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Review Article

A multidisciplinary approach to the rehabilitation of alcohol-related brain damage (ARBD): A synthetic review

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Abstract

Background: Alcohol related brain damage (ARBD) is a condition resulting from chronic and heavy alcohol use, causing diffuse damage to both white and grey matter in the brain. It primarily affects immediate and delayed memory, attention, visuospatial function and executive function, leading to significant difficulty with new learning and maintaining relationships. People with ARBD are capable of recovery, but the variety of presenting problems and difficulties in accessing services often mean that rehabilitation is either not initiated or left incomplete, leading to continued alcohol use and further damage to the brain.

Aim: This review aims to synthesize existing evidence on multidisciplinary rehabilitation for individuals with ARBD, with a focus on intervention adaptations and patient outcomes.

Method: A narrative synthetic review was conducted through targeted searches of PubMed, APA PsycINFO, and Google Scholar for literature published between 1980 and 2024, focusing on medical, occupational therapy, and psychosocial rehabilitation in ARBD populations.

Results: The evidence supports multidisciplinary rehabilitation for individuals with ARBD. Key components include medical management of co-morbidities, occupational therapy-led functional and environmental assessments, and adapted psychosocial interventions. Crucially, interventions must be adapted for cognitive impairments, supported by trained staff and coordinated multidisciplinary care. While residential rehabilitation services provide significant benefits, effective community-based adaptations remain essential for accessible, ongoing support.

Conclusion: ARBD rehabilitation is effective when services are multidisciplinary, cognitively informed, and adapted to individual needs. Expanding specialist provision, upskilling staff, and developing community-based models are essential for reducing relapse rates, improving quality of life, and achieving long-term cost savings. Further research is needed to evaluate scalable, evidence-based rehabilitation pathways and examine the contributions of equally important disciplines such as social work, dietetics, physiotherapy, and psychiatry.

Keywords: Alcohol-related brain damage, ARBD, Multidisciplinary rehabilitation, Cognitive impairment, Adapted rehabilitation, Medical rehabilitation, Occupational therapy rehabilitation, Psychosocial rehabilitation

Introduction

Alcohol related brain damage (ARBD) is a term now widely used across the UK and Europe, though it is also referred to as alcohol related brain injury and neurological impairments in alcohol use disorder [1]. Although often referred to as a "diagnosis", it does not yet appear in the standard diagnostic manual [2,3] as a stand-alone diagnosis. It is instead an umbrella term covering a range of diagnoses including alcohol related dementia, alcohol-induced major cognitive disorder, dementia due to use of alcohol, Wernicke's encephalopathy and Korsakoff's syndrome. As an umbrella term,

ARBD encompasses a spectrum of severity, from very severe forms requiring constant care to mild impairments often present early in the development of ARBD, affecting planning and problem-solving, a feature noted as far back as the early 1980s [4].

ARBD is identified in patients by applying the following five criteria:

1. Alcohol use exceeding 35–50 units per week;
2. Consumption at this level for a minimum of 5 years;
3. Alcohol use at some point in the past 3 years;
4. Evidence of cognitive impairment;
5. Observed cognitive impairments are not better explained by another cause (e.g. organic dementia, traumatic brain injury, stroke).

These criteria are generally accepted across the world [5,6], though they are imprecise and at times impractical. It is often difficult to obtain an accurate alcohol use summary from people who are chronically using alcohol, though the main issue is obtaining evidence of cognitive impairment, particularly in the early stages. Most staff who are frontline workers and who come into contact with people with ARBD are not trained to identify the signs nor trained in the assessment of cognition. Most people with ARBD are therefore not identified in the community and the prevalence of ARBD, which is generally held to be 1.5% of the general adult population in the UK and around 30% of chronic users of alcohol [7,8], is likely to be a substantial underestimate [9]. Other estimates of prevalence suggest that 10% of people with dementia [10] and 12.5% of under 65s with a diagnosis of dementia [11] have ARBD. It is also recognized that the incidence of ARBD is increasing [12].

The main features of ARBD are impairments to immediate and delayed memory, attention, visuospatial functioning and executive functioning [13]. The effect of this is that people with ARBD (keeping in mind that it is a spectrum disorder) often have difficulty with retaining information, learning new skills, planning and organizing their own care and life goals, and managing unexpected situations and crises [13]. The consequences of this are that individuals are often excluded from services as being "not ready to engage" or "unwilling to commit to treatment" and so experience a sense of failure and rejection which can be reminiscent of previous traumatic experiences in childhood and adulthood and often leads to further use of alcohol to cope with difficult emotions, loneliness and damaged relationships [14,15].

However, a key feature of ARBD is that, with abstinence from alcohol, it is not a progressive disorder, unlike organic dementias. For many years it has been suggested that 25% of people with ARBD will make a substantial recovery, 25% will make some recovery, 25% will make a small recovery and 25% will make no recovery at all [16,17]. This prognostic model, however, was originally based specifically on Wernicke-Korsakoff syndrome, and its application to the broader ARBD spectrum may discourage service user engagement. There is growing evidence that people with ARBD can and do recover with abstinence [9,18–20], and active rehabilitation is an essential part of that.

Rehabilitation efforts in ARBD are necessarily diverse. There is no single target for rehabilitation which is substantially more important than any other, which is why a multi-disciplinary approach is needed [20]. The range of deficits across cognition, mental health, occupational health, social health and physical health is complex and interlinked, and by addressing the person and understanding that they exist in a social and relational system is essential to assisting them in their rehabilitation journey.

The objective of this review is to integrate findings on the rehabilitation of ARBD in terms of intervention principles and practical adaptations. Specifically, this review seeks to answer the following research question: *'What is the evidence and current opinion for multidisciplinary rehabilitation of people with ARBD?*

Presented in this review are three aspects of rehabilitation in ARBD from a multi-disciplinary perspective: medical rehabilitation, occupational therapy rehabilitation, and psychosocial rehabilitation. It should be noted that physiotherapy, specific addiction work, social work [21], dietetics [22], and psychiatric assessment and interventions [23] are also essential in holistic rehabilitation but are not covered in this review.

Methods

This synthetic review draws on published literature, clinical guidelines, and expert consensus concerning the management and rehabilitation of ARBD. Literature was identified through targeted searches of PubMed, APA PsycINFO, and Google Scholar using the terms "Alcohol-Related Brain Damage", "ARBD rehabilitation", "multidisciplinary care", "cognitive impairment and alcohol use", "medical rehabilitation", "occupational therapy rehabilitation", and "psychosocial rehabilitation". Articles published between 1980 and 2024 were reviewed, with particular emphasis on studies addressing multidisciplinary interventions, practical adaptations, and patient outcomes within ARBD populations. A narrative synthesis was conducted, summarizing findings across three core rehabilitation domains:

- Medical rehabilitation
- Occupational therapy rehabilitation
- Psychosocial rehabilitation

Each domain was analyzed in terms of intervention principles, practical adaptations, and the supporting evidence base.

Results

Medical rehabilitation

Many individuals with ARBD experience multi-morbidity, poor service engagement, and medication adherence challenges due to cognitive impairments and chaotic lifestyles [24]. Being in a residential rehabilitation service therefore provides an excellent opportunity to address any underlying health conditions and promote re-engagement with health services and can lead to excellent outcomes for the patients [9,20] though the same principles can be applied to community services. As the population tends to be middle aged or older, coupled with the tendency for residents to be from lower socio-economic groups, the chance of them having a long-term health condition is high [25]. Whilst some of their health problems may be related to long term alcohol use e.g. cirrhosis, alcohol-related cardiomyopathy and neuropathy, they may also have the long-term health conditions one might anticipate in this older population such as ischemic heart disease, diabetes, hypertension, cerebrovascular disease and cancer, and alcohol may be a contributing factor in many of these [24].

Within a residential rehabilitation setting long-term conditions such as hypertension, chronic obstructive pulmonary disease, and diabetes can be monitored and optimized in a way that can be very challenging when people are living in the community. It is relatively common for people with ARBD to have missed appointments or investigations and then be taken off waiting lists. This is another element of the stigma and institutional discrimination that can be experienced by people with ARBD, who have been described as the most stigmatized group in the social care sector [21]. By accessing their electronic patient records and taking stock of their health and any symptoms, they can be re-referred with the reassurance of being in a stable and supported environment which optimizes their chance of attendance.

Other common problems that are often a feature and can be challenging to manage include persistent pain and insomnia [26]. Many people with ARBD have used alcohol to self-medicate. Supporting relapse prevention requires effective management of these conditions and the provision of alternative coping strategies.

The relationships that people with ARBD have with healthcare staff can often be colored by years of frustrating interactions, perceived judgement and stigmatization. The residential setting offers a safe, supported environment with staff trained in working with adults with ARBD where relationships can be built and trust regained. The opportunity to 'reset' their interface with healthcare services cannot be underplayed as an opportunity to re-engage with a healthcare system that is still not really designed to be used by those who need it most. The evidence for the role of residential rehabilitation in ARBD is growing and can address many of the issues of rehabilitation in a timely and focused manner, though educating and upskilling frontline staff in community settings is equally important [27].

Occupational therapy rehabilitation

Occupational therapists play a pivotal role in the rehabilitation of individuals with ARBD, supporting them in regaining occupational performance and meaningful daily routines [28]. People with ARBD have often withdrawn from relationships, are unable to maintain employment and have lost the sense of purpose and meaning which can motivate alcohol abstinence and engagement in rehabilitation services. Cognitive impairments, particularly in memory, reasoning, executive function, and flexibility lead to significant occupational deprivation, affecting self-care, productivity, leisure, and community participation. Occupational therapists address these challenges through comprehensive assessments of functional abilities and the home environment. This includes evaluating safety risks in key areas such as kitchens and bathrooms, where memory difficulties can result in hazards like leaving cookers on or baths running. Processing issues may require strategies such as labelling cupboards and organizing storage, while visuospatial deficits can affect navigating entrances or safely using bathroom facilities. These assessments are informed by input from other disciplines, particularly cognitive evaluations from Clinical Psychology, which help identify individual strengths and impairments. This collaborative process ensures that interventions and environmental adaptations are tailored to each person's needs, with a strong emphasis on promoting safety and supporting independent living. Importantly, these assessments are dynamic, evolving alongside each individual's recovery, contributing to multidisciplinary care planning and capacity assessments.

Interventions involve both restorative (restoring function) and compensatory (compensating for loss of function) strategies tailored to individual needs to support recovery. These strategies are used interchangeably and in collaboration with one another throughout the recovery journey in ARBD rehabilitation both through individual and group work. Group interventions focus on restoring occupational balance, developing life skills, and promoting community engagement. Given the common cognitive impairments in ARBD, group programs must be carefully adapted to address memory, attention, and executive function difficulties. This involves shortening session durations, incorporating frequent repetition and prompts, and using experiential exercises alongside varied learning methods to enhance engagement and information retention. Structured problem-solving support is also essential to help participants apply new skills effectively. These adaptations ensure that individuals with ARBD can actively participate, remain involved, and benefit from the group materials. Such approaches are grounded in evidence highlighting the importance of tailoring interventions to cognitive ability to maximize rehabilitation outcomes [29,30].

The occupational therapy groupwork program is based on the premise that occupational performance is a central force in health, wellbeing, development, and change [30]. This model views individuals as dynamic, self-organizing systems whose capacities and functions are continuously shaped through engagement in work, play, and daily living activities. By participating in these occupations, people maintain and adapt their skills over time. For individuals with ARBD, this process remains possible with appropriate adjustments and a clear understanding of the cognitive impairments commonly experienced within this population. With tailored support, occupational engagement can promote meaningful recovery and improved quality of life.

Psychosocial rehabilitation

Psychosocial interventions play a vital role in the rehabilitation of individuals with ARBD. However, the cognitive impairments which are associated with ARBD can significantly impact on people's ability to engage in therapies and support, as noted previously [13]. Psychosocial interventions target these aspects to improve well-being, enhance coping strategies, and support long-term recovery. Cognitive impairments in ARBD often include memory deficits, attention difficulties and executive dysfunction which can hinder engagement with standard therapeutic interventions. To address these challenges, modifications to standard interventions are essential to ensure that they are both accessible and effective.

Strategies such as memory rehabilitation, problem solving tasks, and the use of external aids like reminders and calendars help individuals develop compensatory strategies therefore promoting independence and improving daily functioning and quality of life [31,32]. Emotional and behavioral support is another key component of psychosocial interventions. Many individuals with ARBD experience depression, anxiety, or mood instability. Psychological therapies such as cognitive behavioral therapy (CBT) can help address these difficulties, however, strategies must be adapted to accommodate memory and executive functioning deficits. Low-intensity psychological interventions such as emotion regulation and anxiety management techniques based on the CBT framework are preferred [33]. Mindfulness-based interventions, relaxation techniques, and breathing exercises are commonly used

to help individuals manage their emotions and reduce excessive worry which has a positive effect on their cognitive ability [34]. Psychoeducation adapted for the appropriate cognitive level can offer an understanding about anxiety and its effects on the body as well as an insight into the cognitive challenges of ARBD which can help individuals better understand and manage their symptoms and promote realistic expectations for progress. Furthermore, social interventions also play a critical role in ARBD rehabilitation. Group interventions, peer support, family therapy and participation in the community help individuals rebuild social skills and relationships while reducing isolation and the stigma around ARBD.

For any of the above to be effective, adjustments must be made in the structure and delivery of the interventions. One key adjustment is the simplification of therapeutic activities [33]. Cognitive rehabilitation should involve clear, concise instructions and tasks broken down into manageable, step-by-step components. For example, psychoeducation and emotion regulation techniques can be modified by using visual aids, simpler language, and repetition to reinforce key concepts. Memory aids like calendars, note-taking and electronic reminders can help individuals stay engaged and remember important information between sessions. Additionally, sessions may need to be shorter and more frequent to prevent cognitive overload and enhance retention of skills. Furthermore, developing compensatory strategies to manage executive function difficulties in planning, organizing, and problem solving such as structured routines or step-by-step guides often prove beneficial in helping individuals navigate their daily life [31]. Finally, psychosocial interventions are particularly effective when combined with other treatments. Multidisciplinary approaches, involving medics, psychologists, social workers, and occupational therapists, often yield the best outcomes in individuals with ARBD.

Discussion

This review highlights that ARBD rehabilitation requires a multidisciplinary, individualized approach tailored to the specific cognitive and psychosocial impairments of the patient. Traditional healthcare and addiction services frequently lack the necessary awareness, skillset and holistic approach, contributing to ongoing exclusion of those affected by ARBD and high service costs [21].

The evidence indicates that integrated rehabilitation approaches, combining medical management, occupational therapy, and psychosocial support, lead to significant improvements in patient outcomes and system efficiencies, including reduced hospital admissions and improved care continuity [9,20]. Key principles include staff training in ARBD recognition and management, the provision of specialist ARBD rehabilitation services, community-based service adaptations, cognitive impairment adaptations to interventions and multidisciplinary assessment and care.

Addressing medical and psychosocial issues alongside cognitive impairment reduces relapse risk and facilitates sustained recovery, A residential setting provides an ideal environment for this, allowing progress to be closely monitored throughout an individual's stay. Furthermore, occupational therapy engagement and environmental adaptations are central to promoting independence and purpose. Finally, to ensure interventions are accessible and effective, they should be delivered through clear, concise instructions and broken down into simple, manageable steps.

Limitations & Future Directions

The absence of large-scale, high-quality controlled trials in ARBD rehabilitation restricts the strength of evidence underpinning current practice recommendations. Additionally, while a multidisciplinary, adapted service model is advocated, practical barriers to implementation in diverse and under-resourced settings require further exploration. The literature search was targeted rather than systematic, which may have introduced selection bias. Moreover, this review acknowledges the vital role of physiotherapy, addiction services, social work, and psychiatric interventions in the holistic rehabilitation of individuals with ARBD. Future research should explore these areas in greater depth and examine how they can be integrated with medical, occupational, and psychosocial approaches to enhance rehabilitation outcomes.

Furthermore, future research must address the heterogeneity of ARBD presentations, which poses challenges for intervention standardization and trial design. Developing and evaluating scalable, evidence-based community rehabilitation models is essential. Longitudinal studies assessing intervention efficacy, cost-effectiveness, and patient-reported outcomes would strengthen the evidence base and support wider policy and service implementation.

Conclusion

People with ARBD are recognized to be a substantial cost to traditional services. Missed appointments due to memory impairments, high co-morbidities, damaged interpersonal relationships, and overall difficulty with engagement with rehabilitation services are routine rather than exceptional. The level of understanding of ARBD and training for staff who work with people with ARBD remains low. The result is that people with ARBD are often not able to access services, health problems and addictions deteriorate further, and costs continue to rise. However, there is great potential for rehabilitation in this population. The principles guiding rehabilitation in ARBD are:

A. Staff in all frontline services should have training in recognizing and working with people with ARBD;

B. Specialist ARBD rehabilitation units are needed for those most impaired patients as rehabilitation in the community for this population is often insufficient;

C. Services and interventions need to be adapted for people who have cognitive impairments;

D. Assessments and interventions should be multidisciplinary.

The evidence available [9,20] demonstrates that effective rehabilitation for people with ARBD is possible and delivers cost savings to public services as well as sustained benefits to patients and their families, addressing a longstanding gap in care equity for a marginalized population.

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