RESEARCH PAPER

Healing the Supply Chain: How Visible Sustainable Logistics and Perceived Health Alignment Drive Brand Equity in Pharma Retail

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ABSTRACT

This research investigates the mediating role of perceived health alignment in the relationship between visible sustainable logistics and brand equity within the pharmaceutical sector. Through a quantitative analysis, this study aims to validate how transparent and authentic ethical practices in the supply chain and environmental responsibility within pharmaceutical logistics contribute to consumer trust and perceptions of brand integrity, thereby strengthening overall brand equity This paper hypothesizes that pharmaceutical companies that visibly integrate sustainable practices into their logistics operations will enhance perceived health alignment among consumers, consequently amplifying their brand equity by fostering greater trust and loyalty. Specifically, this study will explore how sustainable shipping practices in the pharmaceutical industry influence shippers' perceived value and trust, ultimately enhancing loyalty and brand equity This research also examines the influence of sustainability on competitive advantage and operational efficiency in the pharmaceutical supply chain, building upon existing frameworks for sustainable logistics service quality . By leveraging the Natural Resource-Based View and Contingency Theory, this study will further explore how Green Supply Chain Integration and digital orientation collectively mediate the relationship between sustainable logistics and sustainable performance in the pharmaceutical industry . This investigation seeks to bridge existing knowledge gaps concerning the practical application of green supply chain management frameworks in the pharmaceutical industry, particularly in enhancing green distribution performance and overall brand equity.

Keywords: Visible Sustainable Logistics, Brand Equity, Perceived Health Alignment, Pharmaceutical Industry

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INTRODUCTION

Transitioning from a volume-driven manufacturing base to a value-oriented innovation leader, the Indian pharmaceutical sector is rapidly solidifying its status as a "Global Innovation Hub" with a heightened focus on high-value segments. Currently recognized as the "Pharmacy of the World," the industry maintains a resilient growth trajectory despite global regulatory headwinds, with the Indian pharmaceutical market projected to expand by 7–9% in FY2026, driven by an 8–10% increase in domestic sales and a 10–12% rise in exports to Europe (ICRA, 2025; Economic Times, 2025). Valued at approximately $53.29 billion in 2025, the market is on track to reach between $120 billion and $130 billion by 2030 (Bain & Co; IBEF, 2025). India currently holds a formidable global standing, ranking 3rd in production volume and 14th by value, while supplying roughly 20% of the world's generic medicines and 60% of global vaccines (EY-Parthenon, 2025; PIB, 2026).

STRATEGIC GROWTH DRIVERS

The 2026 landscape is defined by three major pillars of transformation:

"Biopharma SHAKTI": Launched in the Union Budget 2026-27 with an outlay of ₹10,000 crore ($1.2 billion), this flagship initiative aims to develop India into a global hub for biologics and biosimilars (The Hindu, 2026; PIB, 2026).

Shift to High-Value Innovation: The PRIP Scheme (Promotion of Research and Innovation in Pharma MedTech) is driving investment into complex generics, gene therapy, and specialty medicines (PIB, 2026).

Supply Chain Resilience: The Production Linked Incentive (PLI) Scheme has successfully boosted domestic production of Active Pharmaceutical Ingredients (APIs). In FY2025, India's API exports reached ₹41,500 crore, surpassing imports for the first time in recent years

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(Hindustan Times, 2026; Ministry of Chemicals & Fertilizers, 2026).

Deep diving into the Indian pharmaceutical market (IPM) has reached a critical inflection point where chronic therapies—medications for long-term conditions—have overtaken acute therapies as the primary engine of domestic growth. As of early 2026, the IPM is valued at approximately ₹2.42 lakh crore ($29.1 billion), with chronic segments growing at nearly double the rate of traditional acute medicines (PharmaTrac, 2026).

Market Composition and Growth (2025–2026)
The 2025–2026 market composition reflects a definitive "chronic-heavy" transition, propelled by an expanding middle class and an aging demographic. While the aggregate market maintains a steady growth rate of 8–10%, specialized chronic segments are demonstrating significant double-digit momentum. Cardiac therapies currently lead the sector, representing 14% of the total market value and posting a sharp 13.2% increase in January 2026 alone (Biospectrum India, 2026). Simultaneously, the anti-diabetic segment—serving a population of 101 million confirmed patients—is expanding by 10–11%, further catalyzed by a dramatic 60–70% surge in advanced GLP-1 agonists like tirzepatide as medical priorities shift toward integrated obesity management (Pharmarack, 2026; Medical Dialogues, 2026). Looking toward 2031, the oncology and specialty sectors are poised to become the fastest-growing niches, currently maintaining a 12–13% expansion rate driven by the enhanced accessibility of cost-effective biosimilars (Mordor Intelligence, 2026).

Prevalence of Chronic Diseases in India
The escalating growth in the Indian pharmaceutical market is a direct response to the mounting burden of Non-Communicable Diseases (NCDs), which currently account for over 60% of all fatalities in the country (WHO; Heart Health India, 2026). The clinical landscape is dominated by hypertension, affecting approximately 315 million adults and ensuring a steady, long-term prescription volume, alongside a critical diabetes crisis involving 101 million confirmed patients and 136 million pre-diabetics (WHO; Heart Health India, 2026). This shift toward high-value combination therapies is mirrored in the cardiovascular segment, which now manages 64 million cases characterized by increasingly early diagnoses in the 30-50 age demographic. Furthermore, chronic respiratory conditions such as Asthma and COPD affect roughly 30 million individuals, driven largely by pollution-linked morbidity in urban metros, thus cementing the demand for sustained pharmaceutical intervention across these chronic therapeutic categories (WHO; Heart Health India, 2026).

Chronic Diseases & E- Phrama Growth in India
The evolution of e-pharmacies has fundamentally restructured the management of chronic diseases, transitioning the industry from traditional transactional dispensing toward integrated, patient-centric digital health ecosystems. By 2026, the global e-pharmacy market is forecasted to attain a valuation of $161.08 billion, a growth trajectory primarily propelled by the consistent, long-term requirements of patients managing hypertension, cardiovascular diseases, and diabetes (Research and Markets, 2026). The following analysis provides a comprehensive examination of the sector's primary drivers, the integration of advanced technologies, and the resulting clinical impact, all of which are substantiated by contemporary research (Research and Markets, 2026).

Market Dynamics & Growth Drivers
The retail pharmacy landscape in India is currently defined by a "hybrid" growth model. While traditional brick-and-mortar pharmacies still command the majority of the market share, e-pharmacies are growing at a significantly faster rate, driven by digital penetration and the rising burden of chronic diseases.

Traditional pharmacies remain the backbone of the Indian healthcare system, especially for acute emergency needs and rural access, maintaining a "brick-and-mortar stronghold" that accounts for approximately 88–90% of the Indian Pharmaceutical Market (IPM) as of 2026. This market dominance is fueled by the aggressive expansion of organized pharmacy chains, such as Apollo Pharmacy and MedPlus, into Tier-2 and Tier-3 cities; these chains are currently growing at a CAGR of 12–15%, significantly outperforming independent "mom-and-pop" chemists. Beyond mere proximity, these outlets thrive on a critical "trust factor," as the physical presence of a pharmacist provides Indian consumers with a vital "safety net" for immediate consultation and the essential verification of high-value medications.E-Pharmacy Growth (The Digital Disruptors)

E-pharmacies have transitioned from "discount platforms" to "integrated health hubs," focusing on chronic medication management and convenience.

Accelerated Growth Rate: The e-pharmacy sector is growing at a CAGR of 20–22%, nearly double that of the overall pharmaceutical market.

Market Value: From a modest base, the Indian e-pharmacy market is projected to reach $14.08 billion by 2034 (IMARC Group, 2026). Hyper-local Delivery: The rise of "Quick Commerce" (delivery within 10–30 minutes) has narrowed the gap between traditional and online services. Platforms like Tata 1mg, Netmeds, and PharmEasy are increasingly using Electric Vehicle (EV) fleets to optimize last-mile delivery costs and improve brand sustainability. The e-pharmacy sector is growing at a CAGR of approximately 23% (2025–2026). In India specifically, the market is expected to reach $14.08 billion by 2034 (IMARC Group, 2026).

Chronic Disease Burden: Diabetes and cardiovascular disorders accounted for over 31% of e-pharmacy revenue in 2025. The recurring nature of these prescriptions makes them the "anchor" of the e-pharmacy business model (Mordor Intelligence, 2026).

E-PHRAMA GROWTH AND ELECTRIC VEHICLE DELIVERY

In the evolving landscape of e-pharmacy logistics, several leaders are spearheading the transition to sustainable delivery models, such as Credent (C3 Logistics), which operates India's largest dedicated EV healthcare delivery fleet and provides white-labeled electric units that allow major pharma brands to showcase "Zero-Emission" branding. Similarly, Tata 1mg has aggressively integrated EV scooters into its "Quick-Commerce" arm, with nearly 45% of last-mile deliveries in urban hubs like Delhi-NCR now performed by EVs to bypass daytime commercial vehicle restrictions. This shift is further supported by Apollo 24|7's omnichannel "Phygital" model, which utilizes local pharmacies as micro-fulfillment centers to enable ultra-short delivery distances via electric bicycles and scooters, effectively minimizing energy consumption. As of 2026, major distributors have already achieved 30% progress toward their commitment to 100% EV fleets by 2030, driven largely by the fact that EV fleets demonstrate a 40–50% reduction in total cost of ownership (TCO) over five years compared to traditional diesel vehicles.

Problem Statement

"Despite the pharmaceutical industry's core mission of promoting human health, the traditional 'last-mile' delivery infrastructure remains a significant contributor to urban environmental degradation, creating a strategic paradox between Corporate Purpose and Operational Practice. While global drug retailers are increasingly adopting Electric Vehicles (EVs) to mitigate this impact, it remains unclear how these 'Green' logistical signals influence Brand Sustainability Perception and Brand Equity within the highly sensitive drug retail stream.

While existing literature extensively explores the operational efficiency gained through Visible Sustainable Logistics (VSL), there is a critical need for deeper inquiry into its role as a signal-based marketing mechanism. Under-utilizing green logistics as a strategic communication tool not only impedes environmental progress but also represents a significant failure to capitalize on opportunities for building consumer trust and brand legitimacy. In an increasingly eco-conscious marketplace, neglecting the "signaling" power of sustainable delivery can ultimately erode long-term competitive advantage.

RESEARCH OBJECTIVES

To analyze conceptually the influence of Visible Sustainable Logistics (VSL) on consumer perception within the pharmaceutical retail stream, specifically focusing on "green signaling"

To examine the relationship between VSL and Perceived Health Alignment (PHA) through literature, determining if sustainable delivery acts as a credible signal that reinforces the "healing" mission of pharmaceutical brands.

To evaluate the impact of Perceived Health Alignment (PHA) through existing literature on dimensions of Brand Equity

To determine if the "Greenness" of the delivery vehicle can be leveraged as a marketing tool to enhance brand equity in the drug retail stream.

Literature Review - The Green Vehicle Visible Sustainable Logistics

Green logistics, broadly defined, focuses on transforming supply chains into sustainable ecosystems by integrating eco-friendly transportation, energy-efficient warehousing, sustainable packaging, and advanced inventory management systems. This approach aims to reduce carbon footprints and mitigate climate change impacts, which is vital given the logistics sector's significant contribution to global greenhouse gas emissions. Challenges in adopting green logistics include high initial costs, technological limitations, and regulatory compliance (Nagy and Szentesi, 2024). Specifically, green transportation strategies include fuel efficiency improvements, use of alternative fuels, and adoption of propulsion technologies that reduce environmental impact. Techniques such as route optimization, consolidation centers, and last-mile delivery strategies are crucial to minimizing inefficiencies and maximizing resource utilization in logistics networks (Muchenje, 2024). The latter is particularly relevant for pharmaceutical logistics, where timely and traceable delivery is critical.

Research on green vehicle adoption in urban and last-mile logistics underlines that despite rising environmental concerns and public authority incentives, the uptake of green vehicles remains limited. Green vehicles are found competitive in delivery scenarios characterized by frequent stops and low consolidation levels, common features in pharmaceutical distribution. Autonomous green vehicles are emerging as promising yet challenging solutions for last-mile logistics, offering potential visibility and traceability advantages crucial for pharmaceutical products (Patella et al., 2020).

In pharmaceutical logistics, visibility is essential to ensure product integrity and safety. The incorporation of supply chain traceability alongside green logistics practices amplifies sustainability performance and social responsibility while maintaining business effectiveness. Studies indicate that green logistics management practices (GLMPs), combined with supply chain traceability, substantially improve environmental and social sustainability outcomes without necessarily compromising business performance (Agyabeng-Mensah et al., 2020; Zhou et al., 2023). Furthermore, supply chain pressures—both internal and external—drive logistics firms toward adopting sustainable logistics practices. When supported by green strategic alliances and a strong corporate green culture, firms can effectively respond to sustainability challenges. This dynamic is applicable to pharmaceutical companies seeking to enhance their supply chain sustainability by integrating green vehicles with visible

logistics systems, ensuring compliance with environmental and health regulations while maintaining operational efficiency (Tetteh et al., 2025).

In summary, the literature highlights that green vehicle visible sustainable logistics in the pharmaceutical industry involves adopting eco-friendly transportation methods enhanced by supply chain visibility and traceability, driven by regulatory, environmental, and market pressures. Strategic alliances and corporate green culture further facilitate these practices, resulting in improved sustainability performance, resilience, and competitiveness within the pharmaceutical supply chain (Nagy and Szentesi, 2024; Patella et al., 2020; Tetteh et al., 2025).

The effectively trigger the Stimulus (S) variable , companies must focus on three design layers: Physical, Digital, and Social.

Physical Design: "The Healing Fleet"
To strengthen visual branding, pharmaceutical companies are increasingly adopting high-contrast "Green Signaling" on vehicles, utilizing labels like "Zero-Emission Delivery" or "Carbon Neutral Med-Move" in calming "Healing Palettes" such as Seafoam Green, Teal, or Sky Blue rather than aggressive industrial reds or oranges. This design execution—exemplified by e-pharmacy delivery bikes from players like Apollo or Netmeds featuring "Pure Meds, Pure Air" wraps in clean, sans-serif typography—leverages colors neurologically associated with hygiene, calmness, and health to directly reinforce Perceived Health Alignment (PHA). Furthermore, the integration of "Silent Delivery Technology" allows companies to market the absence of noise inherent in Electric Vehicles (EVs); by designating these as "Silent Care Fleets," brands can turn EV silence into a branded feature that aligns with hospital "Silence Zones" and residential rest, addressing the fact that noise is a major stressor in urban India while further reinforcing their core healing mission.

By attaching discrete stickers that read "Silent Delivery for a Restful Neighborhood" and training drivers to utilize an EV's natural silence by avoiding honking during "rest hours," brands can position themselves as empathetic to the patient's environment, signaling a genuine concern for sleep and recovery rather than just the transaction. This focus on empathy is further bolstered by enhancing product integrity visibility through the use of clear, LED-equipped cold-chain boxes mounted on EVs that visualize the "invisible quality" of medicine via green technology. In practice, a visible digital strip on the side of the delivery box that glows green and displays real-time internal temperature data, such as "Stored at: 4°C," creates a high-trust signal; this demonstrates to the patient that the "Green Vehicle" is not only an eco-friendly choice but also a superior technological tool dedicated to maintaining the biological integrity of their life-saving medication.Digital Design: "The Eco-Dashboard" To maximize the impact of the "Eco-Dashboard," pharmaceutical companies must transform their digital interfaces into a real-time storytelling platform. This moves the "Green" effort from a hidden operational choice to a visible value proposition that strengthens the patient's bond with the brand.

App Integration: When a patient tracks their order, the UI should show an EV icon instead of a standard bike.

The proposed strategic digital and physical implementations for pharmaceutical delivery shift the brand narrative from a simple logistical transaction to a holistic "public health stewardship." By utilizing a **"Green-Tracking" UI**, companies can leverage high-engagement wait times to visually reinforce sustainability through pulsing EV icons and vibrant "zero-emission trails" on the tracking map. This digital experience is deepened by post-delivery summaries that quantify the positive impact on local air quality and noise pollution, alongside **"Green Route" toggles** that incentivize efficient delivery windows with "Green Health Points." This approach not only builds behavioral loyalty but also provides patients with a psychological sense of accomplishment, aligning their personal health needs with the environmental health of their community.

To bridge the gap between digital signaling and physical reality, the **"Neighborhood Steward"** concept transforms delivery personnel and infrastructure into visible symbols of care. By outfitting couriers in circular-textile "Green Ambassador" uniforms and utilizing approachable color palettes like Sage Green, the brand humanizes the supply chain as a healthcare facilitator rather than a mere courier service. This is further localized through the deployment of **solar-powered "Pharma-Lockers"** and community hubs in areas like Puducherry, which minimize the carbon-per-patient footprint. These physical touchpoints, combined with social incentives for walking to collection hubs, solidify the brand's role as a "Custodian of Public Health," demonstrating a tangible commitment to urban planning and sustainable community living.

Perceived Health Alignment (PHA)
Perceived Health Alignment (PHA) towards green vehicle visible sustainable logistics in the pharmaceutical sector can be understood as the degree to which stakeholders perceive that green logistics practices—including the use of eco-friendly vehicles—align with health and safety priorities within pharmaceutical supply chains. The pharmaceutical sector, given its critical role in public health, demands stringent logistics practices ensuring not only product integrity but also environmental responsibility to reduce adverse health impacts from pollution and emissions.

Green logistics practices emphasize sustainable transportation solutions that mitigate environmental damage while preserving supply chain efficiency. These include the adoption of green vehicles powered by alternative fuels, route optimization, and the integration of sustainable packaging and warehousing, all aimed at reducing carbon footprints and enhancing overall sustainability in delivery systems (Muchenje, 2024; Nagy and Szentesi, 2024). Such practices directly contribute to PHA by reducing pollutants that could affect community

and worker health, which is particularly important in pharmaceuticals where product contamination or supply disruptions may have severe health consequences.

The implementation of green vehicle visible sustainable logistics in pharma supply chains is also linked with corporate green culture and strategic alliances, which enhance stakeholder alignment towards environmental goals. Green strategic alliances foster collaborative efforts across supply chains to adopt eco-friendly technologies, while a robust green culture within organizations shapes positive perceptions of sustainability initiatives enhancing healthcare outcomes indirectly by minimizing the environmental impact of pharmaceutical logistics (Tetteh et al., 2025).

Moreover, sustainability in logistics translates to improved supply chain resilience, an essential factor for the pharmaceutical sector vulnerable to disruptions. Green logistics contributes not only by reducing environmental harm but also by optimizing operational efficiency and cost-effectiveness, yielding long-term benefits that reinforce health and safety priorities through more reliable delivery of medicines (Gupta, 2024).

Empirical evidence underscores that green supply chain management (GSCM) practices, including those focused on reverse logistics and eco-design of transportation systems, positively impact sustainability performance in manufacturing-heavy sectors. For pharmaceutical logistics, this signifies incorporating vehicle fleets that minimize emissions and visible sustainable practices that resonate with health-conscious consumers and regulators, thereby improving organizational legitimacy and public trust (Rasit et al., 2019).

In conclusion, Perceived Health Alignment in the pharmaceutical sector regarding green vehicle visible sustainable logistics emerges from the sector's ability to integrate green transportation practices that reduce environmental pollutants, foster supply chain resilience, and resonate with a corporate culture oriented toward sustainability. This alignment not only meets regulatory and stakeholder demands but also supports the overarching goal of safeguarding public health through environmentally responsible logistics management (Tetteh et al., 2025; Gupta, 2024; Rasit et al., 2019).

Enriching Perceived Health Alignment (PHA)

To turn Visible Logistics into Perceived Health Alignment, the design must solve the "Logistics Paradox" (where a health-giving product is delivered by a pollution-causing vehicle).

Design Element	Psychological Trigger	Marketing Outcome (Equity)
EV Aesthetics	**Innovation Perception**	Brand is seen as a "Forward-Thinking Leader."
Silent Operation	**Empathy Perception**	Brand cares about patient rest and urban peace.
"Zero-Emission" Labels	**Integrity Perception**	Brand mission (healing) is authentic and consistent.
CO2 Savings Alerts	**Co-Creation Perception**	Patient feels like a "Partner in Sustainability."

Strategic Design of PHA: The "Consistency" Framework

To build equity, the patient must perceive **Cognitive Consistency**. If a brand claims to "save lives" but uses noisy, polluting vehicles that trigger respiratory issues or stress in the community, PHA is weakened.

A. Sensory Design (The Stimulus)

- **Acoustic Branding:** Traditional delivery bikes create high-frequency noise pollution. By switching to EVs, a company can market **"Silent Delivery"** as a feature of their care. This aligns with the "rest and recovery" phase of healing.
- **Visual Purity:** The vehicle and packaging should use a "Clean Aesthetic." In Puducherry, where dust and pollution are urban concerns, a pristine, white/green electric fleet serves as a visual proxy for the sterile and safe environment of a laboratory.

B. Digital Reassurance (The Information)

- **The "Carbon-Neutral Receipt":** Digital invoices should quantify the health benefit of the delivery method (e.g., *"By choosing this delivery, you prevented X grams of NOx emissions in your neighborhood"*).
- **Transparency Loops:** Use QR codes on medicine strips that allow patients to see the "Green Journey" of that specific batch, reinforcing that the product was handled sustainably from warehouse to doorstep.

Enhanced Brand Equity

Enhanced brand equity within the pharmaceutical sector is closely linked to perceived health alignment (PHA), which signifies the degree to which a pharmaceutical brand aligns with consumer health expectations and values. The literature highlights several key factors influencing brand equity in healthcare and pharmaceutical contexts, with perceived quality, brand loyalty, and brand image being core components of service brand equity (Chahal and Bala, 2012).

Studies show that perceived quality significantly impacts brand equity by enhancing consumer trust and satisfaction, which are critical in healthcare where product efficacy and safety are paramount (Chahal and Bala, 2012). This higher perceived quality often leads to increased brand loyalty, a vital element that directly supports service brand equity, especially in pharma where repeat prescriptions and patient adherence play critical roles (Chahal and Bala, 2012). Brand image further strengthens brand equity indirectly by cultivating loyalty among consumers who associate positive health outcomes and ethical values with the pharmaceutical brand (Chahal and Bala, 2012). In

addition, social media marketing (SMM) and value co-creation by healthcare providers, including doctors and pharmacists, have emerged as new drivers of brand equity in pharma. SMM facilitates consumer engagement and enhances perceived value, which in turn builds stronger brand equity and influences purchase intentions of healthcare products (Assis and Vilela, 2024). This reflects a shift toward more interactive, patient-centered brand strategies that align well with perceived health values and expectations.

Ethicality and innovation in branding also play a moderating role in enhancing brand equity. Pharmaceutical brands perceived as ethical and innovative tend to foster more favorable brand attitudes, leading to improved brand equity outcomes (Yang and Wang, 2024). This alignment with ethical health practices further reinforces consumer trust and loyalty, which are essential in healthcare markets dominated by risk-sensitive consumers. Moreover, perceived product value influences customer-based brand equity through mediators such as brand resonance and affective commitment. For pharmaceutical brands, emphasizing the health benefits and value of products enhances consumer commitment and thus strengthens overall brand equity (Qiao et al., 2022). This linkage underscores the importance of clear communication about the health benefits and efficacy of pharmaceutical products to align with consumer health perceptions.

The dimensions of brand equity—brand association, brand loyalty, perceived quality, and brand image—mediate the strength of brand equity in healthcare. These dimensions are intertwined in shaping consumer decision-making especially when consumers evaluate pharmaceutical brands based on trust, reliability, and alignment with health improvement goals (Severi and Ling, 2013).

Overall, the literature underscores that in the pharmaceutical sector, enhanced brand equity with perceived health alignment is achieved through a combination of perceived product quality, strong brand loyalty, ethical branding, innovative communication strategies (including social media marketing), and clear value proposition regarding health benefits. These components collectively build a robust brand equity that aligns strategically with consumer health expectations, promoting consumer trust and influencing purchase behavior in the pharma sector (Chahal and Bala, 2012; Assis and Vilela, 2024; Yang and Wang, 2024; Qiao et al., 2022; Severi and Ling, 2013).

Designing **Perceived Health Alignment (PHA)** requires pharmaceutical companies to synchronize their operational "actions" with their clinical "promises." In the context of your research, PHA acts as the psychological bridge where the consumer validates that the company's business practices are as healthy as the medicines they sell.

To enhance **Brand Equity** through PHA, pharma companies must move beyond generic CSR and integrate "Green" and "Health" signals into the customer's immediate sensory experience.

By successfully designing for PHA, companies trigger three specific dimensions of **Brand Equity**:

Brand Equity Dimension	Design Strategy for PHA	Impact on the Patient
Brand Trust	Consistent "Health-First" operations (e.g., Green Logistics).	"They practice what they preach about health."
Brand Affect (Feeling)	Reduction of "Pollution Guilt" during the delivery of chronic meds.	"I feel good about using this service monthly."
Brand Resonance	Shared values regarding the environment and community health.	"This pharmacy represents my personal values."

.SUMMARY OF THE PATH

Visible Sustainable Logistics (Stimulus) → Perceived Health Alignment (Organism) → Brand Equity (Response)

Visible sustainable logistics as a stimulus plays a crucial role in shaping the organism factor—perceived health alignment—by creating a delivery experience that matches the product's nature, such as medicine being "clean." This design eliminates the contradiction of a "healing brand that pollutes," which can cause cognitive dissonance in consumers. When customers perceive that the logistics and delivery of health-related products align with the brand's health-focused values, they experience greater trust and reassurance about the product's overall health impact. This perceived health alignment strengthens the brand equity response by cultivating deep-seated consumer loyalty, as customers increasingly value sustainability practices that reinforce the brand's promise and ethical stance. Sustainable supply chain and logistics management have been shown to enhance organizational and brand performance by building competitive advantage and positively influencing brand equity through consumer perceptions of quality and sustainability (Baah and Jin, 2019; Salinas and Abril, 2025; Lee et al., 2024). In the medical and pharmaceutical sectors, integrating green logistics within supply chain management not only addresses environmental stewardship but also enhances the brand's image as health-conscious and socially responsible, ultimately driving customer loyalty and brand value (Abaku and Odimarha, 2024). Therefore, designing visible sustainable logistics in alignment with health-related brand values serves as both a practical and

symbolic strategy that strengthens the brand-consumer relationship and fosters durable brand equity.

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