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Early Detection of Alcohol Related Dementia Across the Lifespan: An Integrative Literature Review for Primary Care Providers

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By

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Abstract

Introduction: Alcohol related dementia (ARD) is a long-term, heterogeneous cognitive impairment that can develop in the course of excessive and prolonged use of alcohol. This integrative literature review evaluated the relevant research, preventative measures, and early detection of brain changes leading to memory impairment as a result of the chronic consumption of alcohol.. Widespread prevention and detection of ARD can be achieved through the support of healthcare professionals in understanding, observing, and catching behavioral patterns ahead of time to properly direct treatment. The risk factors associated with an early diagnosis of dementia include, but are not limited to, abnormal brain changes, cognitive impairment, inability to execute activities of daily living (ADLs), and perform independent functionality.

Methods: This integrative literature review is a critical analysis of the ARD peer reviewed research literature By providing evidence-based conclusions of literature that matched a certain set of criteria can eliminate the need for time-consuming research on literature that may be irrelevant to the topic at hand. Qualitative and quantitative research will be acknowledged and reviewed.

Results: Findings from the peer reviewed literature found between Wernicke's Encephalopathy, Korsakoff's syndrome, alcohol related brain damage and alcohol related dementia. The four treatment solution themes identified were : cognitive behavioral therapy, memantine treatment, pharmacological treatment and treatment cycles.

KEYWORDS

Alcohol related brain damage, alcohol related dementia, dementia, Korsakoff's syndrome, young-onset dementia.

Statement of Research Problem

Dementia is a widely studied topic in the field of medicine; although there is a lack of provider education regarding dementia diagnosis. Dementia is an umbrella term that is used to describe the "[L]oss of memory, language, problem-solving and other thinking abilities that are severe enough to interfere with daily life (Alzheimers Society, 2024, p. 1)." Common risk factors associated with a diagnosis of dementia include, but are not limited to, abnormal brain changes, alteration to cognitive function, inability to execute activities of daily living (ADLs), and perform independent functionality (Mewton, Louise, et al. (2022). Due to the fact that dementia has such a broad spectrum of diagnosis, patients who are diagnosed often do not consider the causative factors or the specific diagnosis (Mewton, Louise, et al. (2022). Variation in dementia is vast and may include some form of Alzheimer's, vascular dementia, mixed dementia, Lewy Body Dementia (LBD), alcohol-related dementia (ARD), young onset dementia (YOD), etc. The scope of this integrative literature review is to explore patterns and factors related to ARD detection and diagnosis.

My long-term goal is to become a physician's assistant who specializes in gerontology. Taking classes through the Portland Institute of Aging as well as working with individuals experiencing memory loss, Alzheimers and dementia prompted my interest in alcohol-related dementia. I want future physicians, caregivers, spouses and family members to understand the link between alcoholism and how the chronic consumption of alcohol is a leading risk factor of dementia. Furthermore, providing this evidence-based research will condense information previously published on dementia and ARD into one source highlighting the relevant and pertinent information.

This study assessed current literature in the fields of nursing, medicine, and health care to assess the cognitive or behavioral patterns shown in individuals who chronically consume alcohol and are on track for developing early-onset ARD. Although dementia based research is consistently occurring, the knowledge is often not applied in healthcare settings simply due to a lack of provider education (Van Den Hoof, 2022). That being said, the goal is to lead to widespread future prevention through the support of healthcare professionals in understanding, observing, and catching behavioral patterns ahead of time to properly direct treatment. This review will help providers with basic understanding of these risk factors, patterns, or red flags so they can utilize alternative and preventative forms of treatment.

This integrative review aims to assess the relevant research, preventative measures, and early detection of brain changes leading to memory impairment. In my critical synthesis of the literature, I will also explore and assess the treatment protocol that has been applied by physicians in a healthcare setting to support, and how to possibly decelerate the onset of ARD in these particular cases.

Overview of the Relevant Research

Although dementia is highly researched, in-depth study of the effects of alcohol consumption on dementia is sparse. In general, ARD is often diagnosed as some other form of dementia such as Korsakoff's syndrome, Young-Onset Dementia (YOD), or just dementia. There is a lack of specificity when it comes to the symptoms and risk factors that guide providers towards a dementia diagnosis, and specifically an ARD diagnosis (Rao & Topiwala, 2020). This lack of specificity regarding ARD symptoms and risk factors may be related to limited provider education (Rao & Topiwala, 2020). For example, ARD may have unique symptomatology compared to other dementia diagnoses (Rao & Topiwala, 2020). Therefore identification of this

unique symptomology and the risk factors associated with ARD could lead to earlier preventative measures for patient treatment. For persons diagnosed with an alcohol use disorder, this is frequently the cause of complications in primary dementia. When an individual has been previously diagnosed with some form of cognitive decline, chronic consumption of alcohol hastens this pre-existing condition (Rao & Topiwala, 2020). Provided below is a breakdown of the relevant dementia diagnoses expressed in the literature.

Young-onset Dementia (YOD)

Young-onset dementia is defined as dementia that is diagnosed before the age of 65 (Mulders et al., 2016). With a sudden onset of cognitive issues, a provider will assess a patient's history; although contributing factors are never-ending. If a patient is younger and experiencing symptoms of cognitive impairment, providers might fail to consider dementia due to their age. Therefore, enlightenment of YOD and/or ARD can broaden the field of diagnosis. Symptomatic application is commonly associated with neuropsychiatric symptoms that involve the psyche and its relationship with neurology. The symptoms of YOD include apathy, agitation, aggression, disinhibition, irritability, and hallucinations, each of which are termed “neuropsychiatric symptoms (NPS)” (Cheng, C., & Huang, C. 2017). Studies show that NPS are associated with a decrease in quality of life as well as an increase in the cost of healthcare (Mulders et al., 2016). In terms of care providers, those diagnosed with YOD in comparison to those diagnosed with late onset dementia(LOD), are cared for in their homes longer. Severity of NPS is directly related to the severity of dementia.

Alcohol Use Disorder

The research concerning chronic consumption of alcohol can be applied to the diagnosis of early onset of dementia. Alcohol use disorder occurs more commonly in developed countries, where

individuals can easily purchase the heavily promoted product (National Library of Medicine, 2019). The symptoms of alcohol use disorder include: an increase in tolerance, withdrawal, too much drinking and craving, all of which can lead to other issues in social situations. The diagnosis and treatment of this disorder are often delayed due to a lack of encouragement to seek help/treatment.

Korsakoff Syndrome

Korsakoff's syndrome is characterized by symptoms such as severe cognitive problems, the impairment of explicit memory and executive function, issues with visuospatial perception (VSP), and various other symptoms that vary based on the individual (Kasse et al., 2019). Delaying the patient's journey towards treatment is often the reason for developing KS, therefore the University of Humanistic Studies conducted a study to improve knowledge about the patient journey (Van Den Hoof, 2022). KS is a form of neurocognitive damage that occurs when an individual chronically consumes alcohol. Alcohol abuse directly causes dramatic neurotoxic effects and can include various secondary effects through vitamin (thiamine) deficiencies resulting in cognitive decline (Oudman, Erik, et al., 2018).

KS is a neuropsychiatric syndrome, and is the result of vitamin B1 (thiamine) deficiency that can occur in patients that engage in chronic alcohol consumption (Kasse et al., 2019). The Journal of Clinical and Experimental Neuropsychology conducted a research study in order to expand current data related to the effect that KS had on patients VSP. The neuropathology characterizing Korsakoff's syndrome (KS) involves neuronal loss as well as microhemorrhages and gliosis (Maharasingan et al., 2013). Because KS patients have been found to have frontal lobe damage, many aspects of executive functioning are altered. Although the authors noted, "what is not yet clear from the existing literature is whether severity of alcohol use mediates the

extent of executive dysfunction (Maharasingan et al., 2013, p. 502).” The “classic triad” of KS involves oculomotor abnormalities, cerebellar dysfunction, and altered mental state which may include memory deficits (Maharasingan et al., 2013). Mammillary body damage and damage to the anterior thalamus result in memory dysfunction associated with KS. The symptoms of KS memory dysfunction include but are not limited to: impaired learning, inability to recall, retrograde amnesia, and impairment of episodic memory(Maharasingan et al., 2013).

Another symptom of KS is patient issues with visuospatial deficiencies involving perceptual organization and categorization. This finding of basic perceptual organization and categorization difficulties was earlier shown in a study by Fama and colleagues (2006). The study was focused on visuospatial memory and learning, subtle deficits in identifying incomplete or abstract drawings were visible in four patients diagnosed with KS. The results corroborated and extended the findings due to patients' consistent object integration difficulties (Kasse et al., 2019).” In order to perform basic processes of object recognition, the right posterior regions of the brain are used (Kasse et al., 2019). Therefore, the results of this study suggest that KS patients have subtle deficiencies in this area of the brain. It is likely that thalamic nucleus atrophy central to KS is the cause of the observed object recognition difficulties found in patients with said diagnosis (Kasse et al., 2019).

Alcohol Related Brain Damage (ARBD)

Alcohol-related brain damage is a lesser known yet serious public health concern. Because individuals are undiagnosed or misdiagnosed for ARBD, they are not receiving the proper treatment, or simply not being treated at all (Ward et al., 2022). Similar to dementia, ARBD is an umbrella term that refers to neurocognitive impairments. Neurocognitive impairments are caused by excessive and prolonged alcohol use as well as various nutritional

deficiencies associated with chronic alcohol consumption (Ward et al., 2022). It is estimated that between 0.034% and 1% of the population is prevalent with individuals experiencing ARBD (Ward et al., 2022). In at-risk populations such as areas of high socio-economic deprivation and populations with a high density of homeless, the estimated percentage is higher (Ward et al., 2022). An example was reported in Glasgow, Scotland, where 21% of homeless hostel dwellers experienced ARBD, and 82% experienced some form of cognitive impairment (Ward et al., 2022). From a gender based perspective, women are disproportionately affected by ARBD, and they develop ARBD at a much younger age than males (Ward et al., 2022).

ARD is commonly associated with Korsakoff's syndrome. As a result of untreated Wernicke's encephalopathy (WE), this disease is often followed by a diagnosis of Korsakoff's syndrome (KS) (Rao & Topiwala, 2020). WE is very sudden and is termed an acute brain disorder with three main symptoms: confusion, ataxia and eye problems that can cause visual changes (Cleveland Clinic, 2024). Therefore, early detection of WE can be an indication that the patient is suffering from ARD. Patients diagnosed with KS present with confabulation as well as severe anterograde and retrograde amnesia (Rao & Topiwala, 2020). This memory dysfunction is hypothesized to be a result of the white matter connections in the hippocampal-anterior thalamic axis disruption (Rao & Topiwala, 2020).

One study aimed to assess object and space perception in patients diagnosed with KS and a healthy control group (Kasse et al., 2019). Results showed that there was a significant difference in their ability to perform tasks involving object perception. Although, it is noteworthy to consider the fact that patients diagnosed with KS have a compromised ability to identify degraded shapes or objects from an atypical perspective. This compromise in ability is due to basal problems in object integration (Kasse et al., 2019). Creating a general understanding

of the risk factors/symptomology of diseases involving cognitive impairment provides a foundation in order to increase detection of early-onset ARD.

Research Question

R1: To what extent does the ARD literature explore early detection, risk factors, cognitive patterns, and treatment pathways that are relevant to primary care providers?

Methodology

In order to execute this research project, I completed an integrative literature review of past and current research in relation to alcohol-related dementia. This review will provide a holistic understanding of the evidence-based research conducted in regards to alcohol related dementia (Dhollande, et. al., 2021). This integrative review will provide a framework for primary care providers undertaking integrative reviews in order to expand their understanding of ARD and the signs that can be noticed early on that signify the onset of ARD.

An integrative literature review is a critical analysis of research literature that has been published based on a specified topic (i.e., alcohol related dementia; Dhollande, et. al., 2021). Providing evidence-based conclusions eliminates the need for tedious research on broader spectrums in order to identify new methods of treatment. Because multidimensional problems do exist, this literature review will consider trustworthy evidence that has been recently published and in various ways relates to the alcohol-dementia relationship (Dhollande, et., al., 2021). In consideration of evidence, both qualitative and quantitative research will be acknowledged and reviewed. An integrative literature review includes the analysis of research literature, the evaluation of the quality of the evidence, identification of knowledge gaps, analysis of various forms of research, generation of research questions based on the information provided and the development of theoretical frameworks (Dhollande, et. al., 2021).

Guiding healthcare provision through a literature review can result in the influence, improvement and creation of healthcare policies due to the fact that they cover a broad range of literature appropriate for the topic at hand. This integrative literature review synthesized peer-reviewed studies focused on ARD, various forms of dementia in order to alleviate subtleties between them, and the implications of chronic alcohol consumption on dementia. I analyzed these sources and condensed the information into a simplified summary of each of the important concepts in order to ease the research process for healthcare providers. These topics include Early Detection, Risk Factors, Cognitive Patterns, and Treatment pathways.

Early detection is a useful tool to target a disease in its earliest stages in order to implement treatment as soon as possible (Alzheimer's Association, 2024). Because various forms of cognitive decline are often linked by similar signs, early detection is imperative in order to begin a patient's treatment solutions. Risk factors can highly vary and a patients' biological makeup, psychological state, familial involvement, cultural and community surroundings may precede a diagnosis and lead to negative outcomes. Risk factors involved in the current topic of alcohol related dementia consist of heavy drinking, alcohol dependence, poor intellectual function, neuropsychiatric symptoms, homelessness, and history of stroke. Cognitive patterns are established disorders or impairments mentioned throughout the text. Finally, treatment pathways are any important medical or psychological intervention mentioned within the article.

In order to be included in this integrative literature review, articles must be peer-reviewed and written within the last ten years. All articles were located using the Portland State Library Database search engine, where I filtered publication years, peer-reviewed status, and specific keywords. Keywords for this search included: alcohol related dementia, Korsakoff's syndrome, Wernecke encephalopathy, young-onset dementia, early signs and alcohol related dementia.

Results

Early Detection

Despite the importance of early detection, only five out of eleven articles mentioned early detection. When a patient is diagnosed with chronic alcoholism early intervention could be the deciding factor in preventing severe, disabling memory impairment associated with KS and significant executive dysfunction (Maharasingan et al., 2013). Depending on the individual, nutritional deficits vary in accordance with chronic consumption of alcohol. The article: "Executive functioning in chronic alcoholism and Korsakoff syndrome" discussed that long-term abuse of alcohol leads to nutritional deficits such as thiamine deficiency, or vitamin B12 (p. 1) (Maharasingan et al., 2013). Another side effect of long-term alcohol abuse is brain damage as a result of direct neurotoxic effects of alcohol, cerebrovascular disease, hepatic encephalopathy and head injury (Maharasingan et al., 2013). Brain damage can also be caused by metabolic factors that result from being intoxicated. In recovery, a person experiencing chronic alcoholism will face withdrawal symptoms that can affect the mind and body (Maharasingan et al., 2013). Amyloid changes in the brain are the first sign of a patient developing Alzheimer's disease. Patients experiencing the earliest symptoms of Alzheimer's disease such as amyloid changes were more likely to be experiencing loneliness (Donovan et al., 2016).

Risk Factors

Nine out of the eleven articles mentioned salient risk factors (Table 1). There have been multiple longitudinal studies conducted that suggest loneliness is a primary risk factor for the development of dementia and other forms of cognitive impairment (Oudman, Erik, et al., 2018). According to De Jong Gierveld, who created the De Jong Gierveld Loneliness scale, "Loneliness is an individual's subjective and negative evaluation of social participation and isolation

(Oudman, Erik, et al., 2018).” Loneliness and social isolation are differentiated due to the fact that “studies have shown that people can feel lonely in a crowd or can be happy alone (Bury & Holme, 1990; De Jong Gierveld, Kamphuis, & Dykstra, 1987; Homen, Ericsson, & Winblad, 2000).” Two essential aspects of loneliness exist: social loneliness and emotional loneliness. In a study performed in the Netherlands, 63 KS patients were assessed using the De Jong Gierveld Loneliness Scale to assess loneliness as a risk factor in KS patients. Social loneliness is defined as the “absence of a social network of substantial subjective quantity and quality (Oudman, Erik, et al., 2018).” Emotional loneliness “reflects the absence of subjectively experienced intimate relations (Oudman, Erik, et al., 2018).” Risk factors associated with loneliness include but are not limited to: the loss of a partner, a low well-being, a low self-esteem, and low-income. “Around 25% of the population of 55 years and older experiences loneliness and numbers are even higher for frail elderly (Oudman, Erik, et al., 2018).”

It is particularly striking that there is a complex relationship between loneliness and chronic consumption of alcohol. When an individual mildly consumes alcohol, this leads to a decrease in feelings of loneliness due to the social function of alcohol. Unfortunately, there is an inverse relationship between severe loneliness and alcoholism: loneliness leads to alcoholism and severe alcoholism leads to loneliness (Donovan et al., 2016). It is noteworthy that in the 2020 report from the Lancet Commission, the excessive or harmful use of alcohol in mid-life is one of the key risk factors for dementia that could be easily modified. In support of this theory, there is considerable evidence for the neurotoxic effects of ethanol on the brain (Oudman, Erik, et al., 2018). “In a recent study of hospital-based records that identified alcohol use disorders as one of the strongest modifiable risk factors for dementia when compared with other established risk factors, including high blood pressure and diabetes (Oudman, Erik, et al., 2018)."

Cognitive Patterns

Almost all of the articles (n = 10) included mention of cognitive disorders, diagnoses, or impairments. Alcohol related brain damage (ARBD) is often linked with the term cognitive impairment. Unfortunately there is a stigma that is synonymous with alcohol use disorder due to the fact that ARBD merits cognitive impairment (Ward et al., 2022). Individuals with alcohol use disorder are often termed non-compliant or problematic. “Cognitive disorders are therefore very common in alcoholics, with estimates of 50% for the most severe chronic alcoholics (Oudman, Erik, et al., 2018, p. 309).”

Cognitive disorders are very common in alcoholics and it is estimated that 50% of the most severe chronic alcoholics will be diagnosed, or have already been diagnosed with a cognitive disorder (Oudman, Erik, et al., 2018). There have been multiple longitudinal studies conducted that suggest that loneliness is a risk factor that can lead to the development of a cognitive disorder. Patients who are showing amyloid changes are more frequently observed to be experiencing loneliness. In consideration of loneliness as a risk factor for the development of cognitive disorders, Alzheimer's disease, and various other forms of dementia, a treatment plan may include social exposure (Oudman, Erik, et al., 2018).

Treatment Pathways

Seven out of eleven articles included in this review mentioned distinct treatment pathways after detection of dementia. Wales is at the forefront of creating legislation structured to project health-related consequences of harmful quantities of alcohol consumption (Ward et al., 2022). “In 2014, Public Health Wales recognised ARBD as a significant public health concern and the Welsh Government has since prioritized the issue of harmful drinking (Ward et al.2022).” Because South Wales has one of the highest rates of deaths due to alcohol, the Welsh

Government's Substance Misuse Treatment Framework for ARBD is working to expand the general public's understanding of ARBD and improve awareness (Ward et al., 2022). Wales created a training program that was targeted toward social and health care support staff in order to expand their knowledge of ARBD. Participants of this study reported "[T]hat they had experienced changes to their awareness and understanding of ARBD. Participants reported that they may now be able to recognize possible signs of undiagnosed ARBD (Ward et al.2022)." It is common for healthcare providers/workers to interact with people that drink at harmful rates, although, this program provided a new awareness of the symptoms of ARBD. "Given that many of the participants had no prior knowledge of ARBD, concerns were raised that service users might have been misdiagnosed in the past or that service users may go a long time before receiving a referral and diagnosis (Ward et al., 2022)."

Another issue being faced when it comes to patient treatment pathways is their lack of attendance at specialty appointments, or even appointments with their PCP in order to begin guidance on the proper treatment pathway. Patients' lack of engagement with services and their failure to attend appointments in order to guide their treatment pathway may in itself be an indicator of the condition. This highlights the crucial relationship between a lack of awareness and understanding of ARBD by service providers, and identifies the barriers that are preventing the appropriate treatment (Ward et al., 2022).

There is a connection between brain excitotoxicity and ARD that has led scientists to assess the therapeutic benefits of memantine (Rao & Topiwala, 2020). Memantine is a non-competitive NMDA receptor antagonist and there was a 12-week long pharmacological study conducted where 25 patients showed major improvement in observation of global cognitive function prior to and after treatment (Rao & Topiwala, 2020).

Table 1: Early Detection Themes

Article	Early Detection	Risk Factors	Cognitive Patterns	Treatment Pathways
Connor, J. P., Haber, P. S., & Hall, W.	Alcohol dependence Early abstinence	Heavy drinking Alcohol dependence	N/A	Cognitive behavioral therapy
Cutting, J. (2018)	Pre-existing psychological deficit	Poor intellectual functioning	Korsakoff's syndrome Alcoholic dementia Accelerated psychological deterioration	N/A
Kasse, Erik Oudman, Marloes Olivier, Jan W. Wijnia and Albert Postma (2019).	Patients show impairment in VOSP for early Alzheimer's	N/A	Explicit memory deficiencies VSP problems cause cognitive problems Alcohol-induced neurocognitive disorder Patients with KS had more cognitive problems	Further knowledge would improve future treatment solutions for KS
Luc, L. (2020).	N/A	Heavy drinking Stroke	Cognitive decline Dementia Alzheimer's disease	N/A
Maharasingam, Malini, et al. (2013)	Prevention of severe and disabling memory impairment associate with KS could be established by early intervention in chronic alcoholism	N/A	Non-Korsakoff chronic alcoholic patients present with advanced cognitive deficits Maintaining independence in ADL's achieved through alternative cognitive strengths	Treatment-focused rehabilitation programs to promote independence and recovery in KS patients
Mewton, Louise, et al. (2022)	N/A	Low and middle income countries Excessive or harmful alcohol use High blood pressure Diabetes	Neurocognitive diseases Wernicke-Korsakoff syndrome	Reduction of risk factors for preventing the onset of dementia
Mulders, A. J., &Koomans, R. T, et al. (2016).	N/A	Neuropsychiatric symptoms (NPS) Agitation Apathy	Alzheimer's disease Young onset dementia Late onset dementia	N/A
Oudman, E., van Dam, M., & Postma, A. (2018)	N/A	Cognitive decline Severe social and emotional loneliness	Dementia Severe cognitive disorders	N/A

		Social isolation	Korsakoff's syndrome Neurocognitive damage Cognitive disorders in alcoholics Alcohol induced neurocognitive disorder	
Rao, Rahul, & Anya Topiwala. (2020)	Early detection of subclinical thiamine deficiency Frontal lobe impairment Early stages of ARD in comparison with early stages of Alzheimer's	Diagnosis of alcohol use disorder associated with the risk of dementia Low-risk drinking guidelines Traumatic brain injury Stroke Intracerebral hemorrhage	TBI Seizures Stroke Hepatic encephalopathy Alcohol consumption leading to cognitive decline Socio-economic status and better cognitive performance Neuropsychiatric	Memantine for the treatment of ARD Pharmacological treatment for hepatic encephalopathy prevention Under-diagnosis/lack of treatment
Van den Hoof., & Susanne Lucienne. (2022)	N/A	Lack of knowledge of KS Fragmentation of care/waiting lists Lack of specialistic home care	Wernicke's encephalopathy (WE) Korsakoff's syndrome	Treatment cycles of alcohol use disorder Treatment delay and the onset of WE and KS
Ward, Rebecca, et al. (2022)	N/A	High socio-economic deprivation Homelessness Substance misuse	Alcohol related brain damage (ARBD)	Awareness and understanding of ARBD

Conclusion

This integrative review assessed the relevant research, preventative measures, and early detection of brain changes and social activities that may lead to memory impairment. In this critical analysis of the literature, assessment of the treatment protocol and application by physicians in a healthcare setting to support and decelerate the onset of ARD was conducted. Although provider education is highly beneficial to the detection of the development of cognitive disorders, a general understanding of the causative factors related to mental decline should be implemented. Based on the results of this review, the spectrum of diagnosis for dementia is very broad and highly impacted by a number of pre-existing variables: alcohol use, pre-existing NPS, KS diagnosis, WE diagnosis, thiamine deficiency and impairment in VSOP. Providers who

diagnose a patient with dementia often do not consider the causative factors relating to the diagnosis and therefore provider education in the early detection of ARD and other forms of dementia would be highly beneficial for our aging population.

Initiation of a public health intervention in order to expand provider knowledge based on the pre-dementia diagnosis in accordance with the symptoms, behaviors, and cognitive changes would highly improve provider recommendations for treatment pathways. Elimination of the barriers to appropriate treatment, an expansion of the awareness and understanding of ARBD and ARD by service providers, and the patients engagement with services are all ways that preventative measures could be implemented. Identification of patients who are exhibiting signs of ARBD/ARD is imperative in order to guide individuals towards the proper treatment pathway.

Limitation and Future Directions

Based on the research conducted in this literature review, I believe future research should be targeted in order to improve patient experiences who are presenting early signs of dementia. In observation of the research findings gathered in this review, there was little to no information regarding early onset dementia, YOD, or ways for providers to detect a patients' vulnerability to developing early onset dementia (Table 1). Because information on early detection and treatment pathways were not in the scope of this project, these two aspects are where I think people should take time in the future to dedicate studies, report observed early signs, and engage in new treatment pathways.

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Cheng, C., & Huang, C. (2017). *Alcohol-related dementia: A systematic review of epidemiological studies*. *Psychosomatics*, *58*(4), 331-342. doi.org/10.1016/j.psym.2017.02.012

This study was a systematic review conducted in order to synthesize data based on alcohol related dementia and its association with epidemiology. The article describes: "Alcohol-related dementia (ARD) is a heterogenous long-term cognitive problem that can develop in the course of alcoholism." The systemic review was conducted based on information that was published between January of 1991 and February of 2016. The findings reflected a 1.19/1000 multi day admission for patients who were residing in the UK, this in comparison with a 25.6% of elderly, clinically diagnosed alcoholics in the US. With an overall assessment of early onset dementia in conjunction with a diagnosis of alcoholism resulting in a 10% correlation. Inclusion of data from systematic studies

conducted in other countries allows for the comparison of the commonality of alcoholic abuse in the United States. Due to societal pressures as well as social acceptance, reflection of behavior towards alcohol in the US varies in comparison to other countries. In terms of further medical research, this systematic study suggests that ARD is a potentially reversible course of diagnosed dementia and therefore should be further investigated.

Connor, J. P., Haber, P. S., & Hall, W. D. (2016). *Alcohol use disorders*. *The Lancet*, 387, doi.org/10.1016/S0140-6736(15)00122-1

This study discusses the implications of alcohol use in developed countries due to its affordability and accessibility. Alcohol related disorders begin at a young age and inherently become more severe and chronic with age. Those who are experiencing alcohol related disorders require medical and psychological management, although allocation of these services is deemed low priority. The article emphasizes the delay in diagnosis as well as treatment in more developed countries. An emphasis on brief interventions is placed in order to encourage those affected to seek help prior to reaching further severity of an alcohol related disorder. Lastly, the article discusses comorbid mental and other drug use disorders that commonly come hand in hand with alcohol use disorders. This is a solid source of recovery and intervention based approached for long term alcohol abusers.

Cutting, J. (2018). The Relationship Between Korsakov's Syndrome and 'Alcoholic Dementia.' *British Journal of Psychiatry*, *132*(3), 240–251. doi:10.1192/S0007125000283293

This article discusses the overlap in diagnosis of Korsakov's and Alcohol Related Dementia. Through research of fifty cases of Korsakov's and thirteen cases of ARD each considered a clinical identity, it was found that Korsakoff's syndrome alone is not a homogenous entity, but is composed of two separate entities. The cases that undertook a gradual onset were deemed "alcoholic dementia," and the cases that more closely resembled a preservation of intellect, but ended in a poorer outcome were deemed Korsakov's. This article emphasizes the differentiation between the two diagnoses that are commonly misconstrued.

Dhollande, S., Taylor, A., Meyer, S., & Scott, M. (2021). Conducting integrative reviews: A guide for novice nursing researchers. *Journal of Research in Nursing*, *26*(5), 427–438. https://doi.org/10.1177/1744987121997907

Dhollande et., al. emphasizes the characteristics of an integrative literature review in order to assist medical providers in broadening their education on a certain subject. The journal discusses creating a holistic understanding of evidence based research, encompassing all prior peer reviewed articles, studies, and documents that have been published on the topic at hand. An emphasis on acknowledgement of both qualitative and quantitative research is made due to the fact that each research study conducted might practice a different form of methods. Healthcare policies are always apt to improvement, broadening or even development, therefore providing an integrative literature review can simplify the process of research in regards to a certain topic.

Kasse, E., Oudman, E., Olivier, M., Wijnia, J. W., & Postma, A. (2019). *Subtle object location perception deficits in Korsakoff's syndrome. Journal of Clinical and Experimental Neuropsychology*. doi.org/10.1080/13803395.2019.1640864

This article assesses the characteristics and risk factors associated with Wernicke-Korsakoff's syndrome as a neuropsychiatric syndrome. Through observation of visuospatial perception (VSP), this study assessed the connection between VSP and KS according to patient response using Visual Object and Space Perception battery (VOSP). Results of the study showed that patients with KS had a selectively reduced performance on object perception, although they showed the same results as the control group when performing space perception tasks.

Luc, L. (2020). *Risk of dementia and alcohol and wine consumption: A review of recent results*. Biological research. https://pubmed.ncbi.nlm.nih.gov/15455646/

This article explores the various disorders that may result in a diagnosis of dementia as the disease progresses. Diseases discussed include: Alzheimer's, Vascular Dementia, Traumatic Brain Injuries, Young-Onset Dementia, etc. In relation to other articles, this article groups ARD and Korsakov's together as one diagnosis. In correlation with alcohol consumption, it is discussed that moderate consumption results in a decreased incidence of dementia. In the Rotterdam study, the inverse relationship between wine drinking and the incidence of dementia was examined. Lastly, the study examines stroke incidence in relationship to heavy drinking in comparison to light drinking and the positive effects of decreased risk of stroke. This article could create an alternative perspective for this thesis

paper by providing an alternative perspective in terms of alcohol consumption. Because the article emphasizes “light” and “heavy” drinking differentiation, the limitations of alcohol consumption are made clear.

Luchsinger, J. A., Tang, M.-X., Siddiqui, M., & Mayeux, R. (2004) Alcohol Intake and Risk of Dementia, *Journal of the American Geriatric Society.* 881-887. doi.org/10.1111/j.1532-5415.2004.52159.x

The objective of this Cohort study was to: “[E]xamine the association between intake of alcoholic beverages and risk of Alzhermer’s disease (AD) and dementia associated with stroke (DAS) in a cohort of elderly persons from New York City.” This study was conducted on 980 individuals who lived within a community and were over the age of 65. These individuals were not diagnosed with dementia, and formed the baseline of the study in 1991. The group was assessed annually in order to observe alcoholic consumption and the incidence of dementia was diagnosed using “*Diagnostic and Statistical Manual of Mental Disorders.”* The findings reflected that 260 of the 980 individuals were diagnosed with dementia after 4 years under observation. Therefore, the intake of liquor, beer and alcohol as a whole was not associated with a lower risk of Alzheimer's Disease. The conclusion of this cohort study was as follows: “Consumption of up to three servings of wine daily is associated with a lower risk of AD in elderly individuals without the APOEε-4 allele.”

Maharasingam, M., Macniven, J.A.B., Mason, O. J. (2013). Executive functioning in chronic alcoholism and Korsakoff syndrome, *Journal of Clinical and Experimental Neuropsychology*, *35*(5), 501–508. https://doi.org/10.1080/13803395.2013.795527.

Mewton, L., Vistonay, R., Hoy, N., Lipnicki, D. N., Sunderland, M.,...(2022). The relationship between alcohol use and dementia in adults aged more than 60 years: A combined analysis of prospective, individual‐participant data from 15 international studies. *Addiction*, 118,(3,4), 412–424, https://doi.org/10.1111/add.16035.

Mulders, A. J. M. J., Fick, I. W. F., Bor, H., Verhey, F. R., Zuidema, S. U., & Koopmans, R. T. (2016). Prevalence and correlates of neuropsychiatric symptoms in nursing home patients with young-onset Dementia: The BEYOnD study. *Journal of the American Medical Directors Association*, *17*, 495–500. DOI: 10.1016/j.jamda.2016.01.002

This study was a cross-sectional cohort study conducted on a Dutch long-term care facility. This facility specializes in the care of patients diagnosed with young-onset dementia. Young-onset dementia is characterized by the onset of the symptoms prior to the age of 65. Because knowledge on YOD is relatively limited, this study was used to explore the prevalence of neuropsychiatric symptoms in patients diagnosed with YOD. Within this facility, there were 230 institutionalized patients and NPS were assessed using Cohen-Mansfield Agitation Inventory. Identifying characteristics of the patients such as gender, type of dementia, other diseases, severity, age, etc. were considered. When the study ended, it was concluded that 90% of the residents with YOD showed one or more neuropsychiatric symptoms. In other words there was a positive correlation between YOD and NPS.

Oudman, E., van Dam, M., & Postma, A. (2018). Social and emotional loneliness in Korsakoff's syndrome. *Cognitive Neuropsychiatry*, *23*(5), 307–320. https://doi.org/10.1080/13546805.2018.1505607

This study assessed 63 Korsakoff's syndrome patients in a long-term care facility for loneliness. Due to the social isolation and lack of participation in society, emotional loneliness is prevalent in those diagnosed with KS. As a result of the study, KS patients reported loneliness both socially and emotionally. The study also assessed the caregivers of patients diagnosed with KS, who reported an even higher percentage of loneliness. Because people are frequently admitted to hospitals or care facilities when diagnosed with dementia, a lack of social visits leads to loneliness and feelings of neglect. The correlation between Korsakoff's Syndrome and social/emotional loneliness will provide an alternative perspective to healthcare providers when broadening their perspective of KS/ARD.

Rao, R., & Topiwala, A. (2020). Alcohol use disorders and the brain. *Addiction*, *115*(8) 1580–1589, https://doi.org/10.1111/add.15023.

Van den Hooff, & Susanne L. (2022). Treatment delay within the patient journey of people with Korsakoff's syndrome: A retrospective qualitative multiple‐case study in the Netherlands. *Health & Social Care in the Community*, *6*(16) https://doi.org/10.1111/hsc.13850.

This article investigates the connection between treatment delay and the onset of Korsakoff's syndrome. In order to investigate this connection, the study investigated the patient's journey. The study was a retrospective exploratory multiple case-study and was conducted in order to

answer the question: “What risk factors do the respondents discuss that can explain treatment delay?” The results of the study showed three recurring risk factors that explained the reasoning behind patient treatment delay: lack of knowledge of KS, waiting lists and a lack of specialistic homecare.

Ward, R, Roderique-Davies, G., Hughes, H., Heirine, R., Newstead, S., & John, B. (2022) Alcohol‐Related brain damage: A mixed‐method evaluation of an online awareness‐raising programme for frontline care and support practitioners. *Drug and Alcohol Review*, *42*, 46–58, https://doi.org/10.1111/dar.13545.

Excessive and prolonged alcohol use and associated nutritional deficiencies cause neurocognitive impairments, and more specifically alcohol related brain damage. This article analyzes a study evaluating the results gathered from an online research-informed training program targeted towards educating healthcare providers on alcohol related brain damage. The results of the study showed significant improvement in awareness and understanding, professional practice and training-specific characteristics. Identification of patients who are exhibiting signs of ARBD is imperative in order to guide individuals towards the proper treatment pathway.