Sports and Society Accelerator

SAPA CENTRE

2024

The Role of SAPA in Brain Health and Mental Health

Issue Brief #7

Introduction

This issue brief examines the role of sports and physical activity (SAPA) in enhancing brain and mental health by improving cognitive and emotional functions. Understanding the connection between brain and mental health is crucial for fostering holistic well-being, particularly in India, where mental health issues are increasingly prevalent. While this paper does not provide medical advice, it suggests that SAPA may be a key component of a comprehensive approach to health and well-being. The issue brief aims to engage stakeholders in integrating SAPA into India's wellness strategies to address the growing burden of mental health challenges.

The U.S. Center for Disease Control and Prevention defines brain health as the ability to carry out all cognitive functions, including learning, reasoning, language use, and memory.[1] The American Heart Association/American Stroke Association presidential advisory describes optimal brain health as *"average performance levels among all people at that age who are free of known brain or other organ system diseases in terms of decline from function levels, or as adequacy to perform all activities that the individual wishes to undertake.[2]"*

Brain health also includes cognitive, emotional, sensory, and motor functions, which are crucial for preserving quality of life, especially as populations age.

In India, the Ministry of Health and Family Welfare (MoHFW) has recognized the growing importance of brain health by recently constituting a national task force to devise effective strategies for the surveillance, prevention, and treatment of brain diseases.[3]

The MoHFW noted: *"Brain health is an emerging and growing concept that encompasses preventive, promotive, and rehabilitative domains to provide and ensure brain health for all as part of universal health coverage. Disorders of the nervous system are the leading cause of disability-adjusted life years and the second leading cause of death globally, accounting for 9 million deaths per year."*

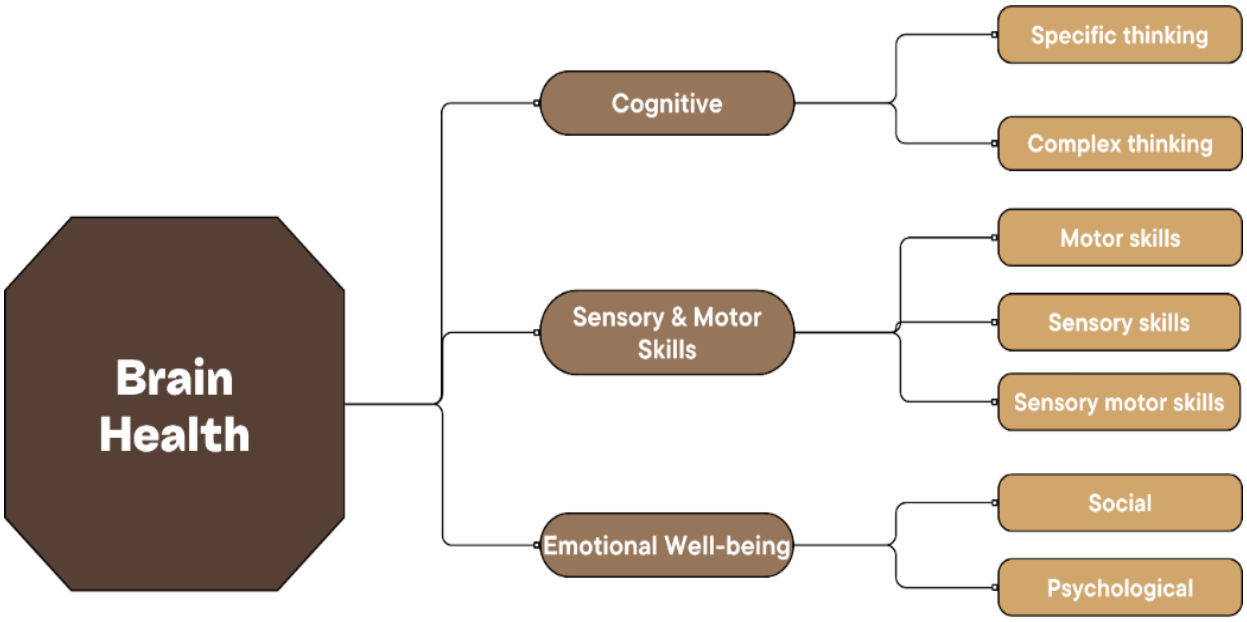
On the other hand, mental health is defined by the World Health Organization (WHO) as a state of well-being that allows individuals to manage life's challenges, recognize their potential, learn effectively, work productively, and contribute to their communities. It is a fundamental aspect of overall health and well-being, essential for our ability to make decisions, form relationships, and influence our environment.[4]

In the Indian context, the National Mental Health Policy echoes this understanding, stating that mental health is not merely the

[1] Centers for Disease Control and Prevention. Healthy aging. What is a healthy brain? New research explores perceptions of cognitive health among diverse older adults. https://www.cdc.gov/aging/pdf/perceptions_of_cog_hlth_factsheet.pdf
[2] Gorelick PB, Furie KL, Iadecola C, et al., American Heart Association/American Stroke Association. Defining optimal brain health in adults: a presidential advisory from the American Heart Association/American Stroke Association. Stroke2017;48:e284-303. doi:10.1161/STR.0000000000000148 pmid:28883125
[3] Bindu Shajan Perappadan, Health Ministry Constitutes Task Force on Brain Healthcare, The Hindu (Apr. 25, 2024), https://www.thehindu.com/sci-tech/health/health-ministry-constitutes-task-force-on-brain-healthcare/article68102206.ece
[4] Mental Health: Strengthening Our Response, World Health Organization (June 17, 2022), https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response

absence of a mental disorder but encompasses an individual's ability to cope with everyday stresses, realize their abilities, and contribute positively to society.[5]

Figure 1: Core elements of brain health



[5] Ministry of Health & Family Welfare, Government of India, National Mental Health Policy (October 2014), https://nhm.gov.in/images/pdf/National_Health_Mental_Policy.pdf

Two sides of the same coin

Physical activity plays a crucial role in enhancing brain health by increasing levels of brain-derived neurotrophic factor (BDNF), which can help alleviate mood disorders. Additionally, cognitive training has been shown to boost resilience, while proper nutrition helps reduce inflammation associated with depression. This close connection between brain and mental health highlights the necessity for integrated health strategies. Interventions focused on improving cognitive function can simultaneously alleviate mental health symptoms, presenting a holistic approach to public health that addresses both aspects of well-being.

Brain health and mental health are often discussed in tandem, but they represent distinct yet interconnected aspects of well-being. Brain health involves cognitive functions and the physical state of the brain, and mental health refers to emotional and psychological well-being. While cognitive decline is commonly associated with ageing, it can also exacerbate mental health conditions, resulting in increased anxiety, depression, and a diminished quality of life.

The close relationship between brain and mental health means that impairments in one area can negatively affect the other. Chronic stress, for example, can damage brain structures like the hippocampus, leading to both cognitive decline and mental health problems. In contrast, mental health disorders can further deteriorate cognitive function, establishing a detrimental cycle. Research indicates that SAPA, cognitive training, and a healthy diet can enhance neuroplasticity, thereby improving both brain function and mental health.[6]

Economic and societal implications of mental illness are immense. The WHO has revealed that depression and anxiety are the most common mental disorders, ranking as some of the main causes of disability worldwide.[7] Lost productivity as a result of depression and anxiety costs the global economy an estimated USD 1 trillion each year.[8] In 2010, poor mental health was estimated to cost the world's economy approximately $2.5 trillion per year in health costs and reduced productivity, which could rise to $6 trillion by 2030.[9] Globally, one in seven 10-19-year-olds experiences a mental disorder, contributing to 13% of the global burden of disease in this age group.[10]

In India, while official data from a decade ago indicates that 7.3% of adolescents aged 13-17 suffer from severe mental health issues, this figure may not fully capture the extent of the

[6] Barbara Strasser, Dietmar Fuchs, Role of physical activity and diet on mood, behavior, and cognition, Neurology, Psychiatry and Brain Research, Volume 21, Issue 3, 2015, Pages 118-126, ISSN 0941-9500, https://doi.org/10.1016/j.npbr.2015.07.002.
[7] Mental Disorders, World Health Organization (8 June 2022), https://www.who.int/news-room/fact-sheets/detail/mental-disorders
[8] Mental Health in the Workplace, World Health Organization, https://www.who.int/teams/mental-health-and-substance-use/promotion-prevention/mental-health-in-the-workplace
[9] 'Mental health matters' (2020) 8(11) The Lancet Global Health <https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(20)30432-0/fulltext#:~:text=In%20total%2C%20poor%20mental%20health,to%20%246%20trillion%20by%202030> accessed 20 November 2023.
[10] https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health

problem.[11] Limited access to mental health services, underdiagnosis, and a lack of awareness mean that many adolescents with mental health conditions likely go unrecognized and untreated. The true prevalence could therefore be higher, as many individuals and families might not seek or receive a formal diagnosis.

In general, the proportional contribution of mental disorders to the total disease burden in India has almost doubled since 1990. The National Mental Health Survey (NMHS) 2016 estimated 10.6% of the country's population lives with a mental health condition.[12] In 2017 alone, 197.3 million people in India were living with mental health conditions, including 45.7 million suffering from depressive disorders and 44.9 million dealing with anxiety disorders.[13] The NMHS also found that families in India spent a median of ₹1,000-1,500 per month in out-of-pocket expenditure on treatment and travel for mental health care. This financial burden often pushes families into economic hardship, particularly those from lower-income households. The survey also revealed that mental health conditions disproportionately affected households with less education, lower income, and lower employment, highlighting the socio-economic vulnerability of these groups in accessing mental health care.[14]

As per WHO, between 2012 and 2030, India is projected to experience an economic loss of USD 1.03 trillion due to mental health conditions. This underscores the vast financial and societal toll mental health issues impose on the country if not adequately addressed.[15]

[11] Smriti Shalini & M. Sivakami, India Needs Youth Mental Health Focus to Strike Demographic Gold, The Hindu (Oct. 9, 2023), https://www.thehindu.com/sci-tech/science/youth-mental-health-focus-demographic-dividend/article67399051.ece.

[12] Ministry of Health and Family Welfare, National Institute of Mental Health and Neuroscience. National Mental Health Survey 2015-16.

[13] The burden of mental disorders across the states of India: the Global Burden of Disease Study 1990–2017 Sagar, Rajesh et al. The Lancet Psychiatry, Volume 7, Issue 2, 148 - 161

[14] Mahashur, S., Varma, A., & Fernandes, T. N. (2022, June). Understanding Costs Associated with Mental Health Care in India. Center for Mental Health Law & Policy. Retrieved from https://cmhlp.org/wp-content/uploads/2022/06/Issue-Brief-Cost-of-Care.pdf

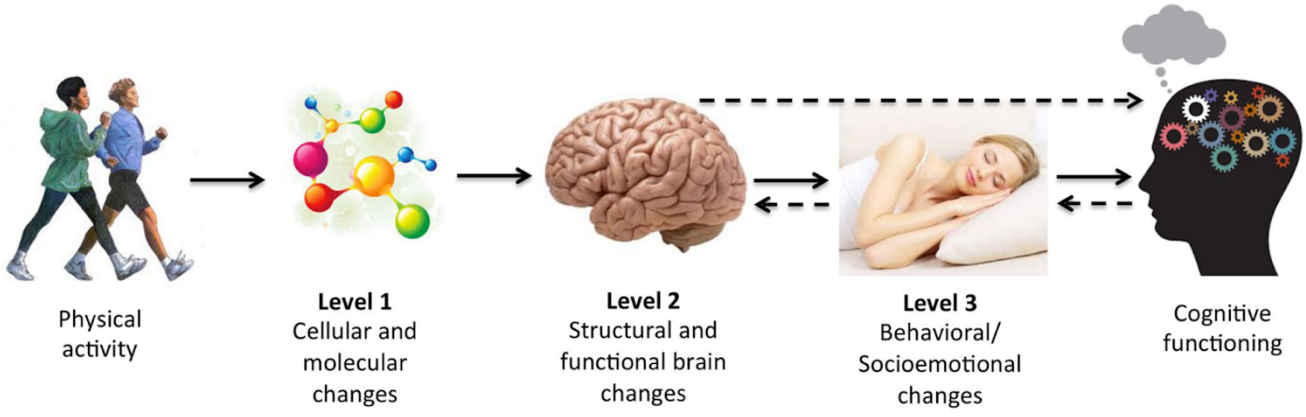
[15] https://www.who.int/india/health-topics/mental-health#:~:text=WHO%20estimates%20that%20the%20burden,estimated%20at%20USD%201.03%20trillion.

Synergizing brain and mental health: The role of SAPA

SAPA is an inclusive framework that promotes a diverse range of physical activities and movement, extending beyond traditional sports to include informal play, recreational exercise, dance, and fitness programs. It focusses on enhancing health and well-being by promoting physical activity as a tool to reduce chronic diseases, improve mental health, and boost overall fitness, productivity, and a sense of belonging. SAPA is designed to be flexible, allowing programs to be tailored to specific community needs, cultural contexts, and available resources, making it more accessible to diverse populations, including those with disabilities, older adults, and underserved groups. Unlike competitive sports-focused models, SAPA emphasizes non-competitive, inclusive activities that encourage greater community participation and engagement.

Engagement in SAPA is well recognized for its physical health benefits, but its impact on brain and mental health is equally significant. Through various biological, psychological, and social mechanisms, SAPA contributes meaningfully to mental well-being and cognitive function. This comprehensive analysis examines these mechanisms, supported by recent data and research, highlighting SAPA's role as a critical component in public health strategies aimed at enhancing brain and mental health.

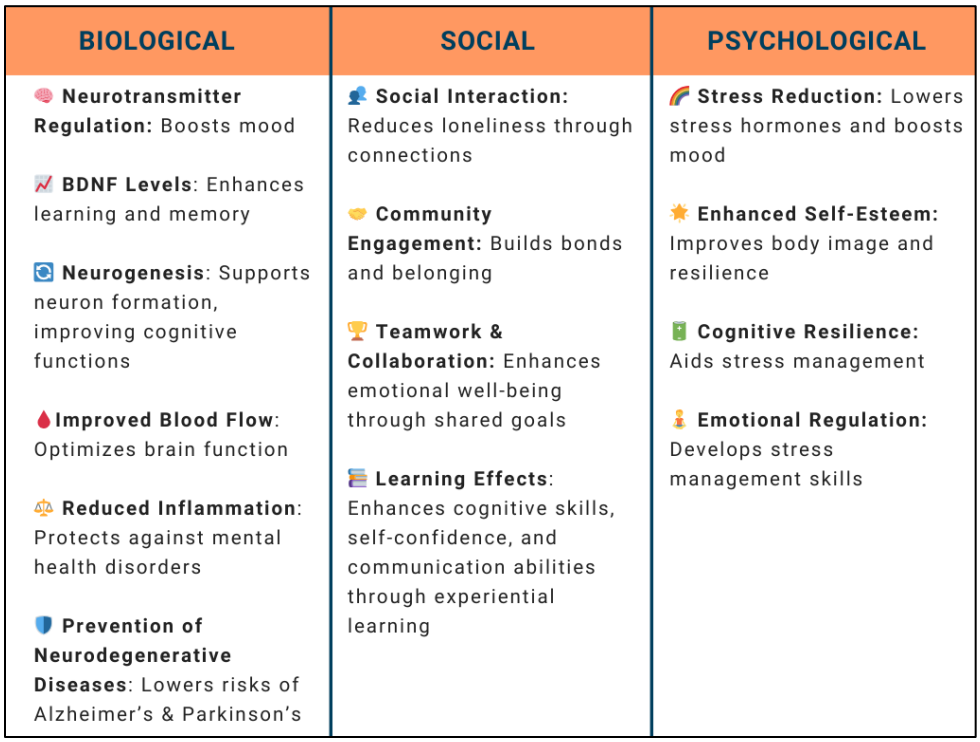
Figure 2: Conceptual model of mechanisms of SAPA at multiple levels of analysis



Source: Frontiers in Human Neuroscience[16]

[16] Stillman CM, Cohen J, Lehman ME, Erickson KI. Mediators of Physical Activity on Neurocognitive Function: A Review at Multiple Levels of Analysis. Frontiers in Human Neuroscience. 2016; 10:626. Available at: https://www.frontiersin.org/articles/10.3389/fnhum.2016.00626/full

Figure 3: Impact of SAPA on brain and mental health



Biological mechanisms

SAPA influences brain health through several key biological processes:

- Neurotransmitter regulation: According to the Canadian Mental Health Association, SAPA is a powerful enhancer of mood and mental health.[17] SAPA stimulates the release of neurotransmitters like serotonin, dopamine, and endorphins, which are crucial for mood regulation. These neurotransmitters help alleviate symptoms of depression and anxiety, offering a natural complement or alternative to medication.
- Brain-derived neurotrophic factor (BDNF): It is well established that physical activity can elevate circulating levels of BDNF, a protein that supports the growth and survival of neurons. BDNF is vital for learning, memory, and overall brain plasticity, helping to preserve cognitive function as the brain ages.[18]
- Neurogenesis: Neurogenesis is the process by which new neurons are formed in the brain. Regular engagement in SAPA stimulates neurogenesis, particularly in the hippocampus, a region crucial for memory and learning. This process is vital for counteracting age-related cognitive decline and reducing the risk of neurodegenerative diseases.[19] SAPA enhances brain plasticity, essential for learning, memory, and recovery from brain

[17] https://cmha.ca/news/understanding-brain-health-and-its-connection-to-mental-well-being/
[18] Erin I. Walsh, Lisa Smith, Joe Northey, Ben Rattray, Nicolas Cherbuin, Towards an understanding of the physical activity-BDNF-cognition triumvirate: A review of associations and dosage, Ageing Research Reviews, Volume 60, 2020, 101044, ISSN 1568-1637, https://doi.org/10.1016/j.arr.2020.101044.
[19] Lei, X., Wu, Y., Xu, M. et al. Physical exercise: bulking up neurogenesis in human adults. Cell Biosci 9, 74 (2019). https://doi.org/10.1186/s13578-019-0337-4

injuries, thereby maintaining cognitive function throughout life. Research shows that SAPA has a moderate-to-strong positive impact on cognitive function, especially in early and later life stages, and is particularly beneficial for populations with cognitive deficits.[20]

- Improved blood flow: SAPA enhances cerebral blood flow, ensuring that the brain receives adequate oxygen and nutrients. This increased blood flow supports optimal cognitive function and protects against cognitive decline.[21]
- Reduction in inflammation: Regular SAPA has been shown to decrease levels of pro-inflammatory cytokines, which are linked to both mental health disorders and neurodegenerative diseases. By reducing inflammation, SAPA may offer protective effects against these conditions.[22]
- Prevention of neurodegenerative diseases: Research has shown that regular SAPA can delay the onset of neurodegenerative diseases like Alzheimer's and Parkinson's.[23] For example, studies indicate that older adults who regularly engage in SAPA have a lower risk of developing Alzheimer's compared to sedentary individuals.[24] This protective effect is likely due to SAPA's ability to reduce inflammation, oxidative stress, and insulin resistance, all of which are linked to cognitive decline.

Psychological mechanisms

A 2023 study in the British Journal of Sports Medicine demonstrated SAPA's substantial impact on mental health, showing improvements in depression, anxiety, and psychological distress across various populations, including those with chronic health conditions. Beyond biological effects, SAPA contributes to mental health through the following:

- Stress reduction: Exercise reduces levels of the body's stress hormones, such as adrenaline and cortisol. It also stimulates the production of endorphins, chemicals in the brain that are the body's natural painkillers and mood elevators.[25]
- Enhanced self-esteem: Regular participation in SAPA improves self-esteem and body image, which are critical components of mental health. Higher self-esteem contributes to a more positive outlook and greater emotional resilience.[26]
- Cognitive resilience: Engaging in SAPA can bolster cognitive resilience, enabling

[20] Erickson KI, Hillman C, Stillman CM, Ballard RM, Bloodgood B, Conroy DE, Macko R, Marquez DX, Petruzzello SJ, Powell KE; FOR 2018 PHYSICAL ACTIVITY GUIDELINES ADVISORY COMMITTEE*. Physical Activity, Cognition, and Brain Outcomes: A Review of the 2018 Physical Activity Guidelines. Med Sci Sports Exerc. 2019 Jun;51(6):1242-1251. doi: 10.1249/MSS.0000000000001936. PMID: 31095081; PMCID: PMC6527141.

[21] Liu, J., Min, L., Liu, R. et al. The effect of exercise on cerebral blood flow and executive function among young adults: a double-blinded randomized controlled trial. Sci Rep 13, 8269 (2023). https://doi.org/10.1038/s41598-023-33063-9

[22] Docherty, S., Harley, R., McAuley, J.J. et al. The effect of exercise on cytokines: implications for musculoskeletal health: a narrative review. BMC Sports Sci Med Rehabil 14, 5 (2022). https://doi.org/10.1186/s13102-022-00397-2

[23] NM van der Kolk, NM de Vries, RPC Kessels, et al, 'Effectiveness of home-based and remotely supervised aerobic exercise in Parkinson's disease: a double-blind, randomised controlled trial' (2019) 18 Lancet Neurol <https://pubmed.ncbi.nlm.nih.gov/31521532/>

[24] Raichlen DA, Aslan DH, Sayre MK, et al. Sedentary Behavior and Incident Dementia Among Older Adults. JAMA. 2023;330(10):934–940. doi:10.1001/jama.2023.15231

[25] Exercising to Relax, Harvard Health Publishing, https://www.health.harvard.edu/staying-healthy/exercising-to-relax

[26] Zamani Sani SH, Fathirezaie Z, Brand S, Pühse U, Holsboer-Trachsler E, Gerber M, Talepasand S. Physical activity and self-esteem: testing direct and indirect relationships associated with psychological and physical mechanisms. Neuropsychiatr Dis Treat. 2016 Oct 12;12:2617-2625. doi: 10.2147/NDT.S116811. PMID: 27789950; PMCID: PMC5068479.

individuals to better manage mental and emotional stress. This resilience is crucial for maintaining mental health in the face of life's challenges.

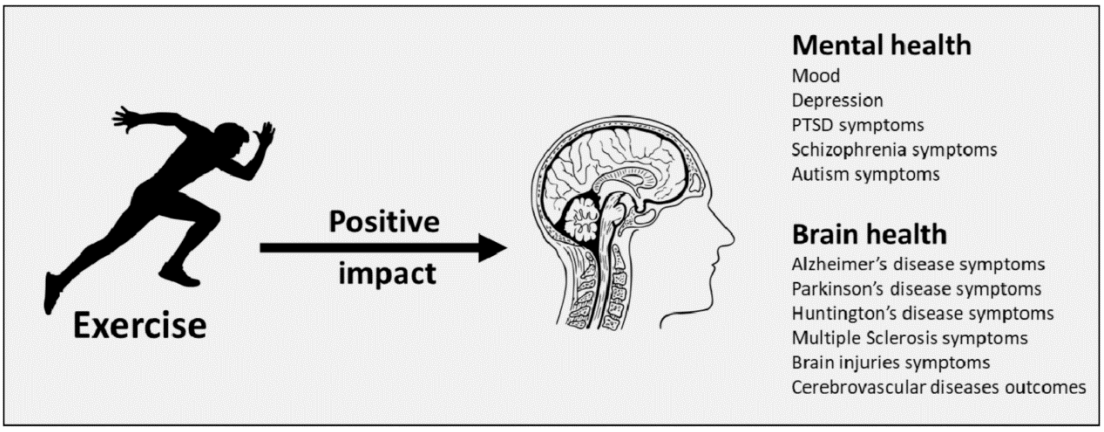
- Emotional regulation: SAPA helps individuals develop better emotional regulation skills, which are essential for managing stress and preventing the onset of mental health disorders. Regular SAPA has been linked to improved emotional stability and reduced mood swings.

Social mechanisms

The social aspects of SAPA also play a significant role in enhancing mental health:

- Social interaction: Participation in SAPA and group activities fosters social interaction, which is vital for mental well-being. These social connections provide emotional support and reduce feelings of loneliness and isolation, which are common contributors to mental health issues.
- Community engagement: SAPA often involves community participation, helping to build social bonds and a sense of belonging. This engagement can be particularly beneficial in fostering a supportive environment that enhances mental health.
- Teamwork and collaboration: Engaging in team sports promotes teamwork and collaboration, skills that are essential for building strong social connections and improving mental health. These social dynamics contribute to a sense of purpose and shared goals, which are important for emotional well-being.
- Learning effects: Participation in SAPA enhances cognitive skills, including critical thinking, decision-making, and concentration. The experiential learning gained through SAPA, and group participation provides opportunities to learn from both successes and setbacks. This process not only cultivates self-confidence but also hones communication and leadership abilities, all of which contribute positively to mental health.

Figure 4: Impact of exercise on brain and mental health[27]



[27] Nay K, Smiles WJ, Kaiser J, McAloon LM, Loh K, Galic S, Oakhill JS, Gundlach AL, Scott JW. Molecular Mechanisms Underlying the Beneficial Effects of Exercise on Brain Function and Neurological Disorders. International Journal of Molecular Sciences. 2021; 22(8):4052. https://doi.org/10.3390/ijms22084052

Comparative effectiveness with medication

Studies comparing the effects of SAPA with traditional medication for mental health disorders have consistently shown that regular SAPA can be as effective as pharmaceutical interventions.[28] While medications primarily address symptoms, SAPA offers a holistic approach that enhances overall well-being without the risk of side effects. For conditions like depression, anxiety, and even schizophrenia[29], SAPA has been demonstrated to significantly reduce symptoms, improve quality of life, and provide long-term benefits that medications alone may not achieve.

In India, the integration of SAPA into public health strategies is particularly crucial given the country's low levels of SAPA and the rising burden of mental health disorders. Recent studies have indicated that more than 200 million Indians are inactive, failing to meet the WHO's recommended regimen of 150 minutes of moderate to vigorous physical activity per week for adults, or 420 minutes for children and adolescents. Additionally, urban inactivity rates are 1.5 to 2 times higher compared to rural areas, with a particularly wide gap among adolescents—at least 28% of adolescents in urban areas are inactive, compared to 13% in rural areas.[30]

This inactivity, combined with increasingly sedentary lifestyles, has contributed to significant public health challenges, including over 101 million Indians affected by diabetes, more than 200 million affected by generalized obesity, and approximately 300 million affected by hypertension.[31] On average, girls and women in India engage in 7 hours less activity per week than boys and men (approximately one-fifth less).[32] Additionally, studies have also shown that, in India, among other countries, the female gender is perceived by adolescent boys and girls to be associated with lower interest and/or engagement in SAPA.[33] There is often a common stigma associated with participating in SAPA, shaped by traditional gender roles and misunderstandings about the abilities of individuals with disabilities.

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[28] Craft LL, Perna FM. The Benefits of Exercise for the Clinically Depressed. Prim Care Companion J Clin Psychiatry. 2004;6(3):104-111. doi: 10.4088/pcc.v06n0301. PMID: 15361924; PMCID: PMC474733.

[29] M Sabe, S Kaiser, & O Sentissi, 'Physical exercise for negative symptoms of schizophrenia: systematic review of randomized controlled trials and meta-analysis' (2020) 62 Gen Hosp Psychiatry <https://pubmed.ncbi.nlm.nih.gov/31751931/>

[30] Dalberg & SSA, State of Sports and Physical Activity in India (2024), https://sports-society.org/wp-content/uploads/2024/09/SoSaPA_report_12-Sept_Digital.pdf.

[31] Ranjit Mohan Anjana et al., "Metabolic Non-Communicable Disease Health Report of India: The ICMR-INDIAB National Cross-Sectional Study (ICMR-INDIAB-17)," *The Lancet Diabetes & Endocrinology* 11, no. 7 (July 2023): 474–489, doi:10.1016/S2213-8587(23)00119-5

[32] *Supra* note 30.

[33] Sports and Society Accelerator (SSA) & Women Entrepreneurship Platform (WEP), The Role of Technology in Advancing the Inclusion of Women and Girls in Sport and Physical Activity in India (Nov. 2023), sports-society.org/wp-content/uploads/2024/04/Tech-for-sports_SSA-WEP-report.pdf

Global and Indian perspectives

The integration of SAPA into mental health initiatives is gaining global traction, with public, private, and non-governmental organization (NGO) sectors increasingly recognizing its impact on mental well-being. This section analyses global efforts across public, private, and NGO sectors, highlighting how SAPA is used to promote mental health and the key takeaways from each approach.

Table 1: Public sector initiatives

Organizer/ Initiatives	Initiative/Program	Key Takeaways
WHO[34] (Global)	Global Action Plan on Physical Activity 2018–2030: Promotes increased physical activity to improve mental health, quality of life and well-being, and reduce sedentary behaviour globally.	Prioritizing SAPA at a global level requires multi-sector collaboration, showing that mental health can be improved through collective efforts in public health, education, and urban planning.
Sport Australia[35] (Australia)	Physical Literacy Framework: A national strategy to help individuals develop physical, psychological, social, and cognitive skills through movement, with a focus on lifelong mental and physical well-being.	This holistic framework highlights the importance of integrating physical, mental, and social development through movement. Early intervention in schools builds not only fitness but also confidence, motivation, and social skills, emphasizing SAPA's role in mental health.
National Health Service[36] (United Kingdom)	GP Exercise Referral Scheme: A primary care initiative that refers patients with health conditions, such as depression, high blood pressure, and diabetes, to structured physical activity programs.	Exercise is seen as a "miracle cure" by the NHS, with structured physical activity proven to aid in treating and managing chronic conditions and mental health issues like depression. This scheme promotes long-term, sustainable improvements in both physical and mental well-being.
Ministry of Youth Affairs and Sports (MYAS)[37],	Fit India Movement: Launched in 2019, this nationwide initiative promotes fitness as a key part of daily life, encouraging physical	Focused on fostering behavioural changes towards a more active lifestyle, the movement uses grassroots outreach to spread awareness of

[34] Global Action Plan on Physical Activity 2018-2030, World Health Organization (2018) https://www.who.int/initiatives/gappa
[35] Sport Australia, Australian Physical Literacy Framework (2020)
[36] The Fitness Group, NHS GP Exercise Referral Scheme
[37] Fit India Movement, Ministry of Youth Affairs & Sports, Government of India

Government of India **(India)**	activity through campaigns and events in schools, villages, and workplaces.	physical and mental health benefits, while promoting indigenous sports and community engagement.
European Union[38] **(Europe)**	HealthyLifestyle4All: A 2021–2023 campaign promoting healthy lifestyles by linking sport, physical activity, and healthy diets, with a focus on inclusion, access, and non-discrimination across all generations.	This initiative promotes a holistic approach to well-being by involving governments, civil society, and sport organizations. It emphasizes the role of SAPA in improving mental and physical health, especially for disadvantaged groups, through broad collaboration and pledges.

Table 2: Private sector and NGO initiatives

Organizer/ Initiatives	Initiative/Program	Key Takeaways
Nike[39]	Nike Well Collective: A program integrating mental and physical health resources, offering tools like meditation, yoga, and fitness routines through the Nike Training app	The initiative shows the role of SAPA in promoting both physical and mental health, emphasizing mindfulness practices alongside physical activity. The program aims to reduce stress and support emotional well-being.
Adidas[40]	Adidas x Calm Partnership: Collaboration with the Calm app offering mental health support to athletes, focusing on mindfulness and recovery to enhance performance.	This initiative connects mental fitness with physical performance by providing mindfulness and relaxation tools. The focus is on how mental and physical health can complement each other in both amateur and professional athletes.
ASICS[41]	Desk Break Campaign: Encourages office workers to take short movement breaks during the workday; based on research that indicates that mental state declines after 2 hours of continuous desk work; and that 15 minutes of	This initiative emphasizes the importance of integrating movement into the workday to combat the negative effects of prolonged sitting. By promoting short movement breaks, it aims to improve mental well-being and productivity among office workers, illustrating the connection

[38] HealthyLifestyle4All (2021-2023)
[39] Nike Well collective, Nike
[40] Adidas and Calm Unite to Progress Sports Performance Through Mental Wellbeing, Adidas
[41] ASICS Desk Break Campaign For Workplace Mental Health, Marketing-Interactive

	movement improves mental state by 22.5%.	between physical activity and mental health.
Lululemon[42]	Peace on Purpose: Partnership with the UN Foundation to provide yoga and mindfulness training to frontline workers, supporting mental resilience and stress management.	Lululemon combines physical activity with mindfulness to promote mental health in high-stress environments. The focus is on improving emotional regulation and resilience through movement-based practices.
NGO Initiatives		
Mind[43] **(United Kingdom)**	Get Set to Go: A program designed to help individuals with mental health challenges engage in sports and physical activities. Supported by Sport England and the National Lottery.	Peer support is a key aspect, helping individuals reduce isolation and improve mental well-being through community-based sports activities.
Sport in Mind[44] **(United Kingdom)**	Sport in Mind Programs: In partnership with the NHS, this initiative uses sports (including walking, yoga, and gardening) to support the recovery of individuals with mental health conditions.	Sport in Mind focuses on improving emotional well-being, reducing social isolation, and empowering individuals to take control of their mental health through SAPA.
Special Olympics International[45] **(Global)**	Strong Minds (Emotional Health): A program within the Special Olympics focusing on improving emotional resilience and mental well-being for athletes with intellectual disabilities through physical activities, such as sports competitions and related coping strategies.	Integrates SAPA by using sports as a platform to develop emotional resilience and stress management. Athletes engage in activities designed to strengthen mental health while improving physical fitness, fostering a holistic approach to well-being.
Active Minds[46] **(USA)**	Stress Less Week: This university-focused program integrates yoga, mindfulness, and other physical activities to help students manage stress and mental health challenges.	Focussed on young adults, it demonstrates the effectiveness of combining SAPA with mental health strategies to reduce stress and anxiety in high-pressure academic environments.

[42] Peace on Purpose, Lululemon
[43] Get Set to Go, Mind
[44] Sport in Mind
[45] Strong Minds (Emotional Health), Special Olympics
[46] Stress Less Week, Active Minds

Challenges

A range of structural, social, and economic barriers continue to obstruct progress in addressing brain and mental health challenges:

Awareness and linkages: A major challenge in promoting SAPA for brain and mental health in India is the low awareness among key stakeholders, including policymakers, healthcare professionals, educators, and the general public. This gap hinders the integration of SAPA into public health strategies. For several years, the mental health budget in India has remained stagnant, hovering around 1% of the total health budget.[47] Furthermore, healthcare providers often lack training on SAPA's mental health benefits, leading to missed opportunities for early intervention.

Stigma attached to brain and mental health disorders: Stigma is a significant barrier to treatment and prevention in mental health care. In India, nearly 150 million people need active mental health interventions, yet only 30 million receive them, largely due to stigma. This stigma manifests in various forms, including social ostracism and internalized shame, deterring individuals from seeking help and engaging in preventive measures like SAPA. The cultural belief that mental illness is a personal failing rather than a medical condition exacerbates this issue, limiting public discourse and policy action on mental health.

Low public and philanthropic spending on mental health: India's public and philanthropic spending on mental health is strikingly low, with less than 1% of the national health budget dedicated to this area.

This underfunding translates into a severe lack of infrastructure, inadequate mental health services, and minimal support for integrating SAPA into mental health care. The lack of financial investment also limits the development of quality SAPA programs that could serve as preventive and therapeutic tools for mental health. Without increased funding, the potential impact of SAPA remains largely untapped.

Inequality and barriers to SAPA participation: The unstructured growth of sports has resulted in unequal access, particularly for marginalized groups, low-income families from rural areas, and minority communities. Women have historically been excluded from accessing and participating in SAPA, and, as a result, from realizing the significant sporting, social, cultural, and economic returns that this engenders.

Women and young girls are unfortunately unable to optimally access and participate in SAPA due to a set of complex, interconnected, and mutually reinforcing challenges.[48] Additionally, the emphasis on elite performance within a resource-limited sports sector is deeply embedded in the educational system and extends to broader sports infrastructure, programs, and governance. This focus on identifying participants based on perceived skill levels, with a primary aim of

[47] The Interim Union Budget FY 2024-25: Where Does Mental Health Stand?, Indian Mental Health Observatory, https://cmhlp.org/imho/blog/the-interim-union-budget-fy-2024-25-where-does-mental-health-stand/
[48] *Supra* note 33.

winning medals, restricts long-term access to SAPA opportunities for many individuals.[49]

Lack of dedicated capacity, resources, and funding for SAPA-based approaches: The absence of dedicated resources and funding for SAPA-based mental health interventions is a critical issue. Even when awareness exists, practical implementation is limited due to insufficient capacity, both in terms of human resources and financial investment. The development of sports facilities, training of coaches, and creation of tailored SAPA programs require significant resources, which are currently lacking. Without targeted investment, SAPA's potential to improve mental health outcomes remains underutilized.

Addressing these challenges requires a comprehensive approach that includes raising awareness, reducing stigma, increasing investment in mental health and SAPA infrastructure, improving the quality and accessibility of SAPA programs, and conducting India-specific research. By tackling these issues holistically, India can better harness the potential of SAPA to enhance brain and mental health, ultimately improving the quality of life for its population.

[49] SSA, Introducing the STEP Framework for Empowering Sports and Physical Activity in India (July 2024), https://sports-society.org/wp-content/uploads/2024/07/STEP-Framework-Report-FINAL.pdf

The way forward

The integration of SAPA into India's mental health framework is not only critical to addressing the country's escalating mental health crisis but also presents a significant opportunity to boost economic growth and national productivity. By fostering a culture of active living, SAPA can significantly improve mental and physical well-being, prevent cognitive decline, and contribute to overall societal progress.

A fully active India by 2047 could boost India's GDP by over INR 15 lakh crore annually, catalysing an INR 4.5 lakh crore sports industry, while preventing 11 crore cases of non-communicable diseases (NCDs). This would result in savings of over INR 30 lakh crore in healthcare costs, funds that could be redirected towards more productive sectors of the economy. Additionally, SAPA could help 1.1 crore girls engage in sports for the first time, enhancing their agency, confidence, and potentially creating 6 lakh additional women entrepreneurs and leaders.[50]

By 2047, SAPA could also contribute to reducing avoidable healthcare burdens by over INR 30 lakh crore annually, improving physical and mental health outcomes, and reducing the prevalence of depression and suicides. For instance, a fully active India would have 30,000 fewer suicides and up to 1.5 crore fewer cases of depression every year, leading to savings of INR 1 lakh crore in healthcare costs annually. Furthermore, investing in SAPA could lead to higher productivity and increased workforce participation, preventing INR 2.5 lakh crore in productivity-related losses due to fewer sick days and presenteeism caused by physical and mental illness.[51] As India urbanizes and becomes more sedentary, making SAPA accessible in these settings will be critical to the nation's health and well-being.

Effective implementation of SAPA demands collaboration across multiple stakeholders, including the government, private sector, NGOs, healthcare providers, and communities.

Table 3: Stakeholders, and primary roles/responsibilities

Stakeholder	Primary roles and responsibilities
Government	- Formulate and implement SAPA-inclusive health policies - Allocate funding for SAPA programs and infrastructure - Promote SAPA in educational curricula and public health campaigns
Private sector	- Provide resources and funding for SAPA initiatives - Incorporate SAPA programs into workplace wellness strategies - Partner with government and NGOs to expand SAPA accessibility
Healthcare providers	- Prescribe SAPA as part of mental health treatment plans

[50] *Supra* Note 30.
[51] *Ibid.*

	- Raise awareness of the mental health benefits of SAPA through clinical practice and public outreach - Collaborate with sports professionals to develop holistic care
Civil society/NGOs	- Advocate for SAPA inclusion in public health frameworks - Create community-based SAPA programs, particularly in underserved areas - Build capacity and provide training for local coaches and leaders
Educational institutions	- Embed SAPA activities into school and college curricula - Provide access to sports infrastructure and promote inclusive participation for students - Educate about the health benefits of SAPA
Communities	- Actively engage in the design and implementation of SAPA initiatives - Promote inclusivity and local leadership in SAPA programs - Foster a culture of active living at the grassroots level

While these stakeholders across various sectors have distinct roles, their collaboration is crucial in overcoming the barriers that currently limit SAPA's integration into mental health frameworks. By working together, they can create a holistic and sustainable ecosystem where SAPA is accessible, inclusive, and integrated into everyday life. The key strategies on the next page outline how the stakeholders can contribute to creating an environment that promotes brain and mental health through SAPA in India. With SAPA's support, India can build a healthier, happier population, a stronger global workforce, and a thriving sports industry, positioning itself as a leader in both human development and economic growth.

Figure 4: Key strategies for stakeholders

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