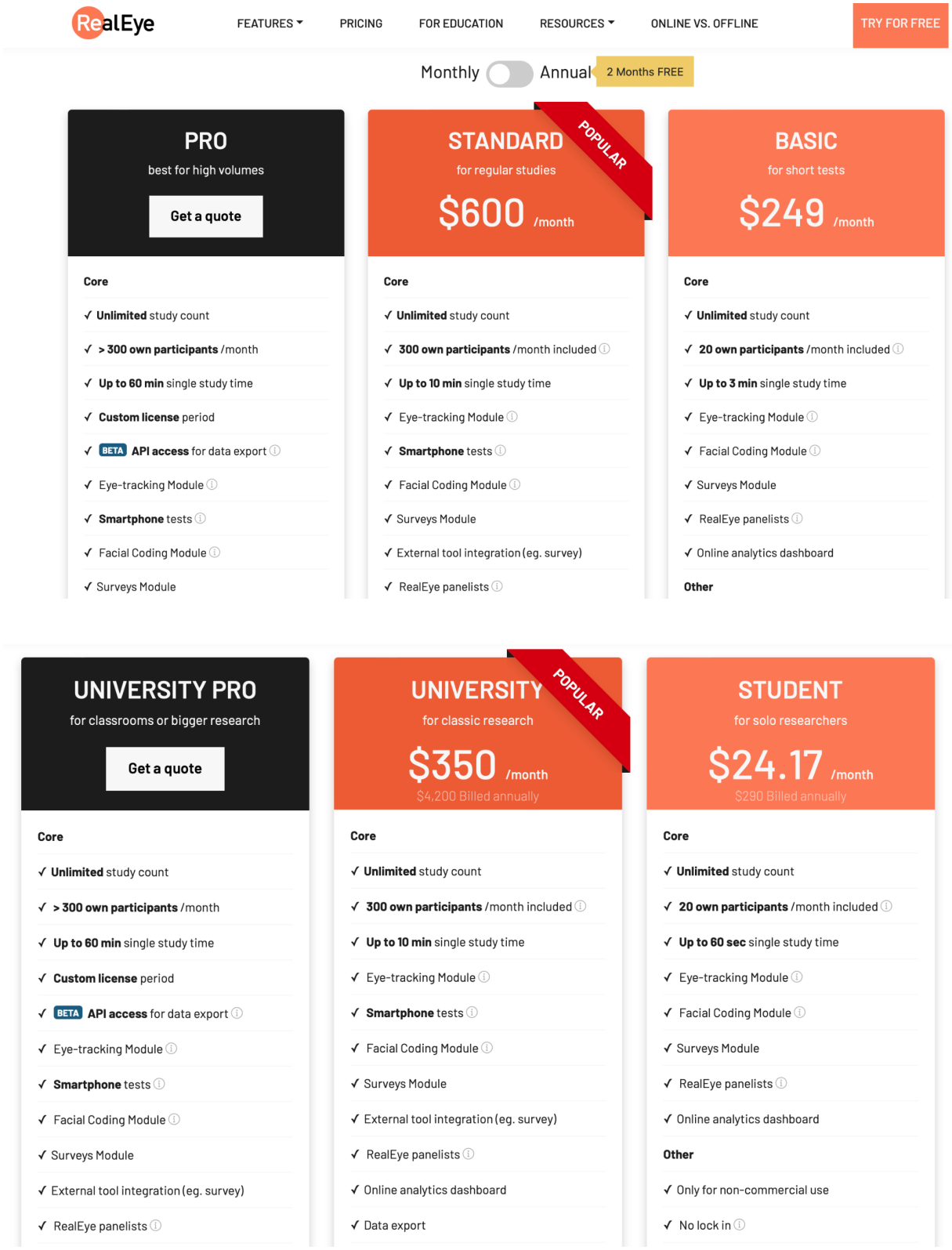
	3	5	1	43.416004177578	74.199207063282	1153	1345	192	14.438978901282	
	3	5	1	26.857229704452	67.853395307423	1375	1563	188		
	3	5	1	67.314781746032	71.34349616379	1714	1947	233	36.394243053309	

Research Log 2

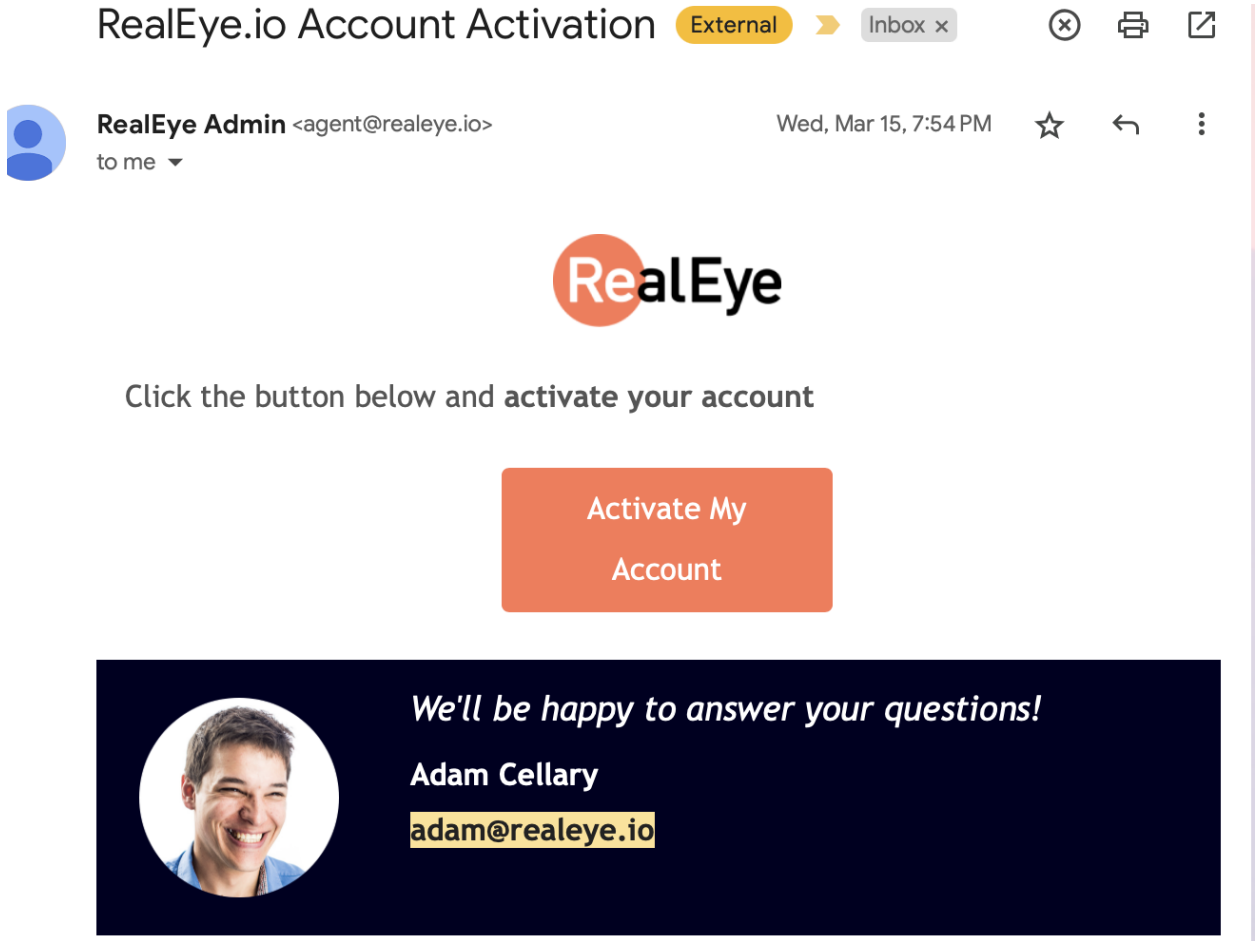
Regarding the research log, there has been a lack of progress to report after the free version was shown, unfortunately. This is due to the lengthy process of acquiring the software from the department, which has been ongoing for over three months and is still underway. The acquisition process involves several departments and requires verification, leading to email exchanges among the realeye.io team, the CS admin department, and the CCIT department, including its subdepartment.

Research Log



Research Log

Purchasing the software:After a long process, and still not getting the clearance, Dr. Dixon purchased the student version of software for a month.



Paper:

After purchasing the software the pilot study was done. The screenshot of the platforms used (cleaned images), the survey, final output and paper.

Research Log

Alzheimer's Disease Fact Sheet

Alzheimer's Disease Symptoms

Alzheimer's disease is an irreversible, progressive brain disorder that slowly destroys memory and thinking skills, and, eventually, the ability to carry out the simplest tasks. In most people with Alzheimer's, symptoms first appear in their mid-60s. Estimates vary, but experts suggest that more than 6 million Americans, most of them age 65 or older, may have dementia caused by Alzheimer's.

Alzheimer's disease is currently ranked as the sixth leading cause of death in the United States, but recent estimates indicate that the disorder may rank third, just behind heart disease and cancer, as a cause of death for older people.

Causes of Dementia

Alzheimer's is the most common cause of dementia among older adults. Dementia is the loss of cognitive functioning—thinking, remembering, and reasoning—and behavioral abilities to such an extent that it interferes with a person's daily life and activities. Dementia ranges in severity from the mildest stage, when it is just beginning to affect a person's functioning, to the most severe stage, when the person must depend completely on others for basic activities of daily living.

The causes of dementia can vary, depending on the types of brain changes that may be taking place. Other dementias include Lewy body dementia, frontotemporal disorders, and vascular dementia. It is common for people to have mixed dementia—a combination of two or more types of dementia. For example, some people have both Alzheimer's disease and vascular dementia.

Alzheimer's disease is named after Dr. Alois Alzheimer. In 1906, Dr. Alzheimer noticed changes in the brain tissue of a woman who had died of an unusual mental illness. Her symptoms included memory loss, language problems, and unpredictable behavior. After she died, he examined her brain and found many abnormal clumps (now called amyloid plaques) and tangled bundles of fibers (now called neurofibrillary, or tau, tangles).

These plaques and tangles in the brain are still considered some of the main features of Alzheimer's disease. Another feature is the loss of connections between nerve cells (neurons) in the brain. Neurons transmit messages between different parts of the brain, and from the brain to muscles and organs in the body.

How Does Alzheimer's Disease Affect the Brain?

Scientists continue to unravel the complex brain changes involved in the onset and progression of Alzheimer's disease. It seems likely that changes in the brain may begin a decade or more before memory and other cognitive problems appear. During this preclinical stage of Alzheimer's disease, people seem to be symptom-free, but toxic changes are taking place in the brain. Abnormal deposits of proteins form amyloid plaques and tau tangles throughout the brain. Once-healthy neurons stop functioning, lose connections with other neurons, and die. Many other complex brain changes are thought to play a role in Alzheimer's, too.

The damage initially appears to take place in the hippocampus and the entorhinal cortex, parts of the brain essential in forming memories. As more neurons die, additional parts of the brain are affected and begin to shrink. By the final stage of Alzheimer's, damage is widespread, and brain tissue has shrunk significantly.

Signs and Symptoms of Alzheimer's Disease

Memory problems are typically one of the first signs of cognitive impairment related to Alzheimer's disease. Some people with memory problems have a condition called mild cognitive impairment (MCI). In MCI, people have more memory problems than normal for their age, but their symptoms do not interfere with their everyday lives. Movement difficulties and problems with the sense of smell have also been linked to MCI. Older people with MCI are at greater risk for developing Alzheimer's, but not all of them do. Some may even go back to normal cognition.

The first symptoms of Alzheimer's vary from person to person. For many, decline in non-memory aspects of cognition, such as word-finding, vision/spatial issues, and impaired reasoning or judgment, may signal the very early stages of Alzheimer's disease. Researchers are studying biomarkers (biological signs of disease found in brain images, cerebrospinal fluid, and blood) to detect early changes in the brains of people with MCI and in cognitively normal people who may be at greater risk for Alzheimer's. Studies indicate that such early detection is possible, but more research is needed before these techniques can be used routinely to diagnose Alzheimer's disease in everyday medical practice.

Stages of Alzheimer's Disease

Mild Alzheimer's Disease

As Alzheimer's disease progresses, people experience greater memory loss and other cognitive difficulties. Problems can include wandering and getting lost, trouble handling money and paying bills, repeating questions, taking longer to complete normal daily tasks, and personality and behavior changes. People are often diagnosed in this stage.

Research Log

ALZHEIMER'S DISEASE AND RELATED DEMENTIAS
BASICS OF ALZHEIMER'S DISEASE AND DEMENTIA

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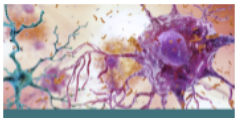

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03/30/2023

Research Log

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You are here: Home / About dementia / Young onset dementia / Young onset dementia resources / Blogs about young onset dementia / Blogs by a family member

Blogs by a family member

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Blogs by people with young onset

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Click here

Recommend a blog

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Young onset dementia resources

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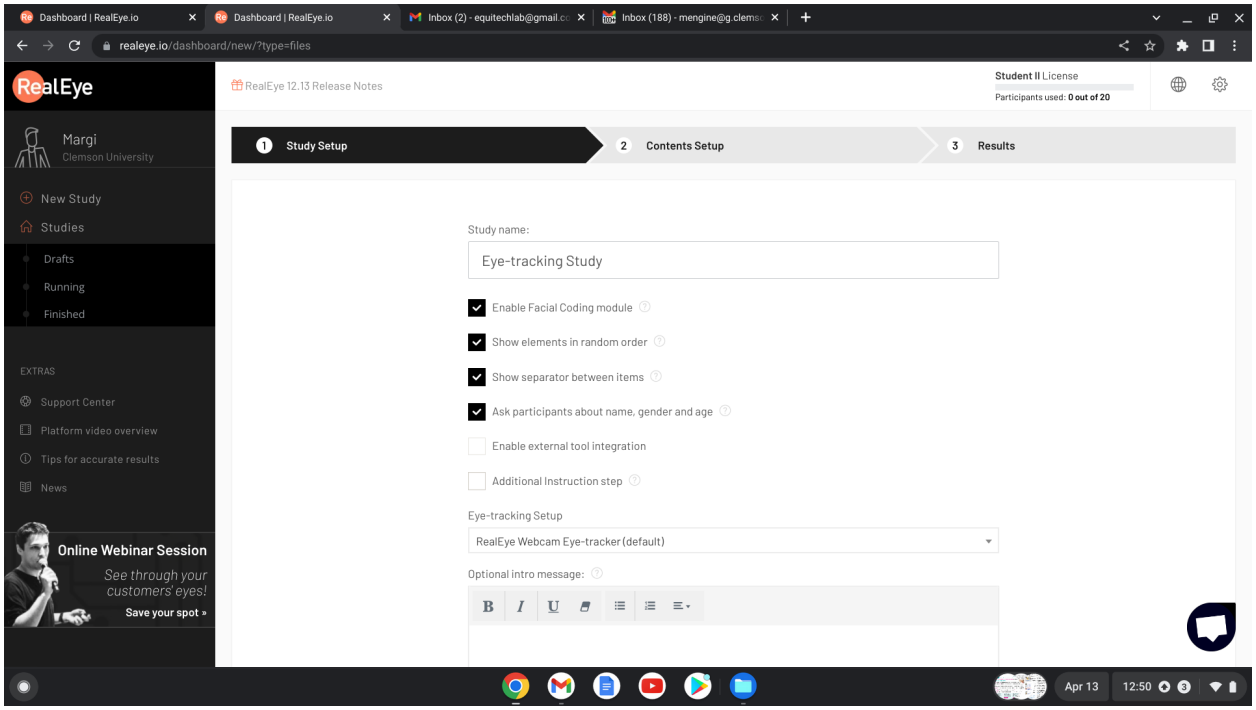
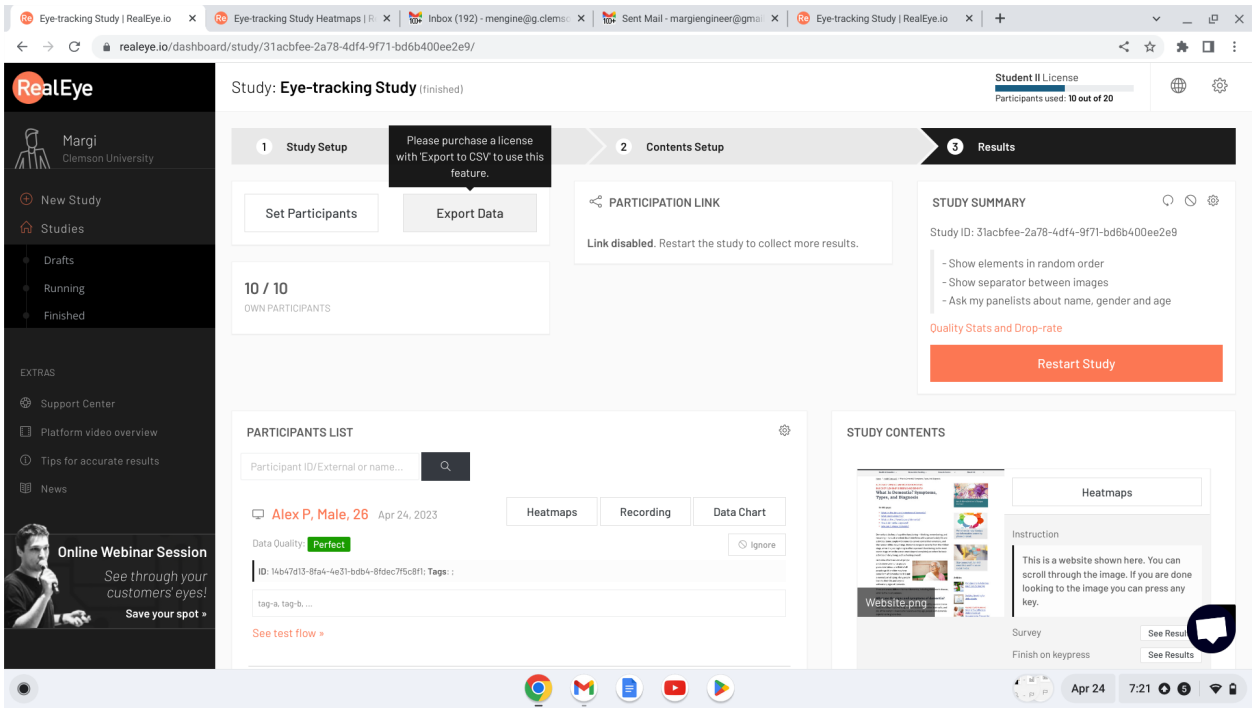
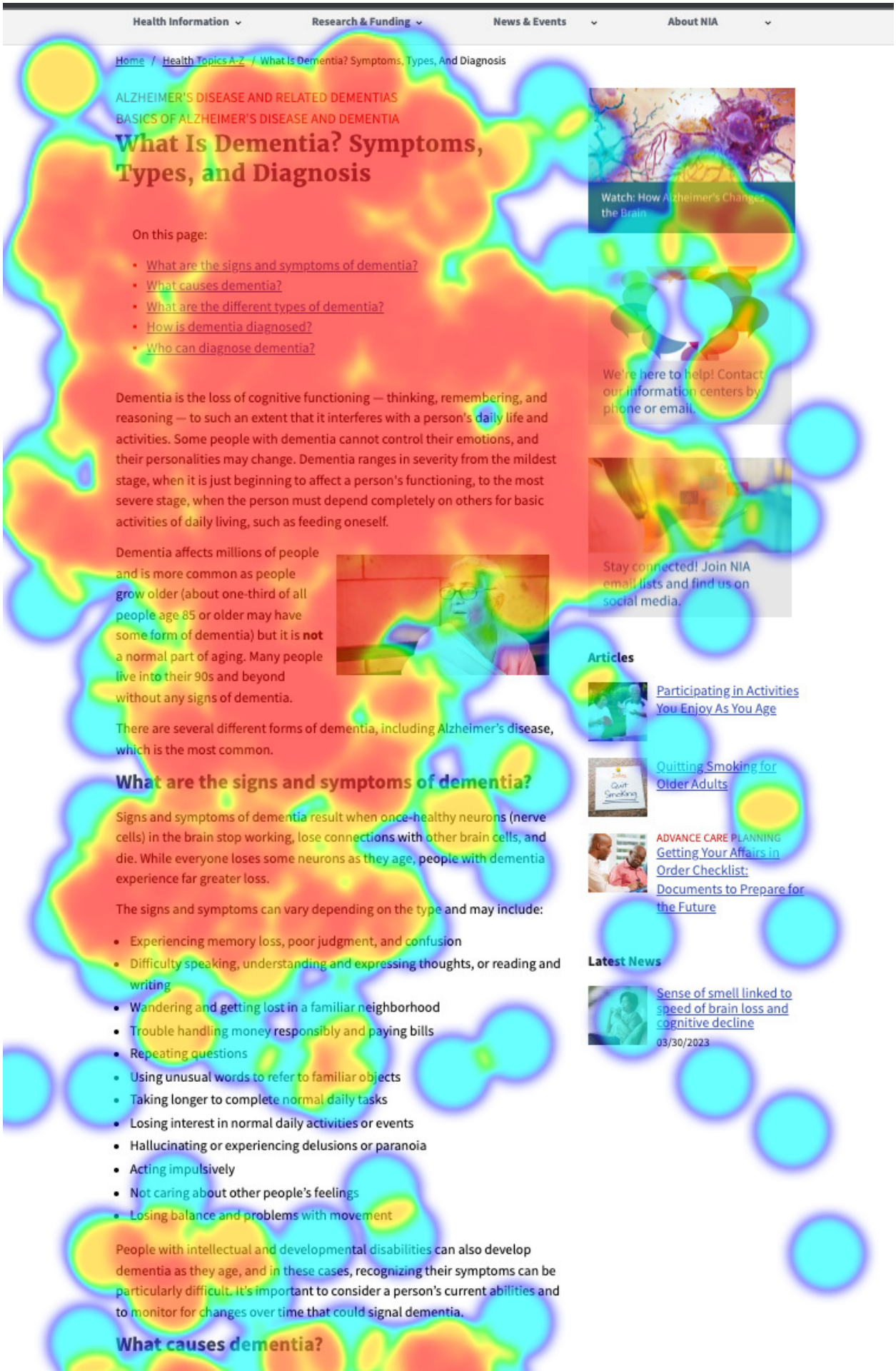
Research Log





Research Log



Research Log

Comparative efficacy of interventions for reducing symptoms of depression in people with dementia: systematic review and network meta-analysis

Jennifer A Watt,[1,2] Zahra Goodarzi,[3,4,5] Areti Angeliki Veroniki,[1,6,7] Vera Nincic,[1] Paul A Khan,[1] Marco Ghassemi,[1] Yonda Lai,[1] Victoria Treister,[1] Yuan Thompson,[1] Raphael Schneider,[8,9,10] Andrea C Tricco,[1,11] Sharon E Straus[12,11]

For numbered affiliations see end of the article.

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Additional material is published online only. To view please visit the journal online.

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http://dx.doi.org/10.1136/bmj.n532

Accepted: 15 February 2021

ABSTRACT

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Systematic review and meta-analysis.

DATA SOURCES

Medline, Embase, the Cochrane Library, CINAHL, PsycINFO, and grey literature between inception and 15 October 2020.

ELIGIBILITY CRITERIA FOR STUDY SELECTION

Randomised trials comparing drug or non-drug interventions with usual care or any other intervention targeting symptoms of depression in people with dementia.

MAIN OUTCOME MEASURES

Pairs of reviewers screened studies, abstracted aggregate level data, and appraised risk of bias with the Cochrane risk of bias tool, which facilitated the derivation of standardised mean differences and back transformed mean differences (on the Cornell scale for depression in dementia) from bayesian random effects network meta-analyses and pairwise meta-analyses.

RESULTS

Of 22 138 citations screened, 256 studies (28 483 people with dementia) were included. Missing data posed the greatest risk to review findings. In the network meta-analysis of studies including people with dementia without a diagnosis of a major depressive disorder who were experiencing symptoms of depression (213 studies; 25 177 people with dementia; between study variance 0.23), seven interventions were associated with a greater reduction in symptoms of depression compared with usual care: cognitive stimulation (mean difference −2.93, 95% credible interval −4.35 to −1.52), cognitive stimulation combined with a cholinesterase inhibitor (−11.39, −18.38 to −3.93), massage and touch therapy (−9.03, −12.28 to −5.88), multidisciplinary care (−1.98, −3.80 to −0.16), occupational therapy (−2.59, −4.70 to −0.40), exercise combined with social interaction and cognitive stimulation (−12.37, −19.01 to −5.36), and reminiscence therapy (−2.30, −3.68 to −0.93). Except for massage and touch therapy, cognitive stimulation combined with a cholinesterase inhibitor, and cognitive stimulation combined with exercise and social interaction, which were more efficacious than some drug interventions, no statistically significant difference was found in the comparative efficacy of drug and non-drug interventions for reducing symptoms of depression in people with dementia without a diagnosis of a major depressive disorder. Clinical and methodological heterogeneity precluded network meta-analysis of studies comparing the efficacy of interventions specifically for reducing symptoms of depression in people with dementia and a major depressive disorder (22 studies; 1829 patients).

CONCLUSIONS

In this systematic review, non-drug interventions were found to be more efficacious than drug interventions for reducing symptoms of depression in people with dementia without a major depressive disorder.

SYSTEMATIC REVIEW REGISTRATION

PROSPERO CRD42017050130.

WHAT IS ALREADY KNOWN ON THIS TOPIC

Interest is growing in social prescribing—linking patients with non-drug interventions in their community—to reduce symptoms of depression, isolation, and loneliness

Individual randomised trials have shown that non-drug interventions (eg, exercise) alleviate symptoms of depression in people with dementia

The comparative efficacy of drug and non-drug interventions for reducing symptoms of depression in people with dementia, with or without a diagnosis of a major depressive disorder, is, however, unknown

WHAT THIS STUDY ADDS

In this systematic review, non-drug approaches were associated with a meaningful reduction in symptoms of depression in people with dementia and without a diagnosis of a major depressive disorder

Drug approaches alone, however, were not more efficacious than usual care

Introduction

Fifty million people worldwide have a diagnosis of dementia.[1] About 16% of people with dementia also have a diagnosis of a major depressive disorder, but 32% of those with dementia will experience symptoms of depression (as part of the neuropsychiatric symptoms of dementia) without a formal diagnosis of a major depressive disorder.[2 3] In people with dementia, symptoms of depression manifest clinically as physical (eg, poor appetite, low energy) and behavioural (eg,

Research Log

Research Log

So these are the final output of all the 10 participants. This is how the whole process of selecting the software -> purchasing the software -> demo study -> pilot study and finally getting the result.
Furthermore, IRB is still in process. Initial draft is shown below, will design the study design and better draft of study for original study now (as it is summer study).