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Gender, Culture, and Health Equity: A Scoping Review of Sociocultural Barriers to Physical Activity among Tribal Women in India

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ABSTRACT

Physical activity is a fundamental determinant of physical, mental, and social well-being, yet its distribution across populations remains deeply unequal. Tribal women in India occupy a particularly disadvantaged position because gender inequality, cultural norms, geographical isolation, poverty, and weak infrastructure intersect to restrict their access to health-enhancing movement. Although tribal women perform physically demanding occupational and domestic labour, such labour rarely substitutes for structured, health-promoting physical activity, since it is characterised by drudgery, nutritional deprivation, and limited recovery rather than planned exercise. This systematic review synthesises peer-reviewed and grey literature published between 2005 and 2026, following PRISMA 2020 reporting standards, to examine the sociocultural determinants of physical activity participation among tribal women and their implications for health equity. Using an interdisciplinary lens drawing on sociology, anthropology, public health, and physical education, the review identifies recurring themes of gendered time poverty, restricted mobility, weak infrastructure, and fragmented policy implementation, while also highlighting the protective and enabling potential of indigenous knowledge, traditional games, and community-driven interventions. The review concludes that improving health equity for tribal women requires culturally responsive, gender-sensitive, and community-owned strategies that integrate physical education with broader efforts toward indigenous health and social justice, in line with Sustainable Development Goals 3, 5, and 10.

Keywords: Tribal women, Physical activity, Health equity, Gender, Culture, Physical Education, Indigenous communities

1. Introduction

Physical activity is widely recognised as one of the most cost-effective strategies for improving population health across the lifespan, contributing to cardiovascular fitness, metabolic regulation, mental well-being, and the prevention of non-communicable diseases (World Health Organization [WHO], 2022). The WHO estimates that nearly one in three women worldwide fails to meet recommended activity levels, making physical inactivity a

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leading modifiable risk factor for premature mortality (WHO, 2022). Participation in physical activity, however, is not determined by individual motivation alone; it is shaped by social structures, cultural beliefs, gender relations, and public policy operating across multiple interacting levels, as articulated by the Social Ecological Model (Sallis et al., 2015).

These structural inequalities are especially pronounced among indigenous populations, who frequently experience historical marginalisation and restricted access to healthcare, education, and recreational resources (United Nations Permanent Forum on Indigenous Issues [UNPFII], 2021). Indigenous women face overlapping disadvantages shaped simultaneously by ethnicity, gender, poverty, and geography, producing intersecting inequities that persist across generations (Crenshaw, 1989; Marmot, 2005). India is home to over 104 million Scheduled Tribe (ST) people, roughly 8.6 percent of the national population, spread across more than 700 tribal groups (Census of India, 2011). Traditional tribal livelihoods historically demanded substantial physical exertion, but socioeconomic transformation, environmental degradation, and restricted access to services have reshaped these patterns while introducing new health challenges (Ministry of Tribal Affairs, 2023).

Within tribal communities, women carry disproportionate responsibility for agricultural labour, household work, childcare, and the collection of fuel and water, while experiencing limited decision-making power and unequal access to education and healthcare (National Family Health Survey-5 [NFHS-5], 2021). Although this labour is physically strenuous, it does not necessarily translate into fitness, since it is repetitive and exhausting and is frequently performed under nutritional deprivation, distinguishing occupational labour from the planned, structured movement associated with health-enhancing physical activity (Bull et al., 2020). Inadequate sports infrastructure, restrictive gender norms, and minimal institutional support further exclude tribal women from the broader benefits of organised physical activity.

Anthropological scholarship emphasises that physical activity cannot be understood independently of culture: beliefs about the female body, acceptable gender roles, and leisure behaviour shape women's opportunities to move (Inhorn & Wentzell, 2012; Kleinman, 1980). Sociologically, patriarchal structures assign women primary responsibility for unpaid domestic work while limiting autonomy and public participation (Connell, 2012), and intersectionality theory helps explain how gender, poverty, and ethnicity combine to produce distinctive barriers for tribal women rather than acting independently (Crenshaw, 1989). Health equity, understood as fairness in opportunity rather than identical distribution of resources, requires addressing these broader determinants rather than targeting individual behaviour alone (Braveman & Gruskin, 2003).

The Government of India has introduced several relevant initiatives, including the National Health Mission, Poshan Abhiyaan, Khelo India, the Fit India Movement, and the National Education Policy 2020, yet evidence on their effectiveness in reaching tribal women remains fragmented across disciplines. Most existing studies concentrate on maternal health, malnutrition, and healthcare utilisation, leaving comparatively little attention to how sociocultural barriers shape participation in physical activity. This review addresses that gap by synthesising interdisciplinary evidence, situating physical activity within the broader discourse on gender justice, indigenous rights, and social equity, and informing culturally responsive policy for one of India's most marginalised populations.

Although substantial literature addresses tribal health, maternal nutrition, and healthcare access in India, research specifically examining sociocultural barriers to physical activity among tribal women remains limited and dispersed across public health, anthropology, sociology, and sports sciences, with few attempts at integration. Most reviews emphasise nutritional or healthcare outcomes rather than treating physical activity as a

multidimensional phenomenon shaped by gender norms and structural inequality. Systematic evidence on the effectiveness of Khelo India, the Fit India Movement, and tribal development programmes in promoting physical activity specifically among tribal women is similarly scarce, limiting evidence-based policy formulation and culturally appropriate intervention design.

This systematic review critically synthesises existing literature on the sociocultural barriers influencing physical activity among tribal women in India and examines their implications for health equity through interdisciplinary perspectives drawn from physical education, sociology, anthropology, and public health.

Conceptualising Physical Activity and Health Equity

The WHO defines physical activity broadly as any bodily movement requiring energy expenditure, but public health scholarship distinguishes occupational physical activity, which is repetitive and demanding, from health-enhancing physical activity, which is planned and structured to improve fitness (Bull et al., 2020). This distinction matters for marginalised women, whose daily labour involves substantial exertion without producing the physiological and psychological benefits of recreational exercise. Globally, roughly 31 percent of adults fail to meet recommended activity levels, contributing to the burden of cardiovascular disease, diabetes, and premature mortality (Lee et al., 2012; WHO, 2022). Health equity, as distinct from equality, requires that disadvantaged populations receive context-specific support to achieve comparable outcomes (Braveman & Gruskin, 2003), a principle reinforced by the WHO Commission on Social Determinants of Health, which located health inequities in the unequal distribution of power, income, and education rather than biology alone (Marmot et al., 2008). Physical activity is therefore both a determinant and an indicator of health equity, and international instruments such as UNESCO's International Charter of Physical Education, Physical Activity and Sport frame participation as a fundamental right regardless of gender or ethnicity (UNESCO, 2015), linking the issue directly to Sustainable Development Goals 3, 5, and 10 (United Nations, 2015).

Physical Activity and Women's Health

Regular physical activity reduces women's risk of cardiovascular disease, obesity, hypertension, and certain cancers, while supporting healthier pregnancies and postpartum recovery (Warburton & Bredin, 2017; WHO, 2020). It also yields psychosocial benefits, including reduced depression and anxiety and greater self-esteem and social cohesion (Biddle et al., 2019). Despite these benefits, women consistently report lower activity levels than men worldwide, particularly in low- and middle-income countries (WHO, 2022). Gender norms remain a central determinant: women's disproportionate responsibility for unpaid domestic work leaves little time for leisure, while expectations regarding modesty and mobility further restrict participation (Connell, 2012). Feminist scholarship argues that women's physical activity cannot be explained through biomedical frameworks alone, since it is embedded in family support, education, and public policy (Azzarito et al., 2017); interventions that target individual motivation without addressing these structural conditions have shown limited effectiveness among disadvantaged groups. In India, gender disparities in physical activity are intensified in rural and tribal regions, where patriarchal norms, safety concerns, and weak infrastructure compound one another despite national campaigns such as Fit India and Khelo India.

Tribal Women in India: Sociocultural Context

Recognised constitutionally as Scheduled Tribes, India's more than 700 ethnolinguistic tribal groups share experiences of historical marginalisation, geographical isolation, and limited access to public services (Census of India, 2011). Tribal women sit at the intersection of these disadvantages and gender discrimination, bearing disproportionate responsibility for agricultural labour, fuelwood and water collection, and childcare, work undertaken from

economic necessity rather than for fitness and often accompanied by nutritional deficiency. Anthropological research situates these lives within kinship structures and indigenous ecological knowledge, even as deforestation, migration, and market integration transform traditional livelihoods without corresponding gains in recreational opportunity. Tribal women consistently show poorer outcomes than national averages on anaemia, maternal health, and healthcare utilisation, reflecting the combined effects of poverty, remoteness, and limited institutional responsiveness.

6.4 Gender, Culture, and Physical Activity

Contemporary scholarship attributes disparities in physical activity primarily to socially constructed gender roles and unequal access to resources rather than biological difference (Connell, 2012; WHO, 2022). Feminist scholars describe women's combined productive, reproductive, and community responsibilities as a "double" or "triple burden" that produces time poverty, one of the most significant yet under-recognised barriers to active living (Moser, 1993). In India, norms governing mobility, clothing, and modesty further restrict girls' sporting opportunities from childhood onward, with restrictions often persisting into adulthood (Nanda, 2000). Occupational labour should not be conflated with health-enhancing activity: excessive physical work without adequate nutrition or rest can increase musculoskeletal disorders and fatigue rather than improving fitness (Holtermann et al., 2018), a distinction with direct relevance to tribal women whose heavy workloads are often mistakenly read as evidence of good physical health. Culture also shapes acceptable forms of movement, and programmes that ignore local values and traditions typically achieve low participation, whereas those integrating traditional games, dance, and community festivals demonstrate greater acceptance and sustainability (Macniven et al., 2019). Women's decision-making autonomy and financial independence are similarly associated with greater participation in recreational activity (Jejeebhoy, 2000), while fear of harassment and unsafe public spaces further discourage outdoor exercise (WHO, 2022).

6.5 Sociological Perspectives

Sociology frames physical activity as socially organised behaviour shaped by power relations and institutions rather than individual choice. Intersectionality theory explains how tribal women's gender, ethnicity, poverty, and geographic isolation interact to produce distinctive experiences of marginalisation not reducible to any single dimension (Crenshaw, 1989). Bourdieu's (1984) concepts of habitus, capital, and field further clarify how economic, cultural, and social capital shape access to sport: limited education constrains awareness of preventive health behaviours, economic deprivation restricts access to programmes, and weak transportation reduces participation outside the immediate community. The WHO Social Determinants of Health Framework situates these dynamics within broader conditions of education, employment, and infrastructure (Marmot et al., 2008), while feminist sociology cautions against health promotion that emphasises individual responsibility without addressing unequal domestic workloads (Connell, 2012). Community-designed interventions involving local leaders and women's self-help groups consistently demonstrate greater sustainability than externally imposed programmes.

6.6 Anthropological Perspectives

Anthropology situates physical activity within cultural systems of meaning rather than treating it purely as biomedical behaviour (Kleinman, 1980). Traditional subsistence activities such as farming, forest gathering, and craft production once integrated movement into daily and ritual life, but rapid social transformation has eroded these patterns without corresponding increases in recreational activity. Scholars caution against deficit-based framings of indigenous communities and instead advocate recognising indigenous knowledge, traditional games, and seasonal festivals as culturally meaningful and potentially health-enhancing forms of movement (Macniven et al., 2019). Because tribal women often

draw on both indigenous and biomedical health systems, interventions that ignore local beliefs risk limited acceptance, whereas participatory, community-led approaches that treat women as knowledge holders rather than passive beneficiaries are more likely to achieve sustained engagement, aligning with contemporary calls to decolonise health promotion.

6.7 Government Policies and Programmes

India's National Health Policy (2017) frames health promotion as central to universal health coverage but offers limited guidance on culturally specific interventions for indigenous women (Ministry of Health and Family Welfare [MoHFW], 2017). The Fit India Movement (2019) and Khelo India Programme have expanded awareness and school-based sport nationally, yet evaluations report considerably lower reach in rural and tribal areas due to digital exclusion and weak infrastructure (Kumar & Singh, 2022). The National Education Policy 2020 recognises sport as integral to holistic education, including indigenous games, though implementation in tribal schools remains uneven due to teacher shortages and inadequate facilities (Ministry of Education, 2020). Nutrition- and maternal-health-oriented programmes such as Poshan Abhiyaan and the National Health Mission indirectly support tribal women's health but face logistical and staffing constraints in remote areas (MoHFW, 2021), while Ministry of Tribal Affairs initiatives such as PM-JANMAN address structural determinants like roads and schools without explicitly promoting physical activity. Internationally, the WHO Global Action Plan on Physical Activity 2018-2030 advocates multisectoral approaches to building active societies (WHO, 2018). Across these efforts, existing literature identifies recurring implementation challenges: universal programme designs that overlook tribal cultural diversity, monitoring systems focused on service delivery rather than behavioural outcomes, and weak coordination across health, education, and tribal welfare departments.

7. Theoretical Framework

This review integrates five complementary perspectives. The Social Ecological Model situates physical activity within individual, interpersonal, community, institutional, and policy levels, emphasising that sustainable change requires coordinated multilevel intervention (Sallis et al., 2015). Intersectionality theory explains how gender, tribal identity, poverty, and geographic isolation combine to produce distinctive barriers rather than acting in isolation (Crenshaw, 1989). Bourdieu's (1984) theory of practice highlights how economic, cultural, and social capital, together with habitus, shape opportunities for active living. The Capability Approach (Sen, 1999) reframes health equity as the expansion of women's real freedoms, including time autonomy, safety, and supportive social norms, rather than the mere provision of facilities. Finally, the WHO Social Determinants of Health Framework (Marmot et al., 2008) situates education, employment, housing, and governance as upstream influences on both physical activity and broader health outcomes. Synthesising these perspectives, the review proposes a pathway in which structural inequalities shape gender norms and cultural practices, which in turn condition access to resources such as time, infrastructure, and family support; this access determines participation in physical activity, which subsequently influences physical, mental, and social health outcomes and, ultimately, health equity and women's empowerment. This integrated framework guides the interpretation of evidence throughout the review.

8. Methodology

This review employed a systematic review methodology to synthesise evidence on sociocultural barriers to physical activity among tribal women in India, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines (Page et al., 2021) and standards recommended by the Cochrane Handbook. Because the available literature consists primarily of observational, qualitative, ethnographic, and policy-based studies, a qualitative narrative synthesis was undertaken rather than

statistical meta-analysis, given the heterogeneity of designs, outcome measures, and definitions of physical activity. A review protocol specifying research questions, eligibility criteria, and synthesis procedures was developed before the literature search; the protocol was not prospectively registered in PROSPERO, as the review addresses interdisciplinary sociocultural rather than clinical interventions.

Searches covered Scopus, Web of Science, PubMed/MEDLINE, SPORTDiscus, Google Scholar, JSTOR, ScienceDirect, Taylor & Francis Online, SpringerLink, and SAGE Journals, supplemented by grey literature from the WHO, United Nations, UNESCO, and relevant Indian ministries, along with NFHS and NSSO reports. The primary search string combined terms for tribal or indigenous women ("tribal women" OR "indigenous women" OR "Scheduled Tribe*" OR "Adivasi women"), physical activity ("physical activity" OR exercise OR sport OR fitness OR "physical education"), sociocultural determinants (gender OR culture OR sociocultural OR anthropology OR sociology), and India, combined with Boolean operators. Backward and forward citation tracking supplemented database searching.

Studies were included if they examined tribal or Scheduled Tribe women in India, addressed physical activity, exercise, sport, or fitness, explored sociocultural or structural determinants, reported original empirical findings or systematic reviews, were peer-reviewed, were available in English, and were published between 2000 and 2025. Studies focused solely on clinical treatment, male populations, non-Indian indigenous groups without comparative value, or lacking peer review were excluded. Selection followed the four-stage PRISMA process of identification, screening, eligibility assessment, and inclusion, with two independent screening rounds and documented reasons for exclusion.

A standardised extraction form captured bibliographic details, study location and tribal community, design, sample characteristics, physical activity indicators, sociocultural barriers and facilitators, policy relevance, and limitations. Qualitative studies were appraised using the Critical Appraisal Skills Programme checklist (CASP, 2018), and quantitative studies using Joanna Briggs Institute checklists (JBI, 2020), with each study classified as high, moderate, or low quality; quality appraisal informed interpretive weighting rather than automatic exclusion.

Given heterogeneity across studies, evidence was integrated through thematic narrative synthesis (Popay et al., 2006), proceeding through familiarisation, initial coding, theme development, and interpretation through the theoretical framework in Section 7. As a review of published literature, no ethical approval was required, though APA 7th edition referencing and transparent, reproducible reporting were maintained throughout. Limitations include restriction to English-language sources, heterogeneity precluding meta-analysis, possible publication bias affecting unindexed grey literature, and the descriptive rather than causal nature of the synthesised evidence.

Thematic synthesis of the included literature identified nine recurring themes. First, structural inequalities in education, income, and infrastructure consistently underpinned other barriers, limiting awareness of and access to organised physical activity. Second, gender norms and time poverty emerged as the most pervasive constraint, with domestic and caregiving responsibilities leaving little discretionary time for recreational movement. Third, the literature consistently distinguished occupational labour from health-enhancing activity, showing that physically demanding subsistence work frequently coexists with, rather than prevents, chronic fatigue and musculoskeletal strain. Fourth, weak sports infrastructure, absent female coaches, and unsafe public spaces were repeatedly identified as environmental barriers specific to remote tribal regions. Fifth, cultural expectations regarding modesty, marriage, and motherhood shaped the perceived appropriateness of women's participation in organised sport, though these norms varied considerably across the more

than 700 tribal communities studied. Sixth, indigenous knowledge systems, traditional games, and community festivals emerged as underused but promising vehicles for culturally acceptable physical activity promotion. Seventh, government programmes such as Fit India, Khelo India, and the National Education Policy 2020 demonstrated measurable achievements at the national level but limited penetration into tribal areas due to infrastructural and communication gaps. Eighth, women's autonomy, educational attainment, and household decision-making power were positively associated with participation across multiple studies, reinforcing the relevance of the Capability Approach. Ninth, community-led and participatory interventions consistently outperformed externally designed programmes in terms of acceptance and sustainability. Collectively, these themes indicate that physical inactivity among tribal women is best understood as a socially produced outcome of intersecting structural and cultural constraints rather than a matter of individual choice.

Discussion

The synthesised evidence confirms that physical activity among tribal women cannot be separated from the broader structures of gender inequality, poverty, and cultural expectation documented across the sociological and anthropological literature. The recurring conflation of occupational labour with health-enhancing activity is particularly significant, since policies that assume tribal women are already sufficiently active risk overlooking their heightened vulnerability to musculoskeletal disorders and chronic fatigue (Holtermann et al., 2018). At the same time, the consistent success of culturally grounded interventions, such as those incorporating traditional games and community festivals, suggests that health-enhancing movement need not be imported wholesale from urban, biomedical models; indigenous practices already carry considerable public health value if recognised and supported rather than displaced (Macniven et al., 2019). The gap between well-intentioned national programmes and their limited reach in tribal areas mirrors broader critiques of universal policy design that fails to account for geographic and cultural diversity (Solar & Irwin, 2010). These findings collectively support the review's interdisciplinary theoretical framework: interventions confined to a single level, whether individual motivation campaigns or infrastructure provision alone, are unlikely to succeed without corresponding attention to gender norms, women's autonomy, and community ownership. The scarcity of longitudinal and participatory research, noted throughout the literature review, limits confidence in causal claims and underscores the need for future studies that move beyond cross-sectional description toward evaluating specific culturally responsive interventions over time.

Conclusion

This systematic review demonstrates that sociocultural barriers, rather than individual preference or biological limitation, primarily explain the low participation of tribal women in health-enhancing physical activity in India. Gendered time poverty, restrictive cultural norms, weak infrastructure, and fragmented policy implementation intersect with the structural disadvantages of tribal identity to produce persistent inequities in health and well-being. Addressing these inequities requires culturally responsive, gender-sensitive, and community-driven interventions that recognise indigenous knowledge systems, integrate traditional games and festivals into physical education programming, strengthen safe and accessible sports infrastructure in remote regions, expand female coaching capacity, and improve intersectoral coordination among health, education, sports, and tribal welfare departments. Future research should adopt longitudinal, mixed-method, and participatory designs capable of capturing the diversity of India's more than 700 tribal communities and rigorously evaluating intervention effectiveness. Ultimately, improving health equity for tribal women is inseparable from broader commitments to gender justice and inclusive development articulated within Sustainable Development Goals 3, 5, and 10.

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