
CIRCULAR FASHION IN INDIA: RETHINKING APPAREL DISPOSAL FOR A SUSTAINABLE CLOTHING ECONOMY

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Abstract

Global textile consumption is estimated to exceed 110 million tons annually as of 2024, creating profound environmental and social challenges within the fashion supply chain. In India, a country with a rich textile heritage but also rising fast-fashion consumption, apparel disposal has become a pressing concern. This study examines clothing consumption and disposal patterns among men in Kannur, India, through an ethnographic approach involving wardrobe observations and semi-structured interviews (n=104, 100% male participants). The objective was to understand everyday practices of garment use, disposal choices, and perceptions of sustainability. The findings reveal limited awareness of circular fashion concepts, with T-shirts being the most frequently purchased and disposed of item, followed by jeans, shirts, and trousers. The findings reveal limited awareness of circular fashion concepts, with T-shirts being the most frequently purchased and disposed of item (11.8 items owned, 5.77 disposed annually), followed by jeans, shirts, and trousers. Despite traditional practices of reuse and donation (52.5% donate to charities), there is no systematic post-consumer disposal channel for these key wardrobe items. The lack of accessible repair, refurbishment, and resale options from brands further restricts sustainable practices. Additionally, consumer behavior is shaped by convenience, affordability, and style preferences rather than sustainability considerations, highlighting a gap between awareness and action. To enable circular fashion, research on recycling blended materials and the creation of reverse supply chains is critical. Incentivized return systems supported by Extended Producer Responsibility frameworks could promote clothing recovery. The study concludes that embedding circularity in apparel disposal requires collaborative effort from consumers, policymakers, and industry to establish infrastructure, provide incentives, and normalize sustainable practices. By leveraging India's traditions of reuse alongside modern recycling innovations, a sustainable clothing economy can be achieved, positioning the country as a leader in global circular fashion

Keywords: *Apparel disposal; Circular fashion; Consumer behavior; Extended Producer Responsibility; Recycling; Sustainable clothing economy; Textile waste*

1. INTRODUCTION

The global fashion industry is undergoing a critical juncture. With textile consumption exceeding 110 million tons annually and textile waste constituting a significant portion of global landfills, the need for sustainable alternatives has never been more urgent. The situation is especially complicated in India, which is the second-largest producer and consumer of textiles worldwide. India has a long history of

reusing and repairing textiles, but the fast-fashion industry's explosive growth has drastically changed disposal habits, particularly among younger generations. The textile industry contributes approximately 10% of global carbon emissions and consumes vast amounts of water, pesticides, and chemicals. However, the post-consumer phase—what happens to garments after use—remains largely unexamined in India. Unlike developed nations with established take-back systems and recycling infrastructure, India lacks comprehensive mechanisms for collecting, sorting, and processing used apparel. Informal systems of collection and informal resale networks exist but operate outside regulatory and tracking frameworks. This research focuses on understanding how Indian men conceptualize and practice garment disposal, with particular attention to age-based and profession-based consumption patterns. By examining the gap between awareness and action regarding sustainable disposal, this study identifies critical intervention points for establishing circular fashion in India.

2. REVIEW OF LITERATURE AND BACKGROUND

The Global Textile Waste Crisis

Approximately 92 million tons of textile waste are generated globally each year, with an estimated USD 500 billion in value lost due to underutilization and lack of recycling (Ellen MacArthur Foundation, 2017). In India, textile waste generation is estimated at 5–6 million tons annually, with approximately 87% ending up in landfills or being informally incinerated, contributing to environmental degradation and health hazards.

Fast Fashion in India

India's consumption patterns have shifted dramatically over the past two decades. The rise of e-commerce, social media influence, and affordable fast-fashion brands has accelerated the fashion consumption cycle. Young Indians (18–35 years) now purchase clothing at significantly higher rates than previous generations, driven by social media trends, aspirational consumption, and the accessibility of affordable garments. Consumers, who regularly buy clothes, dispose off their clothes more often without thinking about the best practices of getting rid of them in a sustainable manner so it may cause problems of environmental pollution (Kamis, A., Marcketti, S., Na'am, M., & Jahyuningsih, 2019).

Circular Fashion Framework

Circular fashion conceptualizes clothing as part of a closed-loop system where garments are designed, used, and recovered for reuse or recycling rather than disposal. The Ellen MacArthur Foundation (2017) and the United Nations Environment Programme (UNEP) identify circular fashion as critical to achieving sustainable development goals. Key circular strategies include:

- Extended Producer Responsibility (EPR)
- Design for durability and repairability
- Take-back and recycling systems
- Collaborative supply chains

Consumer Behavior and Disposal Patterns

Research on consumer disposal behavior reveals complex decision-making influenced by emotional attachment, convenience, social norms, and awareness. Studies in developed nations show that despite awareness of sustainability, convenience remains the primary driver of disposal choices (Bauer et al.,

2019). In India, however, research on male consumer behavior regarding apparel disposal is limited, particularly in non-metropolitan contexts.

Extended Producer Responsibility (EPR)

EPR frameworks assign responsibility to producers for managing end-of-life products. The EU's Extended Producer Responsibility Directive has successfully reduced textile waste in member nations. India has not yet implemented mandatory EPR for textiles, representing a significant gap in circular fashion infrastructure.

3. Methodology

Research Design

This research study employed a mixed-methods ethnographic approach combining qualitative wardrobe observations with semi-structured interviews at the homes of the participants (Klepp I.G. & Bjerck, M.,2014). and quantitative survey data. This phase aimed to observe and analyze their wardrobe composition, decision-making, acquisition, storage, usage of clothing, and disposal patterns based on the consumer household logistic system of Boyd and McConocha (1996). Eminent researchers like Verhulst et al. (2007) and Manzini (1994) have reported that that human aspects play an important role in the change process toward more sustainable practices. To gain more knowledge researchers need to study individuals, consumption, and consumer behaviour through a socio-psychologically enriched understanding

Participant Profile

Total Participants: 104 men from Kannur, Kerala, India

Table 1. Participants' Profile

Demographic Variables	Category	Percentage (%)
Gender	Male	100%
Age	16–25 Years	38%
	26–35 Years	18%
	36–45 Years	14%
	46–60 Years	28%
	Above 60 Years	2%
Education	Bachelor's Degree	27%
	Diploma / Plus Two	35%
	Doctorate Degree	2%
	Master's Degree	21%
	Student	15%
	Employed	59%

Participants from different profession	Retired	1%
	Self-employed / Own Business	25%
	Student	15%
Monthly Income	Less than ₹50,000	52%
	₹50,000 – 1 Lakh	28%
	₹1 Lakh – 2 Lakhs	12%
	Above ₹2 Lakhs	10%

Data Collection Methods

- **Wardrobe Inventory Recording:** Participants documented clothing items owned, including type, age, and condition.
- **Disposal Pattern Tracking:** Participants recorded how they disposed of garments over a 12-month period.
- **Semi-Structured Interviews:** In-depth interviews explored motivations, barriers, and perceptions of sustainable disposal.
- **Quantitative Survey:** A structured questionnaire captured consumption frequencies, disposal methods, and sustainability awareness levels.

Data Analysis

Quantitative data were analyzed using descriptive statistics to identify patterns by age group, profession, and clothing type. Qualitative data from interviews were analyzed using thematic analysis to identify recurring patterns in disposal behavior, motivations, and barriers to circular practices.

4. RESULTS AND DISCUSSION

Age-Wise Clothing Ownership and Disposal Patterns

Table 2. Age-Wise Clothing Ownership and Disposal Patterns

Age Group	Avg. Items Owned	Avg. Disposed/Year	Dominant Clothing Types	Key Behavior
18–25 years	42	8.5	T-shirts, jeans, athleisure	Trend-driven, frequent shopping
26–35 years	38	6.8	Formals, casual shirts	Balanced professional-casual mix
36–45 years	33	5.2	Formals, trousers	Durable-use, functional shopping

46–60 years	29	3.1	Shirts, trousers	Conscious consumption, reuse
60+ years	22	2.0	Traditional wear, casuals	Minimal buying, long lifespan

Findings:

- Younger age groups (18–25 years) demonstrate the highest ownership (42 items) and disposal rates (8.5 items/year), primarily driven by fashion trends and social media influence.
- Working professionals (26–35 years) maintain moderate but stable wardrobes, balancing professional requirements with personal style.
- Consumption decreases significantly after age 45, with individuals aged 60+ owning only 22 items on average and disposing of just 2 items annually.
- Older demographics show higher rates of repair, reuse, and storage, reflecting traditional Indian practices of garment conservation.

Profession-Wise Clothing Consumption and Disposal

Table 3. Profession-Wise Clothing Consumption Patterns

Profession	Avg. Items Owned	Avg. Disposal/Year	Dominant Clothing Types
Students	40	9	T-shirts, jeans, athleisure
Working Professionals	52	7	Formal shirts, trousers
Business Owners	48	6	Formals, ethnic wear
Skilled Workers / Labour	28	3	Workwear, uniforms
Self-employed / Freelancers	35	5	Casual, multipurpose wear

Findings:

- Working professionals own the largest wardrobes (52 items) driven by formal dress codes and workplace expectations.
- Students show the highest disposal rates (9 items/year) due to active lifestyles, frequent washing, and fashion-driven replacement cycles.
- Skilled workers and labourers have the lowest ownership (28 items) but demonstrate the highest clothing utilization rates due to heavy daily use and workwear requirements.
- Business owners maintain multi-category wardrobes (formal, ethnic, semi-formal) to meet diverse social and professional contexts.

Clothing Type-Wise Ownership, Wear Frequency, and Disposal

Table 4. Clothing Type-Wise Ownership, Wear Frequency, and Disposal

Clothing Type	Avg. Owned	Wear Freq./Week	Disposed/Year	Avg. Lifespan (Months)
T-shirts	11.8	4	5.77	15
Jeans	5.8	3	3.63	31.5
Formal/Casual Shirts	12.9	4	3.85	34.5
Shorts	5.4	3	2.12	18.2
Trousers / Pants	7.1	4	2.63	36
Ethnic Wear	6.4	0.5	2.89	30
Suits	1.1	1	0.22	60
Workwear / Uniforms	1.9	6	1.26	12
Athleisure / Sportswear	3.8	4	1.83	12.5

Findings:

- **T-shirts** dominate wardrobes (11.8 items) but have the shortest lifespan (15 months) and highest disposal rate (5.77/year), indicating rapid wear-out from frequent washing and wear.
- **Jeans and trousers** show remarkable durability (31.5–36 months lifespan) and lower disposal rates despite frequent wearing (3–4 times/week).
- **Formal/casual shirts** are heavily invested in (12.9 items) due to professional and social requirements, with moderate lifespan (34.5 months).
- **Workwear and uniforms** experience the fastest deterioration (12 months) due to intensive daily use (6 times/week) and harsh washing.
- **Suits and ethnic wear** have the longest lifespan (60 and 30 months respectively) due to infrequent use and high perceived value.
- **Athleisure** has a short lifespan (12.5 months) due to high friction, frequent washing, and elastane degradation.

Disposal Methods and Circular Practices

Table 5. Disposal Methods and Participation Rates

Disposal Method	Participants (%)
Donation (Charity / others)	52.5
Pass to family / friends	7.5

Keep in storage	10
Discard in trash	15
Sell online/thrift stores	5
NGO/ Panchayat Collection Centers	10
Repurpose / Upcycle	2.5
Recycle (formal programs)	2.5
Collection at doorstep services	2.5
Brand buy-back programs	0

Findings:

- **Donation (52.5%)** is the dominant disposal method, reflecting traditional Indian practices of sharing and charity.
- **Landfill disposal (15%)** represents a significant concern, highlighting gaps in awareness and convenient alternatives.
- **Storage (10%)** indicates emotional attachment and potential for future reuse but represents wasted storage resources.
- **Formal circular practices are minimal:** Only 2.5% engage in repurposing/upcycling, 2.5% use formal recycling programs, and 0% participate in brand buy-back schemes.
- **Commercial resale (5%)** remains limited despite growing online platforms, indicating untapped potential for circular economy models.

Consumer Awareness and Barriers to Circular Practices*Awareness Levels:*

- 68% of participants lack knowledge of structured recycling programs or circular fashion concepts.
- 75% are unaware of Extended Producer Responsibility (EPR) or brand take-back initiatives.
- Only 32% view sustainability as an important factor in disposal decisions.

Main Barriers Identified:

- **Convenience:** Donating remains the easiest option; formal recycling requires effort and knowledge.
- **Lack of Infrastructure:** No accessible collection points, particularly in non-metropolitan areas like Kannur.
- **Limited Incentives:** No financial or social rewards for sustainable disposal.
- **Emotional Factors:** Difficulty letting go of clothing despite non-use; storage as a coping mechanism.
- **Low Demand for Recycled Products:** Limited consumer interest in recycled apparel due to perceived quality concerns.

Discussion

Integration of Findings:

This study presents a complex picture of clothing consumption in India, where new fast-fashion consumption trends coexist with long-standing reuse customs. The striking disparities between age groups point to generational changes in attitudes regarding consumption and apparel.

Age Cohort Analysis:

The 18–25 age group's high consumption (42 items, 8.5 disposed/year) reflects global trends of social media-driven fashion awareness and aspirational consumption. In contrast, the 60+ demographic's minimal consumption (22 items, 2 disposed/year) reflects values of durability, repair, and resource conservation rooted in scarcity-driven generations.

This presents both a challenge and an opportunity. While younger consumers drive high disposal volumes, they also demonstrate greater digital literacy and openness to new platforms. Circular fashion initiatives targeting this group through online resale platforms and mobile-based incentive programs could significantly impact waste reduction.

Profession-Based Insights:

Working professionals contribute disproportionately to consumption due to formal dress codes and workplace social expectations. This demographic could be targeted through employer-led circular initiatives, such as workplace garment collection drives or professional wardrobe exchange platforms.

Students, despite high disposal rates, show sensitivity to cost and value. Peer-to-peer resale platforms and thrift culture could resonate strongly with this group, particularly if framed as both sustainable and economical.

Clothing Type-Specific Interventions:

The shortest lifespans for T-shirts, workwear, and athleisure indicate material durability issues. Investment in research on durable T-shirt fabrics, antimicrobial workwear treatments, and high-performance athleisure could extend product life and reduce disposal rates.

Conversely, items with long lifespans (jeans, formal shirts, trousers) demonstrate that when garments are designed well, consumers keep them. This validates the "design for durability" principle of circular fashion.

Disposal Behavior Gaps:

The dominance of donation (52.5%) reflects strong social networks and traditional Indian values of sharing. However, the 15% landfill disposal rate indicates a significant segment with no accessible alternatives. This gap represents a critical intervention point for circular fashion infrastructure development.

The near-zero participation in brand buy-back programs (0%) suggests that Indian brands have not invested in reverse supply chains or consumer incentive programs, unlike global brands like Patagonia or H&M's garment collection initiatives.

5. CONCLUSION AND FUTURE SCOPE

Conclusion

This study reveals that while traditional practices of reuse and donation persist in India, emerging fast-fashion consumption patterns have created challenges for systematic apparel waste management. Consumer behavior is driven primarily by convenience, cost, and fashion trends rather than sustainability considerations, resulting in a significant gap between awareness and action.

Findings indicate that:

1. **Age-based consumption differences are pronounced:** Younger consumers show significantly higher ownership and disposal rates driven by fashion trends, while older demographics demonstrate sustainable practices rooted in values of conservation and repair.
2. **Profession influences wardrobe composition and disposal rates:** Working professionals maintain larger wardrobes driven by formal requirements, while skilled workers show the highest clothing utilization and lowest ownership.
3. **Clothing type determines lifespan:** T-shirts and workwear have short lifespans (12–15 months) due to material limitations and use intensity, while well-designed jeans and formal wear last significantly longer (31–36 months).
4. **Informal systems dominate:** Traditional donation channels (52.5%) far exceed formal circular practices such as recycling (2.5%) or brand take-backs (0%), indicating both reliance on informal networks and lack of formalized infrastructure.
5. **Significant barriers exist:** Limited awareness (68% unfamiliar with recycling programs), lack of accessible infrastructure, and insufficient consumer incentives prevent broader adoption of circular practices.

Recommendations for Embedding Circular Fashion in India

For Policymakers:

- Implement mandatory Extended Producer Responsibility (EPR) frameworks requiring brands to manage end-of-life garments.
- Establish incentive programs (tax breaks, subsidies) for investment in recycling infrastructure.
- Regulate landfill disposal of textiles to redirect waste to formal channels.
- Fund research into mechanical and chemical recycling technologies suitable for blended fabrics prevalent in Indian markets.

For Industry and Brands:

- Develop accessible take-back systems through retail networks and e-commerce platforms.
- Invest in circular business models such as rental, resale, and repair services.
- Design for durability and repairability, particularly for frequently replaced items like T-shirts and workwear.
- Implement Extended Producer Responsibility strategies across product lines.

For Consumers:

- Support local resale platforms and second-hand fashion.
- Invest in quality, durable garments to reduce replacement cycles.
- Participate in repair and upcycling initiatives within communities.
- Engage with organized collection systems for end-of-life garments.

Future Research Directions

1. **Scaling Research:** Extend studies to other regions and demographic groups (women, urban populations) to build comprehensive national understanding.
2. **Material Science:** Investigate durability improvements for high-replacement items and viability of recycling India's prevalent cotton-polyester blends.
3. **Technology Integration:** Explore digital solutions (blockchain for traceability, AI-driven sorting) for formalizing informal textile waste systems.
4. **Behavioral Interventions:** Test pilot programs (gamified incentives, social marketing) to shift consumer behavior toward sustainable disposal.
5. **Policy Impact Studies:** Evaluate effectiveness of EPR frameworks and circular fashion initiatives post-implementation.

Final Thoughts

India stands at a crossroads where its rich heritage of garment reuse and repair can be integrated with modern circular economy principles and technologies. By combining traditional values with innovative infrastructure, policy support, and consumer engagement, India can emerge as a global leader in sustainable fashion. The findings of this study provide a foundation for developing context-specific circular fashion strategies that respect cultural practices while addressing contemporary environmental imperatives.

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