

Original Article

Women Empowerment Through Home Science Education for Sustainable Living

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Abstract

Women constitute nearly half of the human resource of the nation, and their empowerment is now recognised as a precondition for sustainable development rather than a mere welfare concern. Home Science, as an applied and multidisciplinary field of study, occupies a unique position in this regard because it carries scientific knowledge directly into the household, where most decisions concerning food, health, expenditure, energy and waste are taken. The present paper reviews the contribution of Home Science education to the empowerment of women and to the promotion of sustainable living in the Indian context. Drawing upon national data sources such as the National Family Health Survey (NFHS-5), the Periodic Labour Force Survey and the reports of the Deendayal Antyodaya Yojana–National Rural Livelihoods Mission, the paper examines how the five branches of Home Science build capabilities in nutrition, resource management, textiles, human development and extension, and how these capabilities translate into economic independence, improved household decision-making and environmentally responsible practices. The paper also identifies the challenges of low awareness, declining enrolment and persisting gender norms, and offers suggestions for strengthening the discipline as an instrument of inclusive and sustainable national development in the journey towards a developed India by 2047.

Keywords: Women Empowerment, Home Science, Sustainable Living, Skill Development, Entrepreneurship, Sustainable Development Goals

Introduction

Women represent a major potential human resource for the overall development of a nation. In the Indian household it is the woman who plans the meals, manages the water and fuel, nurses the sick, educates the young and stretches a limited income to meet unlimited needs. Yet for generations this daily labour of management remained invisible, unpaid and unsupported by formal education. The recognition that no country can achieve sustainable development while half of its population remains educationally and economically constrained is now firmly established in international policy. The 2030 Agenda for Sustainable Development places gender equality as Goal 5 and treats the empowerment of women as a cross-cutting condition for achieving all the seventeen goals (United Nations, 2015). Home Science education stands at the meeting point of these two concerns.

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It is the only discipline in the Indian university system whose subject matter is the home itself its food, its finances, its fabrics, its children and its relationship with the community and the environment. By converting the traditional responsibilities of women into fields of scientific study and remunerative skill, Home Science transforms the household from a site of unrecognised drudgery into a site of empowerment. The present paper reviews this transformative role of the discipline, with particular attention to sustainable living, and situates the discussion within the national aspiration of building a self-reliant and developed India by 2047.

Objectives of the Paper

1. To examine the concept of women empowerment and its relationship with sustainable development.
2. To review the scope of Home Science education and its contribution to the empowerment of women.
3. To analyse the sustainable living practices promoted through the different branches of Home Science.
4. To identify the challenges before the discipline and to suggest measures for strengthening its role.

Women Empowerment: Concept and Present Status

Empowerment is commonly understood as the expansion of the ability of women to make strategic life choices in contexts where this ability was previously denied to them. Kabeer (1999) analyses empowerment in terms of three inter-related dimensions resources, agency and achievements and this framework remains the most widely accepted in development literature. Resources include education, skills, income and assets; agency refers to the capacity to define goals and act upon them; and achievements are the improvements in well-being that result. Batliwala (1994) further reminds us that empowerment is a process of challenging existing power relations and not merely a matter of delivering services to women. The present status of Indian women shows encouraging progress alongside persisting gaps.

According to the National Family Health Survey (NFHS-5, 2019–21), 88.7 per cent of currently married women participate in major household decisions, and 78.6 per cent of women have a bank or savings account that they themselves use, a remarkable improvement over the previous round of the survey (IIPS & ICF, 2021). The female labour force participation rate, which had declined for many years, has risen to 41.7 per cent according to the Periodic Labour Force Survey of 2023–24 (MoSPI, 2024). At the same time, NFHS-5 reports that 57 per cent of women in the reproductive age group are anaemic, and a large share of working women remain confined to unpaid or low-paid work. These figures indicate that access to resources is improving, but the conversion of resources into agency and well-being requires precisely the kind of applied education that Home Science provides.

Scope of Home Science Education

Home Science, now increasingly designated as Family and Community Sciences, is a multidisciplinary field organised around five branches: Foods and Nutrition, Human Development and Family Studies, Resource Management, Textiles and Clothing, and Extension Education and Communication. The discipline entered Indian higher education in the early decades of the twentieth century, with Lady Irwin College, New Delhi, established in 1932 as the first institution devoted to it, and it has since spread to state universities, agricultural universities and government degree colleges across the country, including the women's colleges of Andhra Pradesh. What distinguishes Home Science from other sciences is its applied orientation. A student of the discipline does not merely study the chemistry of food; she learns to plan a balanced diet within a fixed budget. She does not merely study economics; she learns household accounting, time management and consumer protection. She does not merely study child psychology; she learns to run a preschool and to counsel families. Every branch of the syllabus terminates in a skill that can be practised in the home, offered as a service in the community, or converted into an enterprise. It is

this seamless movement from knowledge to skill to livelihood that makes the discipline a natural instrument of women empowerment.

Home Science and Sustainable Living

Sustainable living means adopting patterns of consumption and household management that satisfy present needs without depleting the resources of future generations. The household is the smallest unit of the economy, and the aggregate of millions of household decisions determines the environmental behaviour of the nation. Since these decisions are largely taken by women, education that reaches women reaches the environment. The contribution of each branch of Home Science to sustainable living may be reviewed as follows.

1. Sustainable Nutrition

The Foods and Nutrition branch trains women to plan balanced diets based on locally available, seasonal and minimally processed foods. The Dietary Guidelines for Indians issued by the ICMR–National Institute of Nutrition emphasise diet diversity, the use of millets and pulses, and the restriction of ultra-processed foods high in fat, sugar and salt (ICMR–NIN, 2024). These recommendations are simultaneously nutritional and environmental, since local and plant-forward diets carry a smaller ecological footprint than diets dependent on long supply chains. The Eat Right India movement of the Food Safety and Standards Authority of India has carried the same message of safe, healthy and sustainable food to the general public (FSSAI, 2018), and Home Science graduates serve as its natural ambassadors in schools, anganwadis and self-help groups.

2. Resource Management

The Resource Management branch teaches the scientific use of the four fundamental household resources money, time, energy and human effort. Family budgeting, savings behaviour, work simplification and the selection of energy-efficient equipment are standard components of the syllabus. A woman trained in these principles' conserves electricity and cooking fuel, harvests and reuses water, avoids wasteful consumption and builds household savings. Such micro-level conservation, multiplied across households,

contributes directly to the national goals of energy security and responsible consumption embodied in Sustainable Development Goal 12.

3. Waste Management

Home Science education promotes segregation of waste at source, composting of kitchen and garden waste, and the reduction of food wastage through scientific meal planning, preservation and storage. These practices support the implementation of the Solid Waste Management Rules, 2016, which place the responsibility of source segregation upon every household. Kitchen gardening and vermicomposting, which are taught as practicals in most Home Science colleges, close the nutrient loop within the household itself and reduce the burden on municipal systems.

4. Sustainable Textiles and Clothing

The Textiles and Clothing branch cultivates an understanding of fibres, dyes and garment construction that naturally leads to sustainable choices preference for natural and durable fabrics, care practices that extend garment life, and the renovation, reuse and upcycling of clothing. In an age of fast fashion, in which garments are discarded after minimal use, this training revives the traditional Indian ethic of thrift and gives it a modern scientific basis. It also opens avenues of livelihood in tailoring, dyeing, embroidery and the making of value-added products from textile waste.

5. Human Development and Extension

The Human Development branch prepares women for the scientific care of children and the elderly, while Extension Education equips them to carry knowledge into the community through demonstrations, campaigns and training programmes. An empowered Home Science graduate does not keep her knowledge within her own kitchen; she becomes a multiplier who transmits sustainable practices to neighbours, self-help groups and village institutions. Extension is, in this sense, the branch that converts individual empowerment into social transformation.

Skill Development, Entrepreneurship and Economic Empowerment

Economic independence is the foundation upon which all other dimensions of empowerment

rest. Home Science education generates income-earning capability through skills such as food processing and preservation, bakery and confectionery, tailoring and dress designing, interior decoration, crèche and preschool management, dietetics and nutrition counselling. These skills are particularly suited to women because they permit home-based and flexible enterprise, requiring modest capital and drawing upon competencies that women already partially possess. The institutional environment for converting these skills into enterprises has never been more favourable. The Deendayal Antyodaya Yojana–National Rural Livelihoods Mission has mobilised about ten crore rural households into nearly ninety lakh women self-help groups, creating the largest platform of organised women in the world (Ministry of Rural Development, 2024). Schemes such as the Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PM-FME) and MUDRA loans provide credit and formalisation support to precisely the food-based and craft-based micro-enterprises for which Home Science trains its students. The Food and Agriculture Organization has estimated that closing the gender gap in access to productive resources could raise agricultural output in developing countries significantly and reduce the number of undernourished people in the world (FAO, 2011); the same logic applies with equal force to household and micro-enterprise production. When a Home Science graduate establishes a pickle unit, a tailoring centre or a preschool, she not only earns an income but also acquires the confidence, mobility and decision-making authority that constitute empowerment in its fullest sense.

Government Initiatives Supporting Women Empowerment and Sustainability

Several national programmes converge with the objectives of Home Science education. The Skill India Mission and the Pradhan Mantri Kaushal Vikas Yojana provide certified vocational training in trades such as apparel, food processing and beauty and wellness, in which women predominate. POSHAN Abhiyaan, the national nutrition mission, seeks to reduce stunting,

undernutrition and anaemia, and depends for its success upon community-level workers with sound nutritional knowledge. Beti Bachao Beti Padhao addresses the survival and education of the girl child, while the Eat Right India movement and the promotion of millets following the International Year of Millets 2023 advance sustainable diets. Home Science departments and their graduates are natural implementation partners for every one of these programmes, and closer institutional linkage between the discipline and these missions would multiply the returns on both.

Challenges

The discipline nevertheless faces serious challenges. The first is one of perception: Home Science continues to be misunderstood as mere cookery and stitching, a prejudice that depresses enrolment and denies the field the academic esteem it deserves. The second is access: colleges offering the subject are concentrated in towns, while the rural women who would benefit most from it remain outside its reach. The third is financial: many girls from poor households discontinue education before reaching the stage at which vocational competence is achieved. The fourth is structural: even trained women face restrictive social norms, limited mobility and inadequate access to credit and markets, so that skill does not automatically become enterprise. Finally, the curriculum itself requires continuous renewal so that emerging themes such as climate-resilient diets, renewable household energy and digital marketing of home products find their proper place in it.

Suggestions and the Way Forward

In the light of the foregoing review, the following measures are suggested. Home Science should be introduced and strengthened at the school level for both girls and boys, so that household sustainability becomes a shared responsibility rather than a gendered burden. Degree colleges should establish incubation and placement cells that link final-year students with PM-FME, MUDRA and self-help group federations, converting classroom skill into registered enterprise. Extension departments should adopt

villages and conduct regular training in composting, kitchen gardening, water conservation and nutrition, thereby extending the benefits of the discipline beyond its enrolled students. Digital platforms and community radio should be used to carry certified skill courses to rural women who cannot attend college. Finally, the discipline should be repositioned in public communication as Family and Community Science an applied science of sustainable living so that its enrolment, funding and research base grow in keeping with its national importance.

Conclusion

The empowerment of women and the sustainability of living are not two separate goals but one goal seen from two sides, and Home Science education is the bridge that joins them. By giving scientific foundation and economic value to the work that women have always done, the discipline converts the household into a classroom, the kitchen into a laboratory and the homemaker into an earner, a manager and an agent of environmental change. The national data reviewed in this paper show that Indian women are steadily gaining access to education, financial inclusion and organised collective strength; what remains is to equip this vast womanpower with applied knowledge and marketable skill. Home Science education, suitably strengthened and modernised, is uniquely fitted for this task. Investing in it is therefore an investment in healthier families, greener households and a more inclusive economy the essential foundations of a sustainable and developed India by 2047.

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Conflicts of interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

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