



# Proceedings of International Conference on Humanities, Social and Education Sciences

April 13-16, 2023

Denver, CO, USA

## EDITORS

Mack Shelley

Mevlut Unal

Sabri Turgut





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**Volume 1, Pages 1-488**

**Proceedings of International Conference on Humanities, Social and Education Sciences**

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**ISBN: 978-1-952092-47-3**

**Editors:** Mack Shelley, Mevlut Unal, & Sabri Turgut

**Articles:** 1-35

**Conference:** International Conference on Humanities, Social and Education Sciences (iHSES)

**Dates:** April 13-16, 2023

**Location:** Denver, CO, USA

**Conference Chair(s):**

Mack Shelley, Iowa State University, United States

Stephen Jackowicz, University of Bridgeport, United States

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## Exploring the Psychosocial and Behavioral Interventions for Substance Abuse or Misuse and Physical Inactivity within the Low- and Middle-Income Countries and High-Income Countries: A Systematic Literature Review

**Marzell I. Gray**

University of Minnesota Duluth, United States,  <https://orcid.org/0000-0002-1666-0842>

**Michael Brown**

Nottingham Trent University, United Kingdom

**Mathew Nyashanu**

Nottingham Trent University, United Kingdom

**Abraham Brown**

Northumbria University, United Kingdom

**Abstract:** This paper conducts a comparative literature review of psychosocial and behavioral interventions for substance misuse and abuse (SAM) and physical inactivity in low-middle-income countries (LMICs) and high-income countries (HICs). The review aims to identify similarities, differences, and gaps in interventions across these settings, offering insights into the current state of interventions, best practices, and areas for future research and intervention development. Research suggests that physical inactivity can contribute to SAM through mechanisms such as increased negative emotions, social isolation, and a lack of purpose in life. Studies have found a positive association between physical inactivity and stress, depression, and alcohol consumption. The review emphasizes the need for cost-effective interventions in LMICs, where barriers like high treatment costs and limited healthcare access discourage individuals from seeking treatment for SAM. The study's findings can guide policy decisions and contribute to evidence-based strategies for addressing SAM and physical inactivity. By exploring psychosocial and behavioral interventions, including community-based physical activities and peer-support recovery systems, this research aims to provide insights into effective treatment and prevention approaches applicable to both LMICs and HICs.

**Keywords:** Alcohol Abuse, Physical Inactivity, Substance Abuse, Motivational Interview

**Citation:** Gray, M I., Brown, M., Nyashanu, M., & Brown, A., (2023). Exploring the Psychosocial and Behavioral Interventions for Substance Abuse or Misuse and Physical Inactivity within the Low- and Middle-Income Countries and High-Income Countries: A Systematic Literature Review. In M. Shelley, M. Unal, & S. Turgut (Eds.), *Proceedings of IHSES 2023—International Conference on Humanities, Social and Education Sciences* (pp. 98-108), Denver, CO, USA. ISTES Organization.

## Introduction

Substance misuse or abuse (hereafter, SAM) has become very prevalent in both developing and developed countries due to a variety of reasons (Elkholy et al, 2023). Substance abuse (i.e., substance use disorder and addiction) and misuse (i.e., inconsistent use of drugs without following medical guidelines) is the excessive intake of dangerous psychoactive substances, including alcohol and illicit drugs which has negative mental, physical, and financial consequences (Serafini et al., 2015; Reed et al., 2011). The problem of SAM has been exacerbated by physical inactivity within the different populations (within high, middle-, and low-income countries) leading to far reaching impact on health and well-being (Reed et al., 2011). Prior studies highlight how physical inactivity is directly associated with higher levels of stress and depression, which in turn was associated with greater alcohol consumption (Serafini et al., 2015; Reed et al., 2011). The association between SAM and physical inactivity is the wide range of mental health-related problems as it kills the brain's dopamine cells eventually leading to symptoms of psychosis, paranoia, and impaired thinking-related skills like problem-solving and memory (Reed et al., 2011; Garson, Castle, and George, 2023).

In addition, SAM and the lack of physical activity can also cause high cholesterol and an elevated risk of heart disease including weakening the immune system and catalyzing the deterioration of conditions such as HIV and Hepatitis C Virus (Nyashanu et al 2023). This is alarming globally, but especially in LMICs including sub-Saharan Africa that accounts for roughly two-thirds of all adults (18+) with HIV (Vithalani, and Herreros-Villanueva, 2018). Findings from Roberts et al. (2011) identifies the global rise in the abuse and misuse of drugs by young adolescent. Indeed, this situation is even worse in the low- and middle-income countries (LMICs) due to unemployment, and a low level of education which diverts the attention of the young adolescent from abusing or misusing of drugs. Physical inactivity can cause other health problems apart from those caused by using substances (World Health Organization, 2023). Other benefits of physical activities include prevention of obesity and can lead to better health and well-being. Interestingly, the relationship between physical inactivity and substance abuse is also supported by several theoretical frameworks, including the stress-coping model and the self-medication hypothesis (Shin et al., 2016).

Amongst the many proposed alternative interventions, psychosocial and behavioral changes directed towards physical activities seem to be an emerging theme. However, physical activity remains understudied in the LMICs. Psychosocial and behavioral interventions encompass a wide range of approaches that target individual behavior, social, cultural, and environmental factors. These interventions can include cognitive-behavioral therapy, motivational interviewing, community-based programs, policy changes, and educational campaigns (U.S. Department of Health Services, 2018; Shin et al., 2016). Understanding the effectiveness and implementation of these interventions is crucial for designing evidence-based strategies to combat SAM and physical inactivity (Department of Health Services, 2018). The danger is that there is a myriad of barriers to treatment or interventions for people engaged in substance abuse especially in LMICs. For instance, aside intervention utilization being low among young substance abusers in LMICs, which contributes to the substance

abusers' discouraging treatment-seeking behaviors (Sexton et al., 2011), the exact nature of treatment barriers remains relatively unknown (Hahmann et al 2023). Research on the barriers to use of interventions by the affected people researched has shown that there is a great need to re-invent health promotion on the adverse use of substances while enticing substance users to take part in innovative community-based interventions (Stanojlovic and Davidson, 2021). Examples are drawn from the choice of interventions to be used in the treatment and prevention of adverse substance use should include the community's voice, values, and ethos (Eaves et al, 2023). This will enhance ownership of the activity by the community while fostering the principle of sustainability (Eaves et al, 2023). There is therefore the growing need for appropriate treatment and prevention intervention such as community based physical activities (Eaves et al, 2023) and peer-support recovery systems (Stanojlovic and Davidson, 2021). Such interventions are likely to be cheap and cut the treatment budget by a substantial amount of money for both developing countries and developed countries.

Considering the above, this paper seeks to expand the discussions on psychosocial and behavioral interventions for SAM and physical inactivity through a systemic review and better understanding what has been done and seen in some literature with the high-income countries (HICs) and low-middle-income countries (LMICs). This paper will conduct a comparative literature review, aimed at gathering and synthesizing available evidence on psychosocial and behavioral interventions for substance abuse or misuse and physical inactivity in both LMICs and HICs. By examining the existing literature, this review seeks to identify similarities, differences, and gaps in interventions between these two settings. The findings will contribute to a better understanding of the current state of interventions, identify best practices, and highlight areas for future research and intervention development.

This study seeks to explore the alternative treatments being used to reduce the incidence of substance misuse or abuse. Further understanding how lack of physical activity can further lead to health concerns. In the proposed hypothesis, after identifying the lack of studies using physical activity and behavioral change methods such as the stress-coping model as the proposed intervention, the study will review previous studies and data on health coaching and counselling strategies adopted within the HICs and LMICs. The value of these findings will provide alternative treatment methods in the LMICs which are untapped and consequently inform policy decisions. Furthermore, this study is the first step to attaining baseline information on substance abuse and misuse in the LMIC and the associated treatment seeking barriers.

## **Literature Review**

### **Physical Inactivity**

Physical inactivity can lead to alcohol or drug abuse through a variety of mechanisms. One possibility is that people who are physically inactive may be more likely to experience negative emotions such as boredom, frustration, or stress, which can increase the likelihood of turning to alcohol or drugs as a coping mechanism. In addition, physical inactivity can lead to social isolation, which may also increase the risk of substance abuse.

Finally, physical inactivity can result in a lack of purpose or meaning in life, which may contribute to a sense of hopelessness and despair that can lead to substance abuse.

There is evidence to support these associations. For example, a study published in the journal *Health Psychology* found that physical inactivity was associated with higher levels of stress and depression, which in turn were associated with greater alcohol consumption (Reed et al., 2011). Another study published in the *American Journal of Preventive Medicine* found that adults who engaged in regular physical activity were less likely to engage in substance abuse compared to those who were physically inactive (Yarnell et al., 2015). Moreover, the relationship between physical inactivity and substance abuse is also supported by several theoretical frameworks, including the stress-coping model and the self-medication hypothesis (Shin et al., 2016). In summary, physical inactivity can contribute to alcohol or drug abuse through a variety of pathways, including increased negative emotions, social isolation, and a lack of purpose or meaning in life. These associations are supported by both empirical research and theoretical frameworks.

The extent of research has developed several approaches to reduce substance abuse (Bruvold, 1993; Dieterich et al., 2013; Hill et al., 2018). However, methods and approaches used are westernized impeding the treatment-seeking behavior of the substance abusers (Sexton et al., 2011). Aside that, several literatures also report that proximity of health-seeking centers, sustaining of treatments (MacMaster, 2005; Beardsley et al., 2003; Schmitt et al., 2003), fear of losing custody of children or the punishing of the abusers are reasons why treatment-seeking behaviors are low in certain settings (Sexton et al., 2011).

In the LMICs, substance abuse (referring to: uncontrolled alcohol intake and illicit drugs usage) is noted as a huge challenge with the usage of crack cocaine, illicit methamphetamine among other products on the increase (Sexton et al., 2011). However, substance abusers' treatment-seeking behaviors in the LMICs are discouraging (Sexton et al., 2011). A major cause of this is due to the plethora of expensive westernized drugs, which has made the cost of treatment of addicts increased. This has worsened the treatment-seeking behaviors of drug abusers as the majority of substance abusers in LIMCs seek not to be treated. The development of alternative cost-effective interventions to improve their treatment-seeking behaviors in the LMICs cannot be underestimated. Amongst the proposed alternatives, psychosocial and behavioral changes directed towards physical activities seems to be an emerging theme. However, this theme (i.e., physical activity) remains understudied in the LMICs.

Physical Activity is one of the most beneficial things that people of all ages can do to improve or maintain their health (PAGA 2nd edition, 2018). Some physical activity is better than none, and for substantial health benefits it is recommended that adults get in 150-300 minutes of moderate intensity physical activity a week (PAGA 2nd edition, 2018).

There have been many benefits shown through evidence-based research including some such as reducing risk of

certain cancers, brain health benefits, possible improved cognitive function, reduced anxiety, and depression risk, and overall improved quality of life (PAGA 2nd edition, 2018). With all the benefits of physical activity, it has also been shown that physical inactivity can be detrimental both physically and mentally. The case of approaching mental health and behavioral change strictly from a biomedical point of view has been shown to not be as successful when you take into consideration the social and psychological perspectives of well-being Williams, J. E. (2017).

A study done by Calestine et al., (2017) conducted a study investigating the relationship between college student work habits, physical activity, and fitness. The study highlighted a positive association between good work habits, such as time management and goal setting, and higher levels of physical activity and fitness. This suggests that effective work habits may contribute to a healthier and more active lifestyle among college students. It also further helps us to understand the benefits of physical activity in everyday life.

In a study done by Pengpid et al., 2015, 23 countries ranging from low-to-high income were viewed to better understand prevalence and social correlates of physical inactivity in university students. The study was completed with 17,928 undergraduate students located in 24 universities across 23 countries. The study revealed that the prevalence of physical inactivity was 41.4% (Pengpid et al., 2015). The study found that some of the key factors found in low to middle income countries (LMIC) included lack of social support associated with physical inactivity, low beliefs in the benefits of physical activity, low self-mastery, and medium self-control were associated with physical inactivity (Pengpid et al., 2015).

According to Fotherinham, et al., 2000 physical inactivity can contribute to mortality and morbidity in more economically developed countries. One cause of this can be due to lifestyle choices such as computer use (Fotherinham, et al., 2000). Another study completed by Sahar Hamido, Xiuzhu Gu, & Kenji Itoh. (2021), viewed the impact on self-monitoring physical activity and the awareness and behavior of behavioral change in participants. The findings showed that of the 36 participants (7 female) at a university in Japan, participants made more health-conscious decisions and realized they needed to do more physical activities. The participants improved in several areas compared to their pre-study answers. In contrast, the participants' confidence in their health decreased after the study was completed Sahar Hamido, Xiuzhu Gu, & Kenji Itoh. (2021). This could provide further discussion in using peer to peer intervention by way of check-ins on progress toward behavioral change goals. The use of theories and techniques such as self-determination theory and motivational interviewing could reduce ambivalence and increase self-motivation and awareness over time.

According to Roberts, C. et al., (2011) young adolescent drug and substance abuse continues to rise. A randomized control trial (n=3288) done in 63 governmental Australian grade school adolescents provided training to a group of teachers in coaching. A 12 month follow up found that young adolescents who worked with trained teachers were able to lower-levels of alcohol and tobacco use over the course of the study in students who received social skills, social problem-solving skills, and challenging unhelpful thoughts (Roberts, C. et al., 2011). This outcome provides a possible outcome when pairing coaching skills to apply general life

skill training to those in communities that can intervene in behavioral changes to better health and well-being.

Felez-Nobrega et al. (2021) conducted a systematic review of observational studies in the general population, exploring the relationship between light-intensity physical activity and mental health. The review showed a consistent association between higher levels of light-intensity physical activity and better mental health outcomes. Encouraging people to engage in regular light-intensity activities, such as walking or yoga, may have a positive impact on their mental well-being.

This study seeks to explore the alternative treatment seeking behaviors to reduce the incidence of substance misuse or abuse. Using physical activity as the proposed intervention, the study will review previous studies and data on health coaching and counselling strategies adopted within the high-income countries and compare with the LMICs. The value of these findings will provide alternative treatment methods in the LMICs which are untapped and consequently inform policy decisions. Furthermore, this study is the first step to attaining baseline information on substance abuse and misuse in the LMIC and the associated treatment seeking barriers.

## **Alcohol Abuse**

Alcohol use disorders (AUDs) pose a significant public health concern worldwide, necessitating effective strategies for both prevention and treatment. A study by Schober and Annis (1996) focused on gender differences in the barriers to seeking help for alcohol-related problems. Schober and Annis (1996) shows various factors, such as stigma, social norms, and perceived self-efficacy, which can act as barriers to help-seeking behavior. Although these barriers can be gender based, they can also be related to ethnicity barriers, and it is crucial to develop interventions that effectively engage all people.

Another area to consider is organizational barriers. This is shown in a study by Patterson et al., (2012) who explored organizational barriers to implementing alcohol screening and brief intervention in community-based mental health organizations. The study identified challenges such as limited resources, lack of staff training, and resistance to change. In some LMICs the use of community health workers (CHW) is common. An area that CHW could benefit is ways to help using behavioral change in assisting people to overcome AUD. Overcoming these organizational barriers is vital for integrating alcohol screening and brief intervention into routine mental health care, ensuring comprehensive treatment for individuals with co-occurring mental health and AUDs. Martin and Rehm (2012) conducted a comprehensive review of psychosocial treatment modalities for alcohol problems in adults. Their analysis encompassed a wide range of approaches, including cognitive-behavioral therapy, motivational interviewing, and relapse prevention. The review emphasized the overall effectiveness of psychosocial treatments and the importance of tailoring interventions to individual needs and preferences.

Bottlender et al., (2006) conducted a review specifically focused on psychosocial treatment approaches for alcohol dependence. Their analysis included interventions such as individual counseling, group therapy, and self-help groups. The review highlighted the effectiveness of psychosocial interventions and emphasized the

importance of ongoing support and relapse prevention strategies. In conclusion, the literature review presents a comprehensive understanding of the barriers to seeking help for AUDs and the effectiveness of psychosocial treatment approaches. The studies highlighted the relationship between mental health factors, such as depression, and alcohol use, as well as the gender-specific and cultural barriers faced by individuals seeking treatment. As shown in these AUD studies some sort of psychosocial interventions should be a part in a plan of aid are needed to help individuals who have challenges of AUD.

Acierno, Donohue, and Kogan (1994) completed a comprehensive review of controlled studies on psychological interventions for drug abuse. The review examined multiple approaches, including cognitive-behavioral therapy, contingency management, and motivational interviewing. While noting methodological limitations, the review highlighted the overall positive effects of psychological interventions in reducing substance abuse and improving treatment outcomes. One area of emphasis showed the need for continued research to refine and enhance these interventions further for drug abuse.

## **Methodology**

### **Search Strategy**

Through this study the inclusive methods used were based on literature using key words of LMICs, HICs, psychosocial, behavioral modification, alcohol, and drug abuse. Other key terms included were substance misuse and abuse. Demographics were not restricted as the goals were to better understand what methods are being used. The age minimum was 18+ and the use of coaching was searched with few results when it related to SAM. Coaching techniques were found in searches including the use of motivational interviewing, and different theoretical frameworks such as the stress-coping model.

The stress-coping model is a theoretical framework used to explain how individuals respond to stressful situations. According to this model, stress is a state of perceived threat or challenge that requires a person to adapt to a new situation. The model proposes that the way an individual copes with stress can either reduce or exacerbate the negative effects of stress on physical and mental health.

### **Theoretical Framework**

One theoretical framework that has been used in aiding people that struggle with alcohol abuse is the stress-coping model. The stress-coping model involves two key components: stressors and coping strategies. Stressors can be either internal or external events that require an individual to adjust their current situation. Examples of internal stressors include negative thoughts and emotions, while external stressors may include significant life events, such as losing a job or the death of a loved one.

Coping strategies are the methods individuals use to manage and reduce stress. There are two primary types of

coping strategies: problem-focused coping and emotion-focused coping. Problem-focused coping involves actively trying to change the stressful situation by seeking information, planning, and taking action to solve the problem. Emotion-focused coping involves regulating the emotional response to the stressor, such as through relaxation techniques or seeking social support. The use and addiction to alcohol has been shown to be related to stressors both psychological and physiological (Brady and Sonne, 1999). Brady and Sonne (1999), showed that treatment techniques to bring in coping skills, problem-solving skills, and social support can aid in behavioral change.

The stress-coping model proposes that the effectiveness of coping strategies in reducing stress depends on the individual's appraisal of the stressor, their coping resources, and their coping styles. For example, individuals who have strong social support networks and effective problem-solving skills may be more likely to use problem-focused coping strategies, while those who lack social support may be more likely to rely on emotion-focused coping strategies. Overall, the stress-coping model suggests that effective coping strategies can reduce the negative effects of stress on physical and mental health, while ineffective coping strategies can exacerbate these effects. By understanding the stress-coping model, individuals can learn to recognize and manage their stressors in a more adaptive way.

The self-medication hypothesis is a theoretical framework used to explain why individuals may use drugs or alcohol to cope with underlying psychological or emotional distress. According to this hypothesis, individuals with mental health disorders, such as depression or anxiety, may use drugs or alcohol to alleviate their symptoms and improve their mood. The hypothesis proposes that individuals may turn to substance use as a form of self-medication, rather than seeking professional help or treatment for their mental health issues.

The self-medication hypothesis suggests that substance use may provide a temporary relief from symptoms but can ultimately exacerbate mental health problems and lead to addiction. The hypothesis also suggests that effective treatment for substance abuse should include addressing underlying mental health disorders.

There is evidence to support the self-medication hypothesis. For example, a study published in the *Journal of Substance Abuse Treatment* found that individuals with co-occurring substance use and mental health disorders reported using drugs or alcohol to cope with negative emotions and stress (Serafini et al., 2015). Another study published in the *Journal of Studies on Alcohol and Drugs* found that individuals with depression were more likely to use alcohol to self-medicate than those without depression (Bolton et al., 2009). Moreover, the self-medication hypothesis is supported by several theoretical frameworks, including the stress-diathesis model and the dual diagnosis model (Khantzian, 1997).

In summary, the self-medication hypothesis proposes that individuals with mental health disorders may use drugs or alcohol to cope with their symptoms. While substance use may provide temporary relief, it can ultimately exacerbate mental health problems and lead to addiction. Effective treatment for substance abuse should address underlying mental health disorders.

## Discussion

The discussion section of this manuscript focuses on psychosocial and behavioral interventions for substance abuse or misuse (SAM) and physical inactivity, with a specific emphasis on current interventions in LMICs and HICs. This paper also addresses some of the barriers to treatment-seeking behaviors and the potential of community-based interventions and peer-support recovery systems. The paper highlighted the negative consequences of SAM, including its impact on mental, physical, and financial well-being. It emphasizes the association between physical inactivity and SAM, with physical inactivity leading to higher stress levels, depression, and alcohol consumption. Additionally, physical inactivity is linked to various health problems, such as high cholesterol, heart disease, and weakened immune systems. The paper underscores the significance of addressing SAM and physical inactivity, particularly in LMICs, where unemployment and low education levels contribute to higher rates of substance abuse.

The manuscript argues that psychosocial and behavioral interventions, including cognitive-behavioral therapy, motivational interviewing, community-based programs, and the use of the stress-coping model as an intervention. These are the areas being considered for intervention in the proceeding proposal in LMICs. These areas are understudied in LMICs, and there is a need for more research to understand their effectiveness and implementation in these settings. Emphasis on the importance of evidence-based strategies to combat SAM and physical inactivity, considering the barriers to treatment and intervention utilization among substance abusers in LMICs.

The manuscript highlights the value of community-based interventions and peer-support recovery systems in addressing SAM. This is the form of intervention typically used in LMICs and providing further skills in behavioral change methods can be beneficial in these settings. It suggests that involving the community and considering their voice, values, can enhance intervention ownership and sustainability. Community-based physical activities and peer-support systems are presented as potentially cost-effective interventions that can significantly impact treatment-seeking behaviors and reduce the burden of SAM in both developing and developed countries.

Overall, this review contributes to the understanding of psychosocial and behavioral interventions for SAM and physical inactivity. It identifies the gaps in research and interventions in LMICs and emphasizes the need for evidence-based strategies to address treatment-seeking barriers and provides a foundation for further research and intervention development, aiming to inform policy decisions and improve treatment methods in LMICs.

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